Winter 2006

W.A.S. Journal

The Journal of the Western Apicultural Society of North America

WAS website: *http://beekeeper.dbs.umt.edu/WAS/*

Message from the President

Greetings from Santa Barbara. Tentative plans for the 2006 W.A.S. conference in Buellton, California during the last week of July (24th-27th) proceed pretty much on schedule, with some exciting events and speakers already lined up.

Is it conceivable that any W.A.S. member would not want to come to the Santa Barbara area for our conference? Whereas Santa Barbara itself might be too expensive, we have managed to put together a relatively inexpensive conference package at a nearby location that will permit attendees to enjoy "the Last Jewel of Southern California" as I envision our environs -- without taking out a loan.

In the fall edition of the W.A.S. Journal, I briefly extolled the virtues of the Santa Ynez Valley location for the conference. You can order a 44-page 2006 free visitors guide for our region (one that will be sent to you by mail) by accessing the website: www.syvva.com/html/contactus.php. That region now has more than five-dozen wineries, some of which have become quite renowned (if you are interested in that topic). For more information, check out: www.californiacoastalwines.com/regions/sanbarbara/index.cfm?action=default&CFID=4117355&CFTOKEN=36295564

Although Buellton is not in Santa Barbara, it is remarkably close to that city in this day and age (45 minutes away on an un-congested portion of the US 101 freeway). By staying in Buellton, one can afford the Santa Barbara experience without paying high prices for lodging there. For information about what to do in that city (very often with experiences that have no charge), open: www.santabarbara.com/community/visitors_center/things_to_do/. The information in that web site is, as might be expected, somewhat overwhelming but doesn't include the fact that the first 75 minutes of parking is free -- both on the street and in the parking lots.

W.A.S. members might especially appreciate the Santa Barbara Botanic Garden, which focuses exclusively on native California plants, as well as the Santa Barbara Museum of Natural History. Both exist without government funding and are well worth a visit.

The real gem for me is the Santa Barbara Museum of Natural History. A colleague of mine (former head of the Natural History Museum in Amsterdam) considered it the best natural history museum west of the Mississippi River. Located just behind the "Queen of the Missions" in Santa Barbara, it has one of the largest mollusk collections in the world and an active educational program for people of all ages. As you park in the museum lot, you will see the mounted skeleton of a blue whale.

Recently the museum opened the Ty Warner Sea Center on the Santa Barbara wharf, a fabulous interactive facility for education about the Santa Barbara Channel and marine biology in general. Everyone I have met who has visited the museum has registered astonishment about what is available there. Just contact: www.sbnature.org/ for more information.

Accommodations in Buellton

Adjacent to Pea Soup Andersen's Restaurant we have made arrangements for stays at a Best Western motel (still with the name of Pea Soup Andersen's Inn, though no longer affiliated with the restaurant). Rooms will be only $79 per night if you specify that you are a part of the W.A.S. conference. Look for specifics in the next edition of the W.A.S. Journal.

Western Apicultural Society of North America

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Speakers

We already have several speakers confirmed. Tentative titles include: "Native bees in the West," "Introduction of the European honey bee to Pakistan," "Living with Africanized honey bees for decades," "Almond pollination -- past, present and future," "Australian vs California bees in almond pollination," "Brood pheromone effects on foraging behavior and colony growth," "Odor and honey bee exploitation of food crops," "Twenty virgins a day; How I keep up," "Genetic diversity in commercial queens," and "Formic acid use in the USA."

Other speakers and topics under negotiation include: Small hive beetles, Selection of varroa resistant bee strains, etc. A few time slots remain available; don't hesitate to give me suggestions.

Optional Barbecue

The barbecue this year will occur at the end of the first full day of talks and be held at one of the University of California's three-dozen Natural Reserves. The pristine 6000-acre Sedgwick Ranch Reserve sits at the base of Figueroa Mountain and provides a window into early California ranching practices. You can gain an appreciation of that locality by opening: www.nrs.ucop.edu/Sedgwick.

The manager and staff of the reserve will prepare the barbecue for us at an affordable cost; their efforts will spare us running about to round up supplies, etc. I can also guarantee that we will have no rain. Before the event, I will control the yellow jacket wasp problem and provide instructions on how that can be done in your home areas. Given time, I will set up a demonstration of how to train bees to visit feeding stations. Also, you will have an opportunity to see an experimental 20-acre organic farm being developed on the reserve.

Santa Ynez Valley Tour

If all goes well, we will have an optional Santa Ynez Valley tour for the free afternoon midway through the conference. That will include perhaps a visit to an ostrich farm, a working ranch, travel to the top of mile-high Figueroa Mountain to view the vast back country, and even stop at a couple of wineries for some wine tasting. (Unfortunately, apparently none of the several dozen wineries in the area produce mead.)

Some conference participants might take the free afternoon to explore nearby Solvang and Santa Ynez, where Lance Armstrong practices with his crew. For more information, check out: http://www.solvangusa.com/

Banquet/Dinner

Pea Soup Andersen's Restaurant, the location of our conference, has excellent meals at affordable prices. They will also cater a dinner in our conference center on the last evening of the conference, again at a reasonable price. Further details follow. You can open the following web site to gain some appreciation of the setting at that restaurant: www.peasoupandersens.net/catering.shtml

Optional post conference tour

The Santa Barbara Channel is one of the very best places on Earth for whale watching tours. In July, blue whales frequent that channel (the largest animal ever to live on Earth) -- perhaps the largest concentration of such whales anywhere. As a group, we can get a 20% discount if we have enough people sign up for that event. Again, you will find more details in the next journal account. For detailed information about the whale watching experience, see: www.condorcruises.com/#

PLEASE NOTE: TRADE SHOW SPACE IS AVAILABLE. PLEASE CONTACT DR. WENNER (INFO ON PAGE 2). ALSO, PLEASE PHOTOCOPY CONFERENCE INFORMATION AND DISTRIBUTE TO ANYONE WHO MAY BE INTERESTED. OUR ABILITY TO CONTINUE PROVIDING THESE EXCELLENT CONFERENCES DEPENDS ON A GOOD ATTENDANCE.

