

The Bee Line

Newsletter of the Oregon State Beekeepers' Association

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Scott Bauer, USDA/ARS

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Front story: A welcomed introduction by way of a press release from Oregon State University's Extension and Experiment Station. Dr. Ramesh Sagili, a honey bee researcher, is to begin his work at OSU on February 27, 2009. He is already booked for a number of events, including upcoming bee days and the Better Living Show, where he will speak on Honey Bees and CCD at 2 PM on March 27. (The show runs March 27-29 at the Portland Expo Center and has no admission charge. More information about the show is at www.betterlivingshow.org.)

Image above: A pollinating honey bee. The results of the 2008 Honey Bee Pollination Economics Survey begin on page 4.

OSU HIRES TEXAS A&M ENTOMOLOGIST

Tiffany Woods

Oregon State University has hired a honeybee researcher from Texas A&M University as part of an initiative to help ensure that there are enough healthy honeybees to pollinate Oregon's crops. The appointment of Ramesh Sagili, who will start his new job as an assistant research professor in OSU's horticulture department on Feb. 27, means that Oregon State now has the first honeybee expert on its faculty since Michael Burgett retired in 2002.

Sagili's position was created at the request of Oregon agricultural groups worried about the health and supply of honeybees, which are crucial pollinators for many of the state's crops, including blueberries, pears, cherries, apples and vegetable seeds.

The funding for his salary comes from a \$215,000 appropriation approved last year by the state legislature's Emergency Board. That money will also support a faculty research and extension assistant to aid Sagili in gathering and analyzing data about honeybee health, diseases and pests in Oregon. Their positions are funded for one year, but the university is working to identify additional funding to extend their employment.

Sagili, who earned a doctorate in entomology from Texas A&M, has two main duties: helping the honeybee industry through the OSU Extension Service and conducting research. Sagili said his first action as Extension's honeybee specialist will be to meet with beekeepers and industry representatives to find out what problems they face. He also plans to provide educational workshops at locations convenient for agricultural producers and to develop a Master Beekeeper program that would provide training to novice and experienced beekeepers. Furthermore, he plans to create a honeybee Web site that will provide the latest information on research, management practices and pest control. As for research, Sagili said he intends to investigate how honeybee health is affected by Varroa mites, pesticides and stress resulting from the migration of hives. He also plans to compare how locating hives near only one source of pollen (like an apple orchard) versus several different sources affects their physiology, learning behavior and colony growth.



Dr. Ramesh Sagili with bees.

Bradley N. Metz

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The Bee Line

The Bee Line is the official publication of the Oregon State Beekeepers' Association. The newsletter is published ten times a year, and subscriptions are included with membership in OSBA.

Please send news about your bees and your experiences in keeping them, as well as corrections, letters, comments, photographs and stories (old and new), interviews, and requests for advertising to: Editor, *The Bee Line*, 4803 SE Woodstock Blvd Ste 157, Portland OR 97206; e-mail: osba.newsletter@gmail.com.

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Please submit copy by the 10th of the month prior to publication. The next issue will be the April 2009 issue. Contact the Editor with any questions or concerns.

Many thanks! Infection

MESSAGE FROM THE PRESIDENT

We have just returned from the American Beekeeping Federation meeting in Reno, Nevada. There were many interesting speakers from around the world. Our plane going both ways between Portland and Reno was less than half full.

I guess the downturn in the economy was the cause. Sure made for a more comfortable trip than our last few plane trips that were overbooked. The Casino at John Ascuaga's Nugget seemed to have fewer customers at the machines and in the restaurants. That didn't seem to make the cigarette smoke any less disturbing. When you are used to Oregon and no smoking allowed it is hard just to pass through. Of course, the meetings areas were smoke free.

Next year's meeting will be held in Orlando, Florida. Now is the time to start planning to attend for an outstanding learning experience. I plan to go a few days early for Disney World.

The theme of this year's conference was the health of the honey bee. Much was said about feeding pollen substitute and treating bee diseases. The new Nosema (*Nosema ceranae*), which it seems has been in the US longer than first thought, doesn't seem to be as bad as reported. Many speakers felt that sampling on a regular basis was the only way to know the condition of your honey bees. Results from other parts of the country or even an apiary next door might be very different from yours.

Treating without need is a waste of money and may harm the hive more than it helps. Varroa still must be kept under control. Getting control is a matter of finding your bees' mite load and treating when needed.

The Department of Horticulture at Oregon State University has announced the appointment of Dr. Ramesh Sagili, the research/extension scientist for apiculture we have all waited so long to have filled. Read more about Dr. Sagili in another article in *The Bee Line* [see page 1]. If possible, we hope to have him attend many bee events in the coming years.

Maybe he can get settled in time to attend the Bill Ruhl Memorial Bee Day April 25th. If you haven't attended Bee Day at George Hansen's facility, maybe this is the year for you. A great learning experience for the beginning and experienced beekeeper. I know all will try, but I'll bet you can't tell the best tall bee story of the day. During the breaks, listen for the stories. Try to find one that is near true and that you can embellish and pass on another time.

—Chuck

Honey Bee Research—Continued from page 1

Additionally, he aims to design a field test that beekeepers can use to determine if their bees are consuming enough protein.

As part of his research, Sagili plans to investigate the use of brood pheromone, which is secreted by honeybee larvae, to stimulate bees' consumption of protein supplements during the winter so they're strong and healthy when the busy days of spring pollination roll around. He also plans to explore the use of brood pheromone to decrease infestations of Varroa mites, which are parasites that suppress the immune systems of drone and worker honeybees, thus making them more susceptible to diseases and possible death.

Sagili said Varroa mites, nutritional deficiencies or other factors might be the cause of colony collapse disorder, which occurs when adult honeybees abandon a hive. The phenomenon came to light in 2006 when beekeepers on the East Coast began to see their honeybee colonies dwindle. "Colony collapse disorder is so complex that it will be a long time before we arrive at a conclusion as to what is causing it," Sagili said. "But meanwhile, beekeepers need to take steps to maintain healthy and strong colonies."

It's unclear if the disorder has spread to Oregon, said OSU entomologist James Young. Young mailed voluntary surveys to beekeepers last year to find out what diseases and pests were affecting their honeybees. Of the 43 beekeepers who returned surveys, 12 reported losing 2,036 hives to what they thought was colony collapse disorder between January 2006 and March 2008.

Young emphasized, however, that this doesn't mean that colony collapse disorder exists in Oregon. An apiary inspector would need to visit the hives and verify the beekeepers' self-diagnoses, said Young, who oversees OSU Extension's Honey Bee Diagnostic Service. It checks for the presence of non-viral diseases and pests, including American and European foulbrood, chalkbrood, stonebrood, and Varroa. Young's survey did confirm that American foulbrood and Varroa mites continue to be what he called "a serious threat" to apiculture in Oregon. Young and Sagili plan to conduct a more comprehensive examination of the health of Oregon's honeybees.

EVENTS FOR THE BEES

☛ March 7, 2009

Lane County Beekeepers Bee School: FULL! For information, contact Ken Ograin at (541) 935-7065 or woodrt@pacinfo.com

☛ March 13–20, 2009

Bee Masters Short Course: Simon Fraser University, Burnaby BC. For information, contact conferenceservices@sfu.ca or visit www.sfu.ca/conferences/beemasters2009

☛ March 14, 2009

Astoria Bee School: 9 AM to 4 PM at Clatsop Community College, Patriot Hall Room 326. \$15 for individuals or \$25 per couple or family. Please bring a sack lunch. For more information, contact Thom Trusewicz at ccbees@gmail.com

☛ March 28, 2009

Coos County Beekeepers Bee School: 9 AM to 3:30 PM at OSU Extension Service, Myrtle Point. \$10 per person. Please bring a sack lunch. Dewey Caron and hopefully Ramesh Sagili will be the speakers. For more information, contact Jane Oku at (541) 396-4016 or jane_oku@hotmail.com

☛ April 4, 2009

Southern Oregon Beekeepers Short Course: OSU Extension Center, near Jacksonville. Dewey Caron will speak, and there will be bees. Additional details are being finalized.

☛ April 11, 2009

Willamette Valley Beekeepers Bee Day. Location to be determined. To provide hands-on experience for Bee School participants and others.

☛ April 25, 2009

Bill Ruhl Memorial Bee Day: Colton, OR. Details and registration form appear on page 12.

August 17-20, 2009

☛ Western Apicultural Society Conference: Healdsburg, CA. For information, visit groups.ucanr.org/WAS/Conference%5FInformation/

☛ September 2009

41st Apimondia International Apicultural Congress: Montpellier, France. For information, visit www.apimondia2009.com/pages/?all=accueil&idl=22

☛ November 19-21, 2009

Northwest Corner Beekeepers Conference: Seaside.

PACIFIC NORTHWEST HONEY BEE POLLINATION ECONOMICS SURVEY 2008

Michael Burgett

Since 1986 the Honey Bee Laboratory at Oregon State University has conducted an annual survey of pollination economics in the Pacific Northwest. The information from each year of the survey has been made available both regionally and nationally. The information has proved to be most useful to individual beekeepers who generate income from pollination rental, which is the primary source of income for the majority of commercial beekeepers in the Pacific Northwest.

The use of managed honey bee colonies for commercial crop pollination remains the most important function of the Pacific Northwest beekeeping industry. The vast and diverse agriculture of the region relies on a healthy and strong beekeeping industry to maintain optimum production. An enhanced knowledge of pollination economics is crucial 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 the current economic conditions of the beekeeping industry.