Notes From the Desk of Jim Bach .....

Importing NZ and Australia queens and packages

At a beekeeper's request, I recently checked into the legality and process of importing bees from Canada, New Zealand and Australia. NZ and Au packaged bees can t be imported through or from Canada. Australia and New Zealand queens and packages must arrive in the US by direct flight through Honolulu Hawaii and accompanied by an export certificate from their federal inspection agencies dated no more than 10 days prior to shipping.

Only queens and packaged bees produced from Canadian queen mothers can be imported into the US. Canadian queens and packages must be accompanied by an export certificate dated no more than 10 days prior to shipping and declaring the bees to be of Canadian origin from parental livestock produced in Canada. Whole hives are not allowed, only packages of bees or queens with attendant workers.

If you re interested in NZ or Aussie packaged bees it would be best to purchase from another beekeeper that has imported them rather than to attempt to set up your own order of a few packages with the foreign breeder.

In the latest issues of ABJ and Bee Culture I found ads for Australian queens from the following:

• B Weaver Apiaries, Navasota TX 936 825 7312, info@beeweaver.com. The price for 50 to 249 is $16.00, April to June.

• Denmar Apiaries in Australia - +61 741 686233 or email: denmarapiaries@bigpond.com.au . No price was provided.

At a recent meeting of the Washington State Beekeepers Association Executive Board, Eric Olson, VP, mentioned that the airlines do not like to take more than two pallets of bees in a load. Several shipments got cooked that resulted in total loss! That's expensive. Eric quotes $100 for a 3 lb. and $120 for a 4 lb. package in northern California.

Eric bought 100 packages to see how they do. He experienced a loss of eight queens and eight more later turned drone layers = 16 % loss. That means he paid $142.85 each for surviving packages.

Notes from the WSBA Executive Board Meeting

Bee colony losses continue in Washington. An Olympia beekeeper that usually has 250 colonies bought 150 packages. His actual losses are unknown.

VP Eric Olson says that there was no fall collapse of colonies as in 2005, but there are a lot of poor quality colonies from all over the US. One outfit of 1500 colonies averaged only three frames of bees in early February. There are reports that colonies are collapsing in the almond groves. Between 25 and 50 thousand packages have been imported from Australia.

It is reported that the almond grower organization is pushing to open the Canadian border so they can use Canadian colonies for pollination. The American Beekeeping Federation and American Honey Producers want the Canadian border open so they can ship hives in both directions. The Canadians don't want US hives in Canada.

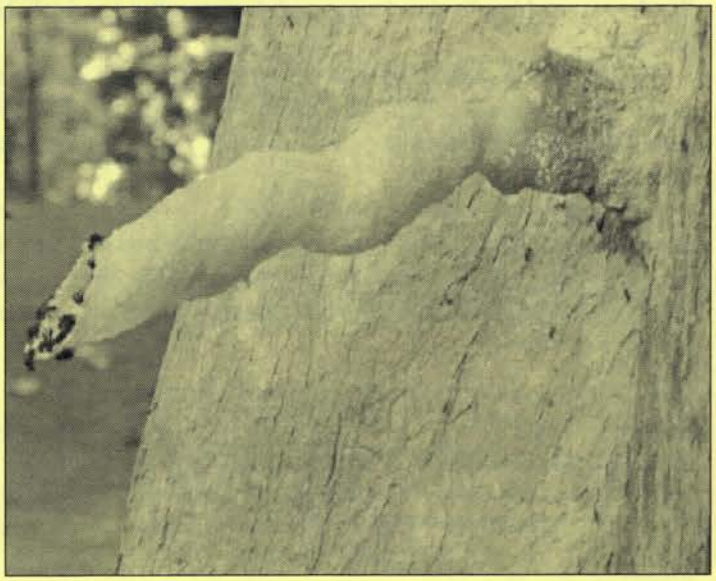
The three largest northwest Washington beekeepers had high losses this winter and had to pull out of California almond pollination. A report from Vancouver WA indicates 80% losses. A statement was made that queen quality was horrible in 2005 across the US.

A knowledgeable and well-connected beekeeper in Yakima reports 30% losses in 2004, 40% in 2005 with others experiencing losses of 26% or more. Some queens are not laying as early as they have in the past with moderate and weak colonies not doing well. One beekeeper treated late last fall with formic acid but the colonies still didn't do well. Another says old bees are not wintering well, necessitating feeding of pollen supplement in December and January to raise young bees for almond pollination. Some beekeepers from the east are selling their hives in California because they can't afford to haul them back home. The implication is that their colonies were weak enough that they couldn't get sufficient pollination prices to pay the high fuel bills.

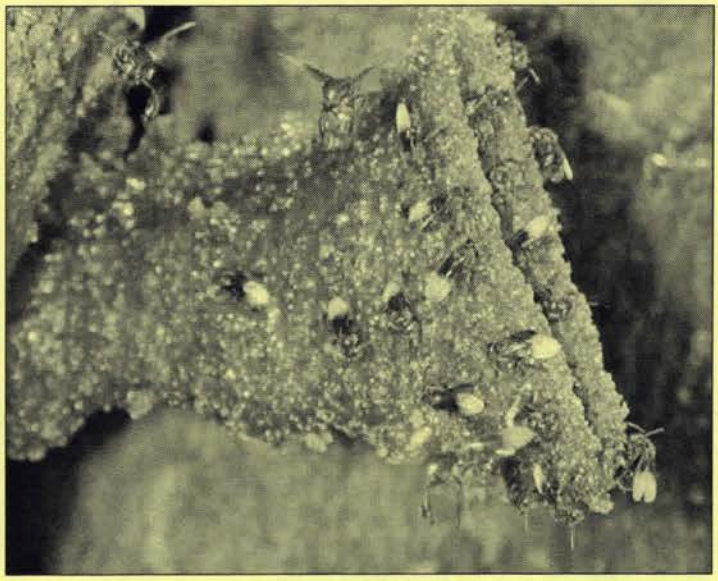
The causes of these losses remain as I have enumerated them in the past: Varroa mites, tracheal mites, mite loads allowed to get above the economic and damage thresholds, miticides applied too late in the fall causing damage to the colony and ineffective treatments, queen quality problems, miticides affecting colony behavior and the pheromonal environment, low miticide dosage rates used for economic reasons, and nutrition quality, amount and timing.

Stingless Bees of Asia

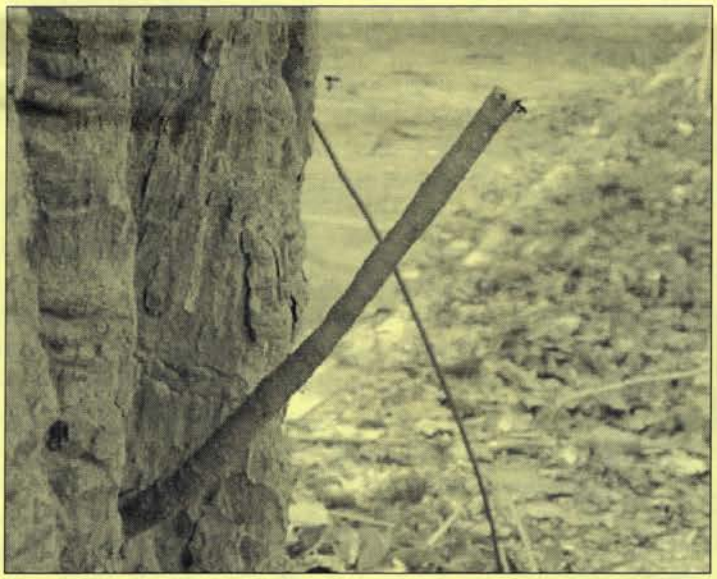
By Dr. Michael Burgett, Corvallis OR.



Trigona melanoleuca. This species, with a readily identifiable nest tube entrance, is relatively uncommon in northern Thailand. The distinct nest entrance is very brittle and always light in color. The nest entrance structural form is unique for each species of stingless bee and is therefore an obvious character for identifying the individual species.



Trigona apicalis. This species, as with the majority found in Thailand, is a cavity nester. The flattened dark nature of this entrance readily identifies it as T. apicalis. This species frequently uses teak tree cavities as nest sites. It is also unique in that it uses aerial (flying) guard bees, which hover around the nest entrance normally facing towards the nest opening.



Trigona collina. One of the most common species encountered in northern Thailand and the only stingless bee species that truly nests underground, but most often associated with tree boles. This photograph was taken on the Chiang Mai University campus and the "host" tree is the sacred Buddha tree (Ficus religiosa). Long and slender nest entrance tubes characterize this species of stingless bee. This particular host tree has from 20 to 30 individual nests associated with the tree bole.

Trigona terminata. Another cavity nester and this colony is nesting in a tree bole. A "trumpet" shaped nest entrance is the primary characteristic of this stingless bee species.

The Art and Practice of Feeding Honeybees: Feeders

By Dr. Ulf Soehngen, Victoria BC, Reprinted from BeesCene

Summary of Part 1. The types of carbohydrates suitable for feeding honeybees were discussed, and the situations under which honeybee colonies benefit from supplementary feeding were reviewed.

Beet and cane sugar (sucrose) is most often used. This sugar can be fed as a syrup or in solid form (as crystallized white sugar or as "powdered" confectionery sugar.) Other suitable carbohydrates include HFCS (high fructose corn syrup) and enzymatically produced invert sugar. Honey may also be used - as long as it was obtained from disease-free colonies.

Bees are fed to eliminate an immediate food shortage, or to ensure sufficient stores to survive the winter. The feeding of syrup is also used to stimulate brood rearing, to administer medications and to facilitate the successful introduction of a new queen.

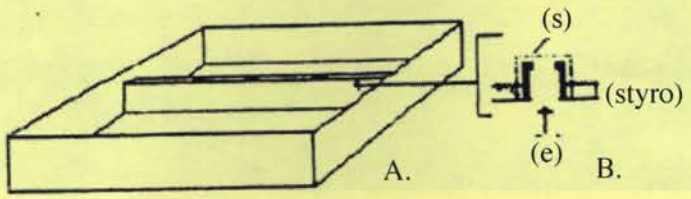
Beekeepers the world over are tinkerers. Consequently, it seems there are almost as many ways to feed bees as there are beekeepers. Only a few of the feeders commonly used in North America will be described here.

Although the household mister or spray bottle is not usually considered a beekeeping tool, it nevertheless finds several practical applications in the craft. Many beekeepers use a spray of cool water to control their bees when working with them in areas where smokers are not permitted, such as the forests of Vancouver island. A cool mist applied to traveling screens will calm colonies confined to their hives during a move to a new location.

A colony or package about to succumb to cold and starvation can sometimes be revived by misting the bees with a warm 50% sugar solution. This should be done, where possible, in a warm, preferably sunny corner of the bee yard or in a dark building (packages can be brought into a warm truck or car cab). Colonies are gently taken apart and the bees on both sides of each comb thoroughly sprayed with the syrup, after which the combs are replaced in the same order. Warm syrup should be offered in a friction top feeder. Under no circumstances should full combs of honey be inserted into a cluster. To do so would split the cluster and destroy all or part of the colony.