The USDA National Agriculture Statistical Service estimates that there are 200,000 production honey bee colonies in the Pacific Northwest. With these numbers there are some interesting hypothetical calculations that can be made. For instance, if all growers of crops that require or benefit from managed honey bee pollination in the Pacific Northwest were to rent two colonies for each acre of blooming crop (355,000 acres), the resulting pollination requirement would utilize 710,000 colony rentals. If we multiply the hypothetical rentals by the 2008 average colony rental fee (\$81⁷⁵), it results in a potential pollination rental income of more than \$58 million for Pacific Northwest beekeepers. If we add to this the estimated 2008 California almond pollination income available to Pacific Northwest commercial beekeepers (\$29.5 million), we end up with a potential gross pollination rental income of \$87.5 million dollars. Another way to look at this is by asking

the question, “How much pollination income, under optimized conditions, should have been produced from one commercial honey bee colony in the year 2008?” For the Pacific Northwest that figure is approximately \$437⁵⁰ per hive. This is obviously unattainable, if for no other reason than the impossibility of one colony being sequentially utilized in all of the necessary cropping systems required to produce such a hypothetical per-colony income.

Comparing the hypothetical Pacific Northwest rental income (\$58 million) to the farm-gate value of the crops pollinated in the Pacific Northwest (\$1.75 billion) shows that the money spent by growers to ensure adequate pollination is about 3 percent of the total crop value. This is an impressive illustration of what a remarkable bargain pollination rental is to the commercial agricultural industry of the Pacific Northwest.

This year’s survey continues to illustrate the critical reliance of Pacific Northwest beekeepers on income generated from colony rentals. For 2008 the average commercial beekeeper reported receiving 68 percent of his or her annual operating gross from pollination rental, which is identical to that reported for the 2007 crop year. This percentage shows the dominance of pollination rental income to a Pacific Northwest beekeeper’s “financial health.”

Recent increases in the average pollination rental fee have been strongly influenced by the dramatic rise in the pollination rental fees paid by California almond growers. In 2005 almond growers responded to a perceived shortage of colonies by dramatically increasing the price they were willing to pay for pollination; this has continued for the 2008 pollination season. The average almond pollination fee for 2008 was \$148¹⁵. This is an 86.5 percent increase from the 2005 average (\$79⁴⁰) and a 7.8 percent increase from the average almond pollination fee paid in 2007 (\$137³⁵). Almond pollination is a target crop for nearly all commercial beekeepers in the Pacific Northwest and represents the beginning of the annual pollination season.

For 2008 the average pollination rental fee, computed from commercial colony rentals on all crops reported

TABLE 1. Average Pollination Fee per Colony 1999–2008.

1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
\$32.25	\$32.85	\$33.65	\$36.40	\$36.45	\$38.65	\$51.30	\$73.85	\$70.65	\$81.15

(including almonds), was \$81¹⁵. This is a 14.8 percent increase from the average pollination fee paid in 2007 (\$70⁶⁵) (see Table 1). Table 2 provides the average rental fees by crop and a comparison to the average fee received in 2007.

During the past 10 years, the average pollination rental fee has gone from \$32²⁵ (1999) to \$81¹⁵ (2008), an increase of 250 percent (Table 3). It needs to be stressed that honey bee colony rental was for many decades, an underpaid service to the agricultural industry at-large. It is really only within the past decade that rental fees have begun to more accurately reflect the enormous value-added service of managed pollination. This is shown by the 440 percent increase in the average pollination fee during the last 19 years: from \$18⁴⁰ in 1990 to \$81¹⁵ in 2008.

Within the Pacific Northwest, tree fruits (apples, pears, and sweet cherries) have been and remain the dominant crop types for pollination income. In 2008 the combination of apples, pears, and sweet cherries accounted for 34 percent of all reported rentals and 18.5 percent of all reported pollination income. Paradoxically, the single most important crop for Pacific Northwest beekeepers is grown in California, i.e., almonds. Almonds were responsible for 36.6 percent of all rentals and 67 percent of all rental income in the 2008 survey (see Table 4). Almonds consistently have produced a high average pollination fee and for the past three years have displayed remarkable fee increases compared to the 2005 average fee of \$79⁴⁰; for 2006, \$129²⁰; for 2007, \$137³⁵; for 2008, \$148¹⁵.

In 2008 the combination of California almonds and Pacific Northwest tree fruit accounted for 71 percent of all rentals and 85.5 percent of all pollination income, which illustrates the dominance and importance of these crops for a

TABLE 2. Average pollination fees in 2008 as reported by eleven commercial beekeeping operations.