Package bees should be sprayed repeatedly until the bees no longer take the syrup quickly. They should be dry and clustered at the top of the package before being subjected again to cool temperatures.

The inner cover is often used to feed dry sugar. A water spray over the sugar will help, not only to induce the bees to feed on it, but will also cake the sugar, forcing the bees to dissolve the crystals instead of carrying them -- untasted -- out of the hive entrance.



The **Miller Feeder** (above) and feeders of similar design essentially consist of a "Dadant" 3/4 depth or a shallow super with a liquid-proof bottom. A transverse slot, usually in the centre but sometimes toward the front of the hive body, provides the entrance (e) to the feeder. A wall about 3/4 the height of the hive body sides, on each side of the slot, divides the feeder into two compartments and a three-sided screen (s) or "cage" over the entryway allows access to the feed but restricts the workers to a small area on each side of the entry, and reduces the number of bees that drown. Where the bees are allowed free access to the entire feeder, floats (styrofoam packing material seems to work well) must be used to prevent large numbers of bees from drowning.

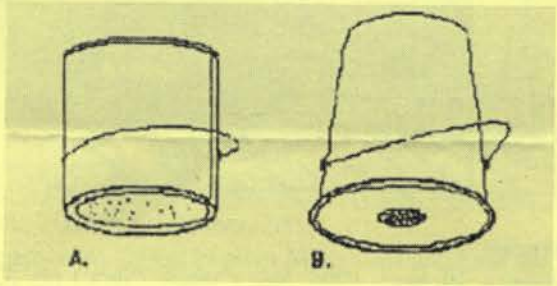
This type of feeder has several advantages over other types. It may hold up to 20 litres, requiring fewer feeding trips to the outyards. It can be serviced with minimum disturbance to the colony, and it can be "stored" on the colony year round, serving to hold top insulation during the winter.

However, this feeder is most suited for strong colonies, and during the active season when individual bees can freely leave the cluster without risk of chilling. Some beekeepers may find the need to remove the feeder each time they wish to open the colony a nuisance and may prefer to store them elsewhere when they are not needed.

As with all feeders, care must be taken to avoid leakage of syrup from the feeder, to avoid attracting robbing bees and other insects, as wasps and ants.

The **friction top pail**, or atmospheric pressure feeder (next page) goes by many names. This feeder consists of a jar or

bucket of metal (A) or plastic (B) with a "holey" lid. Metal lids normally have a dozen (more or fewer, depending on the rate of flow desired), small holes, while lids of plastic often have a round opening (6-7 cm in diameter) covered with 0.32 mm bronze mesh.



These feeders are inverted over the opening in the inner cover or directly over the top bars of the frames. A partial vacuum forms over the syrup. Air pressure holds the syrup in the containers until the bees take the feed. To reduce the chance of leakage, the feeder must be kept level.

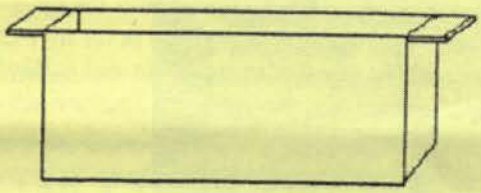
A variant of the friction top pail is the percolation feeder. As described by Dr. Eva Crane, equal weights of sugar and cold water are placed into the pail, doing away with the need to mix the sugar syrup beforehand. When the feeder is placed into position, the sugar settles to the lid. The water percolating through the sugar forms a concentrated syrup which is taken by the bees through the screen. According to Dr. Crane, the bees can take up to 1 kilo of syrup in 24 hours.

Bucket type feeders are usually protected from temperature extremes (and potential leakage) by placing an empty super over them. Some commercial prairie beekeepers, however, prefer to place their plastic buckets over a hole in the hive cover. A slide is used to close the opening when the bees are not being fed. Placing strips of wood or twigs under the feeder will raise the bucket enough to allow the bees to feed on dry sugar on the inner cover at the same time.

The main advantage of using these feeders is that (especially when the syrup is hot) the bees are able to cluster directly below the feeders, making the syrup available to the bees at nearly all environmental temperatures. In addition, they can be removed and refilled without major disturbance to the colony. The syrup level inside is not visible, however, and the feeders must be lifted to determine how much is left.

The bag feeder appears to be another simple, effective method of feeding bees. Plastic bags (1 - 4 litre ziplock bags are preferred) are filled to 2/3 of their volume with syrup. They are then closed and placed on the inner cover. One or several slits are cut into the bag over the air bubble. A shallow super is needed to provide sufficient space for the bags.

The **division board feeder or frame feeder**, below, as its name suggests, is used within the hive, in place of one or two side frames. Originally, this type of feeder consisted of a frame with the lower 3/4 enclosed in a liquid-proof box. Today, one-piece plastic feeders with the same overall dimensions are available from most beekeeping equipment suppliers.



The Western Apicultural Society would like to acknowledge the contributions of Dr. Jerry Bromenshenk and staff at Montana State University in maintaining the WAS website.

All material for the website should be sent to the Journal editor to be prepared and sent on (meaghen@charter.net).

http://beekeeper.dbs.umt.edu/WAS

Frame feeders are normally placed into an upper brood chamber for easier access by the beekeeper. If the colony being fed is weak, the feeder may be placed next to the cluster and shifted over -- one frame at a time -- as the colony grows.

To reduce the chance of bees drowning in the syrup, some beekeepers provide fly screen "ladders" along the sides of the feeder. Others place sticks or narrow boards into the syrup, to serve as floats. Often, however, such floats become waterlogged and float too low to be of value.