Crop	Rentals (number)	Average Fee	Fee +/- ¹
Pears	7,246	\$42 ³⁵	+3.9%
Cherries	9,334	\$42 ³⁵	0%
Apples	21,112	\$45 ⁴⁰	+5.8%
Berries ²	2,844	\$30 ²⁵	-11.9%
Blueberries	8,588	\$36 ⁹⁰	+3.4%
Cranberries	1,578	\$50 ⁰⁰	+12.6%
Vegetable seed	8,932	\$47 ³⁰	-16.9%
Clover seed ³	4,165	\$31 ¹⁵	-41.7%
Radish seed	1,002	\$35 ⁷⁵	0%
Watermelon	1,435	\$49 ²⁵	+33.8%
Meadowfoam	1,500	\$45 ³⁵	+3.6%
Almonds	40,385	\$148 ¹⁵	+7.8%
Average Pollination Fee = \$81 ¹⁵			

¹ Percent change from 2007.

² Includes blackberries, raspberries, Marion berries, and Logan berries.

³ Includes red and white clover as grown for seed.

commercial Pacific Northwest beekeeper (see Table 4). All other Pacific Northwest cropping systems utilizing honey bee pollination contributed 14.5 percent of a beekeeper's gross pollination income in 2008.

In terms of acreage, apples are the largest crop grown in the Pacific Northwest, and this is reflected by the large number of reported rentals (19 percent of all rentals and 11 percent of the total reported rental income).

Berry crops (blackberries, Marion berries, Logan berries, raspberries) are late-spring to early summer bloomers and, most often, copious nectar producers. The 2008 average pollination fee for these combined berry crops was \$30²⁵, a lower price than the average fee because beekeepers have an expectation that a honey crop will also be produced. The rental of colonies for blueberry pollination has been increasing in recent years due to more acreage in production. The average rental fee for blueberries in 2008 was \$36⁹⁰, somewhat higher than other berry crops due to the fact that there is little-to-no expectation of a surplus honey crop.

The average Pacific Northwest commercial honey bee colony was rented 1.9 times in 2008, and this includes California almonds. This is a decrease from 2007 (2.5 times). This statistic has trended

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OREGON STATE BEEKEEPERS' ASSOCIATION RESOURCES

OSBA REGIONAL REPRESENTATIVES

Columbia Basin: Deb Morgan
3800 Benson Rd, The Dalles; (541) 298-5719

Eastern Oregon: Jordan Dimock
2635 Mitchell Butte Rd, Nyssa; (541) 372-2726

Portland Metro Area: Herb Brasington
1881 NE Ashberry Dr, Hillsboro; (503) 701-4180
herb@hwbsystems.com

North Coast: Thom Trusewicz
90041 Logan Rd, Astoria; (503) 325-7966
ccbees@gmail.com

South Coast: Open

Southern Oregon: Floyd Pawloski
415 Pompadour Dr, Ashland; (541) 482-4797

Willamette Valley: Harry Vanderpool
7128 Skyline Rd S, Salem; (503) 399-3675
shallotman@yahoo.com

OSBA REGIONAL ASSOCIATIONS



Central Oregon Beekeepers

Meets 6:30 PM, third Tuesday, Bend
Deschutes Public Library, Hutch Rm

President: Dennis Gallagher
(541) 389-4776

Secretary/Treasurer: Glenda Galaba
(541) 383-1775

Coos County Beekeepers

Meets 6:30 PM, third Saturday (except Dec)
Olsen Baxter Bldg, 631 Alder St, Myrtle Pt

President: Shigeo Oku; (541) 396-4016

Vice President: John Gardner; (541) 572-3847

Secretary: Bobbi Gardner; (541) 572-3847

Treasurer: Jane Oku; (541) 396-4016
jane_oku@hotmail.com

Lane County Beekeepers

Meets 7:30 PM, third Tuesday, Eugene
EWEB Meeting Rooms, 500 E 4th Ave

President: Katherine Hunt; (541) 607-0106
cwhunt@uoregon.edu

Vice President: Judy Scher; (541) 344-2114
judy_scher@catdreams.com

Secretary: Chuck and Katherine Hunt
(541) 607-0106; cwhunt@uoregon.edu

Treasurer: Nancy Ograin; (541) 935-7065
woodrt@pacinfo.com

Newsletter Editor: Jonathan Loftin; (541) 736-1870
lcbnewslettereditor@hotmail.com

Web site: www.lcbaor.org

Portland-Metro Beekeepers

Meets 7 PM, second Thursday, Oregon City
Clackamas Comm College, Clairmont Hall, Room 118

President: Kerry Haskins
(503) 632-8448; kh251@aol.com

Vice President: Jim Mellis; (503) 631-4622

Secretary: Paul Hardzinski; (503) 631-3927

Treasurer: Barbara Derkacht; (503) 631-3063
bderkacht@yahoo.com

Southern Oregon Beekeepers

Meets 7:30 PM, first Monday, Central Pt
So Or Res & Ext Ctr, 569 Hanley Rd

President: John Jacob; (541) 582-BEES
john@oldsolenterprises.com

Vice President: Floyd Pawlowski
415 Pompadour Dr, Ashland; (541) 482-4797

Secretary/Treasurer: Julian Lewis
(541) 535-5817; lewis_adams_00@yahoo.com

Web site: www.southernoregonbeekeepers.org

Tillamook County Beekeepers

For meeting and other information about the group,
please contact:

President: Bob Allen; (503) 322-3819

Tualatin Valley Beekeepers

Meets 7:30 PM, last Friday, Beaverton
OSU Ext, #1400, 18640 SW Walker Rd

President: Herb Brasington; (503) 701-4180
herb@hwbsystems.com

Vice President: Paul Anderson
paulanderson@tritekolutions.com

Secretary: Jerry Maasdam; jmaasdam@mac.com

Co-Treasurers: Brigitte and Michael Hendrickson
hendricm@ece.pdx.edu

Willamette Valley Beekeepers

Meets 7:30 PM, fourth Monday, Salem
Chemeketa Comm College, Bldg 34, Rm A

President: Richard Farrier; (541) 327-2673

Vice President: Harry Vanderpool; (503) 399-3675
shallotman@yahoo.com

Secretary: Mike Rodia; (503) 364-3275
drodia@yahoo.com

Treasurer: Gordon Kroemer; (503) 538-2307
kroemer2@verizon.net

REGIONAL ASSOCIATIONS

Lane County Beekeepers

Jonathan Loftin writes: Early spring weather in Lane County has been odd—lots of sunny days in February gave the bees a chance to hit the filberts, and we observed plenty of pollen coming in. The club has been busy too. We are starting a “Speakers Bureau” to help match members with the many requests we receive for talks on bees to garden clubs, school groups, retirement centers, and the like. Our booth at the Good Earth Home Show was popular and fun—and we sold quite a bit of “club label” honey. We have also been asked to participate in the KLCC Garden Tour, Oregon Country Fair, and a Sustainability Festival this Spring. Watch our Web site, www.lcboa.org, for details of our upcoming field day and picnic in June! We’d love to have you join us!

Katharine Hunt adds that the group’s February meeting focused on “Care, Maintenance and Storage of Bee Equipment and Tools as well as How to Refurbish Plastic Frames.” In addition, the group is looking for volunteers to be part of a panel discussion on pollinators and to help with an educational bee booth at the Sustainable Lifestyles Festival to take place in June.

Portland-Metro Beekeepers

John Holderness writes: A substantial number of the club’s active members attended the January meeting at the new meeting place. The discussion, led by President Kerry Haskins, was mainly of winter feeding of bees—how much and how. As always, there were differing views of things, including the most effective forms of feed. Even so, there was agreement on the importance of assessing the bees’ food stores. The next couple of months are the time when starvation is most likely. Medication for mites and other problems were brought up briefly and will be discussed in detail at future meetings. Two Web sites were recommended: www.beekeeping.com and www.beesource.com, and suggestions were made for improving the group’s participation on the OSBA Web site. The officers agreed to look into representation on the site.

Paul Jarrett writes: President Kerry Haskins led a discussion on bee care, including the importance of good ventilation, at the February meeting. The

queens begin to produce eggs and colonies can starve out in March and April. We discussed sugars to feed with, and one member brought a homemade “box” with vent holes for feeding sugar. Another member saves frames full of honey, “scratches them till they bleed,” and puts them right in the middle of the cluster. Kerry gave a handout on putting frames in the freezer to protect against all stages of the wax moth life cycle.

Paul Hardzinski has arranged for us to have a booth at the Master Gardeners Show the first weekend of May at the Canby Fairgrounds. We will need volunteers for this, as well as for the Bill Ruhl Memorial Bee Day, Saturday, April 25th. [See information and registration form on page 12, as well as at www.orsba.org.] Presentations take place outdoors with hives and live bee presentations.

We also discussed honey labels. The National Honey Board has a nice “hanging label”; Amy’s Bee Label at www.amyadele.com provides custom labels; and Graham’s Books in Oregon City has labels that can be removed easily. The meeting concluded with a presentation by Bev Koch on the DVD *Beekeepers Journal*, about an organic Vermont beekeeper who has created a business of making an elderberry juice and honey combination for boosting health. It is sold in Oregon stores.