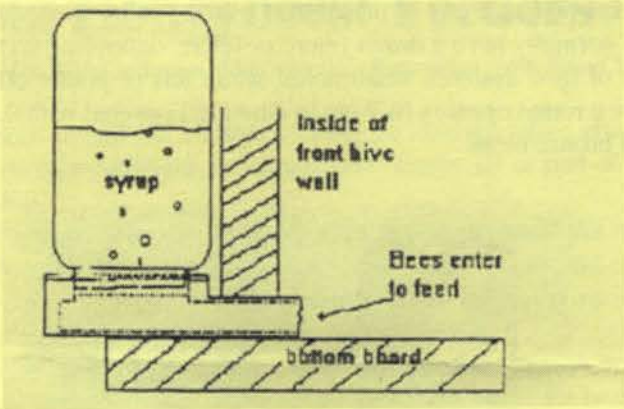
Styrofoam chips, such as the "peanuts", cuplets, or "macaroni" using in packing make highly efficient floats. They ride high in the syrup and when stuck to the sides of an empty feeder, readily pop loose when the feeder is refilled.

Unlike most other feeders, frame feeders become an integral part of the hive and do not need to be removed separately when colonies are being inspected. Beekeepers who are tempted to leave this device in all year may find it filled with comb and honey during the main flow.

Limited volume and the need to open the colony proper for servicing seem to be the major disadvantages of this type of feeder.

The **Boardman feeder** (next column) is the beginner's feeder. It consists of a wooden tunnel inserted into one corner of the hive entrance, which holds a syrup jar with a "holey" lid, like those of friction top pails. It is easy to see when a refill is needed and there is no need to open the colony to refill the jar.

It has limited volume and its position in the hive entrance not only invites robbing by other colonies but makes this feeder useful only during warm weather when the bees are active.



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Welcome to the second in our series of Information Sheets. This time, I thought we might have a look at the venue, Melbourne. For those of you who are in Commonwealth Countries, you will realize that the Commonwealth Games are being held in Melbourne in March this year. When you see some of the great venues on the television, remember Melbourne is the venue for Apimondia 2007 in September, 2007.

There are many things to do in Melbourne and I am sure you will need to set aside some time either side of Apimondia 2007 to see these attractions. Have a look at our website www.apimondia2007.com and go to the "About Melbourne" section.

There is a great range of accommodation, from luxury to backpackers and all types in between. The details will appear on the website at a later date.

From Melbourne, you can go out into the countryside and see beekeepers at work. If you know a beekeeper, line up a visit with them before or after Apimondia. They will give you a friendly Australian welcome and be only too pleased to show you how we keep bees in Australia.

We love our sport here in Australia. It will be too early for those wanting to see some cricket but Australian Rules Football will be in semi-final mode in Melbourne in September. For those who prefer the round ball, there is soccer to see, and remember that Australia has qualified for the World Cup in Germany in June this year so our standard of play is high.

Apimondia 2007 will be an event that lives in your memory long after it finishes. So plan to be there.

Contact Trevor Weatherhead (Organizing Committee) queenbee@gil.com.au

Pacific Northwest Honey Bee Pollination Survey 2005

By Michael Burgett, Professor Emeritus, Department of Horticulture, Oregon State University

Reprinted from the Washington State Beekeepers' newsletter

Since 1986, the Honey Bee Laboratory at Oregon State University has conducted an annual survey of pollination economics in the Pacific Northwest (PNW). The information from each year of the survey has been made available both regionally and nationally. The information has proved to be valuable to individual beekeepers who generate income from pollination rental.

The use of managed honey bee colonies for commercial crop pollination remains the most important function of the PNW beekeeping industry. The vast and diverse agriculture of the PNW relies on a healthy and strong beekeeping industry to maintain optimum production. An enhanced knowledge of pollination economics is critical to every beekeeper that enters into the world of commercial crop pollination. It is also important for those growers who contract honey bee colonies for managed pollination to understand current economic conditions of the beekeeping industry.

The pollination requirement for commercial agriculture in the PNW is enormous. Between Washington, Oregon and Odaho, there are about 355,000 acres of crops grown that require or benefit from managed honey bee pollination. The "farm-gate" value of those combined crops is approximately $1,750,000,999! Nearly half of those acres and 60% of the dollar value is in one crop -- apples.

The USDA National Agriculture Statistical Service estimates that there are 200,000 production honey bee colonies in the PNW. And with these numbers there are some interesting hypothetical calculations that can be made. If all growers were to rent 2 colonies for each acre of blooming crop (355,000 acres) the resulting pollination requirement would utilize 710,000 colony rentals. If we multiply this by the 2005 average colony rental fee ($51.30) it results in a potential pollination rental income of more than 36 million dollars. If we add to that the estimated almond pollination income (ten million dollars) we end up with a gross pollination income of 46 million dollars for PNW commercial beekeepers. Another way to look at this is how much pollination income should be produced from one commercial honey bee colony in one year? That figure is approximately $230.

Comparing the hypothetical PNW rental income (36 million $) to the farm-gate value of the crops pollinated in the PNW (1.75 billion $) shows that the money spent by growers to insure adequate pollination is 2% of the value of total crop production. This is another impressive illustration of what a remarkable value pollination rental is to the commercial agricultural industry of the PNW.

This year's survey provides data that continue to show a number of trends, one of which is the dependence of PNW commercial beekeepers on the income generated from colony rentals. For 2005, the average commercial beekeeper reported receiving 70% of his or her annual operating gross from pollination rentals. This percentage is higher than in previous years. The increase is largely due to the very dramatic increase in the almond pollination rental fee for the 2005 pollinating season. In 2005, almond growers responded to a potential shortage of colonies by dramatically increasing the price they paid for pollination. Many commercial beekeepers in the PNW and elsewhere observed serious autumn and early winter colony losses in 2004. This created a situation where a potential colony shortage was perceived by both beekeepers and almond growers for a crop with more than 550,000 bearing acres. The average almond pollination fee for 2005 was $79.40! This is a 63% increase from the 2004 average ($48.70).