Willamette Valley Beekeepers

Mike Rodia notes many things in the group’s January newsletter, but the main thing is the work that he, Harry Vanderpool, Gordon Kroemer, and Marge Ehry, representing WVBA and OSBA, have been doing. They first appeared before the McMinnville Planning Commission on November 20th to oppose the banning or restricting of honey bees in the city. They assembled a large packet of information and detailed written as well as verbal testimonies in favor of beekeeping. By the time it was all over, the commission voted unanimously to allow unrestricted beekeeping in the city limits. They indicated that they will handle any “issues” through the city’s nuisance ordinance. Harry Vanderpool sent a copy of the news. It details some of what went on, and you can read it at: www.newsregister.com. Go to *Search Archives* along the top of the page and then enter “beekeepers” as the keyword and January 17, 2009 as the date. *Paris. Chicago. McMinnville, indeed!!*

KEEPING BEES IN MARCH

Todd Balsiger

February and August have historically been the two months on the opposite sides of the nectar flow to treat for Varroa mites in Oregon, but this is not written in stone. There are new mite control options—more each year it seems—and they have different temperature-range requirements and honey-super withdrawal times.

In a nutshell, we do not want our Varroa mite populations to get too high—3,200 is cited as the economic threshold for the US. (This is a number that I researched and found last year. I'd like to see research done here in Oregon to develop local threshold estimates based on the hive population and time of the year, as well as an accurate and practical sampling system.) It is important to not skip a treatment window if it means that the threshold number will be exceeded before the next treatment window.

The need to treat should be based on the current mite population. If you have a high mite population, you should treat immediately. If it was mid-February your options would be temperature-independent contact miticides (or maybe even powdered sugar via a dust applicator if it's dry, as suggested in Randy Oliver's February 2009 article in the *American Bee Journal*). If you have a low mite population, you can delay and treat in March or April with controls that require shorter withdrawal times before supering but higher daily high temperatures for use. Mite Away II can be used between 50°F and 79°F and Apiguard, between 60°F and 105°F.

Our most efficacious mite controls buy you about 4 months, which includes the treatment period before you need to treat again. It should be noted that this period can be extended by using IPM strategies like mite-tolerant stock and screen bottom boards.

How do you estimate how many mites you have? I will explain two techniques and mention a possible third way: the alcohol wash, the natural drop count, and the powdered sugar drop.

An alcohol wash can be used to estimate Varroa populations with or without the presence of brood. It is simply a ratio of the number of mites per given number of bees multiplied by the total estimated bee population, and then factoring in the Varroa population

hidden in the brood. It is estimated that 2/3rds of the mites are within the brood itself. An example: brood is present, and there are 30,000 adult bees. You find 5 mites in a 1/4-cup alcohol wash (about 150 bees). This is equivalent to one mite per 30 bees, or 1000 mites total on the adult bee population. Add the 2/3rds hidden in the brood, and you have roughly 3,000 mites, which is close to the economic threshold number of 3,200.

The natural drop estimate for Varroa population requires full cycles of brood. Incidentally, the numbers for both techniques come from Dave VanderDussen—the Mite Away II proprietor. It is best to do a 3-day, 24-hour average sticky board drop count. Each fallen mite represents 1 percent of the total mite load. This means you multiply the average drop count by 100. An average drop count of 32 mites would equal 3,200 total mites, or the economic treatment threshold.

The powdered sugar drop is discussed in the February 2009 *American Bee Journal*. I mention it here as it holds promise. I quote author, Randy Oliver: "It appears to me that a whole-colony mite drop accelerated by sugar dust (or other mite dislodging agent) is likely the most accurate field-practical way to determine a colony's mite level."

Other tasks aside from worrying about Varroa mites:

- ❖ Heft hives to find any light ones. Provide light hives emergency feed, preferably sugar candy/fondant or frames of honey. This is prime time for starvation, as brood production increases energy demands. When daytime highs exceed 55°F, fumagillin medicated syrup can be used instead of fondant or frames of honey.
- ❖ Feed all colonies Terramycin in powdered sugar weekly for 3 weeks to prevent American and European foulbrood. Terramycin requires at least a 4-week withdrawal time between the last antibiotic treatment and the first marketable nectar flow. Tylosin provides up to 4 weeks of protection with a single treatment, but it is much more persistent and requires a longer withdrawal period before supering than Terramycin. There is a growing problem with Tylosin being detected in US honey. Tylosin is not supposed to be used prophylactically (preventatively). If used prophylactically, I'd recommend only in the fall (August).
- ❖ Look for signs of Nosema-infected hives: symptoms include slow build-up (best indicator), disjointed wings, distended bloated abdomen, and a lot

of yellow streaks on the outside of the hive and crawling bees outside of the hive. These symptoms may also be associated with tracheal mites, but maybe without the yellow streaks and distended abdomens. Make sure suspect hives have good ventilation and treat with fumagillin syrup (follow the directions exactly; overdosing does not help).

- ❖ Find and remove queenless or dead out colonies. If pollen is actively being foraged, this generally indicates a healthy colony and queen. Determine why colonies succumb: queenlessness, starvation, disease? If the frames and hive components are disease free and in good condition (e.g., no *Nosema* spore fecal matter covering everything, no AFB scale in the brood cells, brood frames are less than 5 years of age), then store for future use in dry location stacked on end so air and light can penetrate to discourage mold growth and wax moth activity.
- ❖ Spring usually brings some of the windiest weather, so make sure the lids are secured after you break the seals.
- ❖ If you feel your area lacks sufficient natural nectar flows and pollen to fuel high-energy growth to make

full-sized production colonies in time for the main nectar flow (late May), feed fumagillin-medicated sugar syrup and pollen substitute when the daily highs exceed 55°F.

- ❖ Wax moth activity dramatically picks up when the temperatures rise. Keep an extra eye out for stored frames that have had brood and have pollen. Moth crystals (paradichlorobenzene) can be used for control, as well as freezing the frames. Exposing the frames to light can inhibit the moths, too.
- ❖ Here's one last thought: Don't feed pollen substitutes too early. I would consider too early as January, February, and maybe the first part of March. Brood production will increase, which may exhaust winter food supplies prematurely. It also increases activity, metabolism, and hive moisture. The weather may be inappropriate for cleansing flights, increasing the likelihood of developing dysentery. Dysentery is the quickest and most effective way of converting a slight *Nosema* infection into a severe one. Winter should be a time of quiescence for the bees that enables the bees to live to take the colony over the period when little or no brood is being reared.

Pollination Survey—Continued from page 5

downwards 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 Pacific Northwest tree fruit (which historically provide the major sources of pollination income) and reducing the number of colonies involved in minor crop pollination? Following almond pollination, are colonies being shifted away from pollination to concentrate on honey production? At this time, our data are not able to provide reasonable answers to these questions.

For the 2008 pollination season, an average rental fee of \$81¹⁵, combined with an average of 1.9 pollination rentals per colony, results in an annual per colony pollination income of \$154²⁰. With the “average” commercial operation running 4,800 colonies, a hypothetical 2008 gross pollination income for the “average” commercial beekeeping operation in the Pacific Northwest was \$740,000.

The combined colony numbers from those commercial beekeepers who responded to the 2008 survey (57,616 hives) represent about 29 percent of the USDA's estimate of colony numbers in Oregon and Washington. Therefore, if we multiply the total

reported pollination income (\$8,945,086) by a factor of 3.5, we have a ballpark estimate of the pollination income generated by commercial beekeeping in the Pacific Northwest in 2008, i.e., a regional pollination income of approximately \$31,000,000. This is far more than the “estimates” assigned to the bee industry by agricultural economists, who, for reasons unexplained, usually do not even include pollination rental income in their evaluation of beekeeping economics. Pollination income in the Pacific Northwest far exceeds the value of honey and wax sales for our regional beekeeping industry. Pollination rental income is frequently 4–5 times greater than honey and wax sales in any given year. This disparity between pollination income and combined honey/wax sales has increased dramatically, especially in the past few years, concurrent with the impressive rise in pollination rental fees.

The 2008 survey asked commercial beekeepers to report the total number of full-time or full-time equivalent employees working for their operations. An interesting way to look at this question concerning the average number of full-time employees is to ask the question, “What is the colony equivalent?” In effect, how many colonies are necessary in order to hire one full-time employee? That figure was very close to

Continued on page 10

Pollination Survey—Continued from page 9

1,500 colonies/employee in 2004 and 2005. In 2007 the “colony equivalent” was 1,125 hives per full-time employee, and for 2008 the reported “colony equivalent” was 870. This lower number would suggest that colonies received more-intensive management, which ultimately means healthier colonies.

Although colony income from pollination rental is a critical statistic, so therefore is the annual cost to maintain a healthy colony of honey bees. Numerous commercial beekeepers, who have over the years maintained accurate cost-accounting records, have reported colony maintenance costs that are very reasonable relative to today’s economy. The average annual hive maintenance cost was \$178 per colony for the year 2008. The range in individual responses was from a high of \$225/hive to a low of \$132/hive. 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 need to re-adjust your operational accounting.

For 2008 the average colony maintenance cost is once again higher than the average per-colony pollination income. From the 2008 survey data, pollination income was \$154²⁰/colony and the colony maintenance cost was \$178, a difference of \$23⁸⁰ per colony. This illustrates that the net operational profit needs to be generated by sources of income outside of pollination rental—most importantly, honey production.

TABLE 3. Average colony numbers, average rental fee per colony, and average annual rental income per colony for a hypothetical commercial beekeeping operation in the Pacific Northwest 1992–2008.