For 2005, the average pollination rental fee, computed from commercial colony rentals on all crops reported (including almonds), was $51.30. This is an increase of almost 33% above the average pollination fee of 2004 ($38.65) (see Tables 1 and 2).

This dramatic escalation is due to the large increase in the average almond pollination rental fee but most crops pollinated

within the PNW also experienced rental fee increases. With the exception of cucumbers, all reported crops saw significant increases in the average pollination fee received in 2005 compared to 2004 prices (see Table 2). Excluding almonds, the average rental increase for PNW crops in 2005 was 23.7%. The average increase for PNW tree fruit pollination was 21.7%. Was this a "shirt-tail" effect from the dramatic almond increase? At this time, it is difficult to say, but should these prices remain stable or even increase in future pollination seasons, it would be safe to say that almond pollination fees have indeed influenced a price increase for the majority of PNW crops.

For a commercial beekeeper, the gross amount of income generated from pollination rental leveled off in 1997 and 1998, but increased in 1999 ($183,780). For 2005, this figure was calculated to be $231,865. The increase results from a trend of increasing the size of individual operations and an increase in per colony pollination income. During the past ten years, the average rental fee has increased form $29.60 (1995) to $51.30 (2005). It needs to be stressed that honey bee colony rental has for many decades been an underpaid service to the agricultural industry. It is really only within the past ten years that rental fees have begun to more accurately reflect the enormous value-added service of managed pollination. This is shown by the 180% increase in the average pollination fee during the last sixteen years; 1990 = $18.40 to 2005 = $51.30.

Within the PNW, tree fruits are the dominant crops for pollination income (see Table 2). In 2005, the combination of pears, sweet cherries and apples accounted for 58% of all reported rentals and 42% of all reported pollination income. Paradoxically, the single most important crop for PNW beekeepers is grown in California, i.e. almonds. Almonds were responsible for 33% of all rentals and 51% of all rental income in the 2005 survey. Almonds consistently have produced a high average pollination fee; for 2005 the average was $79.40. Based on beekeeper reports for contracted pollination for 2005, almond rental prices are expected to remain at a level greatly elevated from the average prices of the previous decade.

In 2005, the combination of California almonds and PNW tree fruit accounted for 91% of all rentals and 93% of pollination income, which illustrates the dominance and importance of these crops for a commercial PNW beekeeper. All other PNW cropping systems that utilize honey bee pollination contributed only 7% of a beekeeper's gross pollination income in 2005.

In 2005, for crops pollinated in the PNW, squash and pumpkin seed provided the highest average fee at $47.10 per colony rental. In terms of acreage, apples are the largest crop grown in the PNW and this is reflected by the large number of reported rentals (58% of all rentals and 42% of the total reported rental income.)

Berry crops (blackberries, raspberries and blueberries) are late spring and early summer bloomers and copious nectar producers (blackberries and raspberries). The 2005 average pollination fee for all berry crops was $30.20, a lower price than the average fee because beekeepers have an expectation that a honey crop will also be produced.

The average PNW commercial honey bee colony was rented 2.2 times in 2005 and this includes California almonds. This is a slight increase from the past several years. This statistic has been dropping since 1999 when the average number of rentals per colony was 2.8. Does this actually reflect the real-world situation? Are commercial beekeepers concentrating on almonds and PNW tree fruit (which historically provide the major sources of pollination income) and reducing the number of colonies involved in minor crop pollination? At this time, our data are not able to provide a reasonable answer to this question.

For the 2005 pollination season, and average rental fee of $51.30, combined with an average of 2.2 pollination sets pre colony, results in an annual per colony pollination income of $112.85, which is up significantly from that of the past few years. With the "average" commercial operation running 2,055 colonies, a hypothetical 2005 gross pollination income for the "average" commercial beekeeper was $231,906.

The combined colony numbers from these commercial beekeepers who responded to the 2005 survey, (23,285 hives) represents about 20% of the USDA's estimate of colony numbers in Oregon and Washington. Therefore, if we multiply the total reported pollination income ($2,684,713) by a factor of 5, we have a ball park estimate of the pollination income generated by commercial beekeeping in the PNW, i.e. a regional pollination income of approximately $13,000,000. This is far more than the normal "estimates" assigned to the beekeeping industry by agricultural economists who, for reasons unexplained, usually do not even include pollination rental income in their estimates of the beekeeping industry economic status. Pollination income in the PNW far exceeds the value of honey and wax sales for our regional beekeeping industry. Pollination rental income is frequently three to four time greater than honey and wax sales in any given year..

The 2005 survey asked commercial beekeepers to report the total number of full-time or part-time employees working for their operations. The figure for the "average" commercial beekeeping operation in 2004 was 2.9 full-time employees; for 2005 it is 3.4 employees. Another interesting way to look at this is to ask the question "what is the 'colony equivalent'". meaning what is the number of colonies necessary to hire one full-time employee? The figure is very close to 1,500 colonies/employee in both the years 2004 and 2005.

While colony income from pollination rental is a critical statistic, so therefore is the annual cost to maintain a healthy hive of honey bees. Responses to this question on the survey have varied widely, often from a misunderstanding of what was being asked. However, numerous commercial beekeeper who have, over the years, maintained good cost accounting records,

have responded with numbers that are very reasonable relative to today's economy. The average annual hive maintenance cost was $117 per colony for the year 2005 (highest reported per colony maintenance cost = $155; lowest = $75). This wide range suggests that beekeepers should try to be more precise in calculating their operational costs. If you can't answer the question of your operating cost on a per colony basis you should seriously re-evaluate your operational strategy.

It is important to recognize that the average colony maintenance cost is higher than the average per colony pollination income. From the 2005 survey, pollination income was $112.85/colony and the colony maintenance cost was $117, a difference of $4.15 per colony. This illustrates that net operational profit is generated by sources of income outside of pollination rental, most importantly, honey production.

Remember that the data presented here represents the pollination rental situation of a hypothetical "average" commercial beekeeper in the Pacific Northwest. For individual beekeepers, the survey results are most useful as benchmarks against which they should compare their individual operations. Please let me stress again that all of these "projections" are only as accurate as the data provided by responding beekeepers. The projections also assume that the participating beekeepers collectively represent the mainstream of commercial beekeeping in the Pacific Northwest. And as a further cautionary note for this 2005 report, total colony numbers (hence number of rentals) reported were only half of those reported in recent years. Fewer larger scale beekeepers in Oregon and Washington participated in the 2005 survey. However, averages generated form a collective 52,000 rentals in 2005 are not insignificant.

I wish to again thank all those beekeepers in Oregon and Washington who took the time to participate in the survey which, over the past 19 years, has generated the most accurate assessment of commercial pollination known in the US.

Summary Information - 2005

Total number of participating commercial beekeepers = **14**
Total number of colonies **in the survey = 23,285**
Total colony rentals = **52,339**
The average per colony pollination fee (for all beekeeperrs, for all crops including California almonds) was: **$51.30**
The average commercial colony was placed in **2.2** pollination sets in 2005, for an average per hive rental income of **$112.85**
The average commercial bee operation maintained 2,055 colonies and grossed **$231,906** in pollination rental income in 2005.

Table 1. Average Pollination Fee 1994 - 2005

1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
28.10	29.60	31.55	31.05	29.65	32.25	32.85	33.65	36.40	36.45	38.65	51.30

Table 2. 2005 average pollination fee by crop as reported by 14 PNW commercial beekeeping operations

Crop	No rentals	Avg fee	Fe +/-[1]	Income ($)
Pears	1,582	$38.40	22.6%	56,912
Cherries	6,254	$37.70	12.0%	235,912
Apples	22,658	$36.90	30.6%	835,314
Berries[2]	634	$30.20	31.8%	19,126
Blueberries	860	$37.35	17.3%	32,128
Cranberries	56	$30.00	25.0%	1,680
Vegetable seed	1,308	$44.90	18.3%	58,712
Clover seed[3]	243	$37.70	15.6%	9,160
Crimson clover seed	86	$24.80	n/a	2,130
Radish seed	123	$33.20	37.7%	4,081
Cucumbers	430	$38.30	(21.9%)	16,470
Squash & pumpkin seed	383	$47.10	48.1%	18,030
Watermelon	60	$42.00	21.6%	2,520
Meadow foam	330	$36.55	n/a	12,060
Misc.[4]	88	$37.45	n/a	3,296
Almonds	17,244	$79.40	63.9%	1,377,182
SUM =	**52,399 rentals generating**			**$2,684,713**
Average pollination fee =		$51.30		

[1] % change from 2004
[2] Includes blackberries, raspberries, Marion berries & Logan berries
[3] Includes red & white clover as grown for seed
[4] Plums & sour cherries

Table 3. Average colony numbers, average rental fee per hive, and average annual rental income per hive for a commercial beekeeping operation in the Pacific Northwest 1992 - 2005.

Year	Average No. Colonies	Average Rental Fee	Average Annual Rental Income per Colony	Year	Average No. Colonies	Average Rental Fee	Average Annual Rental Income per Colony
1992	765	$19.25	$49.70	1999	2,058	$32.25	$89.30
1993	990	$22.50	$62.25	2000	2,055	$32.85	$77.40
1994	1,225	$28.10	$78.70	2001	3,168	$33.65	$64.60
1995	1,348	$29.60	$78.15	2002	4,255	$36.40	$63.75
1996	1,350	$31.55	$97.50	2003	2,612	$36.45	$86.40
1997	1,504	$31.05	$92.20	2004	3,555	$38.65	$74.60
1998	1,153	$29.65	$83.00	**2005**	**2,055**	**$51.30**	**$112.85**

Apiguard Approved for Varroa Control in Washington State

By James C. Bach, WA Dept. of Agriculture (ret.), Selah WA

The Washington State Department of Agriculture registered Apiguard on January 20, 2006 for use on Varroa mites in bee colonies.

In a communication recently, Dr. Steve Sheppard, WSU, issued a warning about using Apiguard (thymol gel in a tray): "Just like Apilife Var, I would suggest caution with thymol based compounds. In Europe thymol has been associated with queen supercedure because thymol causes queens to stop laying. With proper dosing only a temporary break in egg laying occurs, but the bees sometimes decide to replace her. In high dosing the queens do not restart egg laying."

My literature review reveals that Apiguard is a thymol gel in a plastic tray with an adhesive cover that is mostly removed during use in a bee hive. The tray is placed over the center of the brood nest, under the hive cover. Space needs to be provided over the tray for the vapors to be distributed in the hive. One tray is used for two weeks, if empty it is removed and another tray is put in its place. If the first tray still has gel in it, place the second tray along side the first and leave for another two weeks. Remove the trays after a treatment period of 4 weeks, or 4 weeks prior to any surplus honey flow. DO NOT use on hives with honey supers.

As always FOLLOW THE LABEL DIRECTIONS.

Do not use Apiguard in the spring if the bee colony can't be contained in two deep brood boxes (or equivalent in other sizes) during the 4 week treatment period. You can treat swarms, nucs and splits in late April and May when daytime maximum temperatures will always be above 59°F (15°C).

In Guelph Ontario, Heather Mattila and Dr. Gard Otis' study in 1998 shows that treatment with Apiguard for 21 days reduced Varroa populations by an average of 77.5%. When tested again in May of 1999, this time for 30 days, it was 76.2% effective against Varroa in treated colonies compared to 23.5% natural mite drop in control colonies. Honey bee tracheal mites were not significantly effected in 1999 between treated and control colonies.

Apiguard residues in honey in the single story colonies were significant enough to change the taste of honey in 1999 when treatments were left on during the honey flow.

Use in Washington

The best time for the use of Apiguard will be in the spring for swarms, nucs and splits, and in the fall when daytime high temperatures will be above 59°F, after the honey crop is removed from honey production colonies.

Those of you hauling bees to the mountains might want to consider treating your spring splits and moving only them up to the mountains for the fireweed flow. The over-wintered production colonies can be used for the lowland honey flows, the honey harvested in mid August and Apiguard placed in the hives so that it is used during ideal temperatures.

Remember using Apiguard, or any pesticide for mite control, isn't very effective if you allow the mite levels to get above the economic threshold. Treatment of high mite loads will not prevent the colonies from dying in the fall or early winter even if you do have good treatment weather.

Dadant & Sons has an ad for Apiguard on the back cover of the March 2006 American Bee Journal. A search of their website product catalog does not yet show Apiguard for sale. Check with your local bee supplier for its availability in your area.

If you have questions you mail email me at: jcbach@elltel.net.

Canadian Bee Research Fund grants announced

A total of $25,000 was awarded for five research projects to be completed in the current year. Four are renewals of longer term research.

- 2006 Dr. Rob Currie, University of Manitoba, $5,000 - "Integrating Chemical Control and Host Resistance to Increase Treatment Thresholds for Varroa destructor."
- 2006 Dr. Ernesto Guzman, University of Guelph, $5,000 - "Varroa mite resistance to current chemical treatments, alternative control products applied with different delivery methods, and chemical residues in honey."
- 2006 Dr. Steve Pernal, Agriculture Agri-Food Canada, $5,000 - "Management of Honeybee Diseases Using Lysozyme."
- 2006 Albert J Robertson, Saskatchewan Beekeepers Association, $5,000 - "Evaluation of Varroa and Tracheal Mite Tolerance in Selected Honeybee Lines and Attempted Correlation of Tolerance with DNA Markers
- 2006 Medhat Nasr, Alberta Agriculture Food and Rural Development, $5,000 - "Study of Environmental Sources for Antibiotic Residues in Honey"

The Canadian Bee Research Fund (CBRF) was established by the beekeeping industry to support bee research in Canada. More information is available from the Canadian Honey Council, 403-208-7141, chc-ccm@honeycouncil.ca or www.honeycouncil.ca

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Beekeepers' Calendar

MAR. 20 - 24: 8TH ASIAN-AUSTRALIAN APICULTURE CONFERENCE, University Club of WA. Stirling Hwy, Crawlwy, Perth, Western Australia. Info (+61 8) 9386-3282 or honeybee@debretts.com.au

APR. 22: PORTLAND BEEKEEPERS' ASSOCIATION BEE DAY. Info www.orsba.org.

MAY 6: OREGON BEEKEEPERS' ASSOCIATION BEGINNER BEE SCHOOL, OSU Extension Center on Hanley Rd in Central Point. Cost will be $30.00 for individual or $45.00 for family (up to three). $5.00 of each registration fee will be donated to the OSU honeybee research fund. Call Laurie Boyce (541) 846-0133 or Mysti Jacob (541) 582-BEES for more info.

JUNE 10: BEEKEEPERS' FIELD DAY, WSU, Pullman WA. Info Steve Sheppard 509-335-5180 or shepp@wsu.edu.

JUNE 23: FIELD DAY, Research Station, Beaverlodge, Alberta, Canada. Info Steve Pernal 780-354-5135 or pernals@agr.gc.ca

JULY 15: BEEKEEPERS' FIELD DAY, Puyallup. INFO LINDA CAREY 509-448-0417 or secretary@wasba.org.

JULY 24 - 27: WESTERN APICULTURAL SOCIETY ANNUAL CONFERENCE AND AGM, Buellton California. Info Dr. Adrian Wenner 805-963-8508 .

JULY 31 - AUG. 4: EASTERN APICULTURAL SOCIETY CONFERENCE, Young Harris College, Georgia. Info 518. 963.7593, secretary@easternapiculture.org

OCT. 12 - 14: WASHINGTON STATE BEEKEEPERS' ASSOCIATION CONVENTION, Best Western Lakeway Inn, Bellingham WA. Info www.wasba.org

NOV. 3 - 12: ROYAL AGRICULTURAL WINTER FAIR, Exhibition Place, Toronto, Ontario, Canada. Info 416-263-3430 or agriculture@royalfair.org

NOV. 20 - 25: CANADIAN WESTERN AGRIBITION, Exhibition Park, Regina, Saskatchewan, Canada.

JAN. 25 - 26, 2007: BC HONEY PRODUCERS ASSOCIATION CONVENTION, Holiday Inn, Langley, BC, Canada. Info 250-748-8471 or hardiehoney@shaw.ca

JAN. 25 - 28, 2007: CANADIAN ASSOCIATION OF PROFESSIONAL APICULTURISTS ANNUAL MEETING, Holiday Inn, Langley BC Canada. Info RLafrenier@gov.mb.ca

JAN. 25 - 28, 2007: CANADIAN HONEY COUNCIL 66TH ANNUAL MEETING, Holiday Inn, Langley BC Canada. Info 403-208-7141 or chc-ccm@honeycouncil.ca

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