Year	Average Number of Colonies	Average Rental Fee	Average Rental Fee per Colony
1992	765	\$19 ²⁵	\$49 ⁷⁰
1993	990	\$22 ⁵⁰	\$62 ²⁵
1994	1,225	\$28 ¹⁰	\$78 ⁷⁰
1995	1,348	\$29 ⁶⁰	\$78 ¹⁵
1996	1,350	\$31 ⁵⁵	\$97 ⁵⁰
1997	1,504	\$31 ⁰⁵	\$92 ²⁰
1998	1,153	\$29 ⁶⁵	\$83 ⁰⁰
1999	2,058	\$32 ²⁵	\$89 ³⁰
2000	2,055	\$32 ⁸⁵	\$77 ⁴⁰
2001	3,168	\$33 ⁶⁵	\$64 ⁶⁰
2002	4,255	\$36 ⁴⁰	\$63 ⁷⁵
2003	2,612	\$36 ⁴⁵	\$86 ⁴⁰
2004	3,555	\$38 ⁶⁵	\$74 ⁶⁰
2005	2,055	\$51 ³⁰	\$112 ⁸⁵
2006	3,855	\$73 ⁸⁵	\$151 ¹⁰
2007	3,091	\$70 ⁶⁵	\$176 ⁶⁰
2008	4,800	\$81¹⁵	\$154²⁰

In interpreting the average pollination fee for an individual crop, it is important to recognize that the reliability of the “average” is strongly influenced by the number of reported rentals. The “average” for almonds should be considered very realistic because of the large number of beekeepers and rentals reported for this crop, and such is also the case for tree fruit in the Pacific Northwest. For this year’s survey report, pollination rental averages for crops with fewer than 1,000 reported rentals have been excluded from Table 2, but they have been included for computing the average pollination fee from all reported rentals.

It is important to remember that the data presented here represent 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. Let

TABLE 4. Pollination rentals and income by crop type as reported by eleven Pacific Northwest commercial beekeepers in 2008.

Crop	Rentals (number)	% of Total Rentals	Rental Income	% of Total Rental Income
Tree Fruit	37,692	34.2	\$1,660,418	18.5
Almonds	40,358	36.6	\$5,982,920	67.0
All other crops	32,175	29.2	\$1,302,045	14.5
Total	110,252		\$8,945,383	

it be stressed 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.

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 23 years has generated the most-accurate assessment of commercial pollination known in the US. I also offer sincere thanks to the Washington State Beekeepers’ Association for the funding support to continue this annual survey of Pacific Northwest regional beekeeping economics.

GLITCHES

A number of folks have contacted me with concerns regarding the quality of the printing of some of the graphics/ads in the January/February issue of the newsletter. My apologies to all concerned. I have worked with the printer to determine the cause. One possibility involves the settings used to run the job, but it’s still not clear what happened. Both the printer and I will be taking additional steps prior to printing to avoid this in the future.

Also, many thanks to those who responded to my requests last December for information for the 2009 OSBA membership booklet. I apologize for not getting it to you at the beginning of the year as intended. I had volunteered to put it together this time so that we could start sending it out to everyone annually. As of this printing, however, the person who takes care of membership has been unable to clear up some glitches in the membership database. I expect that, at the latest and as has been done in the past, the Treasurer will produce the booklet for the conference in November.

—Rosanna

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The Portland-Metro Beekeepers Association
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BILL RUHL MEMORIAL BEE DAY
Saturday, April 25, 2009

PLACE: George Hansen's Foothills Honey Farm
30576 S Oswalt Road
Colton OR 97017

TIME: Registration: 9:00 AM
Presentations:
10:00 AM to 3:00 PM

COST: \$15 per person/\$25 per family*, pre-registered
\$20 per person/\$30 per family*, day of the event
*Individual registrations include lunch. Family registrations include two lunches; additional lunches may be purchased for \$6 each.

GEAR: Bring your "bee protection equipment" (veils, gloves, suit, etc.)

PRESENTATIONS (about 45 minutes each):

- A. Beekeeping Equipment
- B. Basic Hive Inspection
- C. Nuc installation/Package installation
- D. Finding the Queen
- E. Diagnosis and Management of Honey Bee Diseases

For more information, contact: **Kerry Haskins, PMBA President (503-632-8448)**
Jim Mellis, PMBA Vice-President (503-631-4622)

Complimentary morning beverage provided. Soda available for purchase. Great Oregon water available free. Cups will be provided, but save a tree: bring your own cup or water bottle!



To **pre-register**, return this form by April 18 with \$15 per person/\$25 per family to:

PMBA c/o Barbara Derkacht,
17130 S Seal Court
Oregon City OR 97045

Make checks payable to **Portland-Metro Beekeepers Association** (or "PMBA").

Families: Additional lunches should be ordered and paid for at this time, too, to ensure your sandwich choices. Please mail this form by April 18. Thank you.

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No. attending _____ Lunch Preference: _____ veg; _____ ham; _____ turkey; _____ beef

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GREAT SUNFLOWER PROJECT

Ken Ograin

I have received some preliminary results for the project. Although over 40,000 signed up to participate, only about 1200 gardeners actually submitted data. Of that, about 20 percent did not see any bees during their 30-minute observations, while about 50 percent did see five

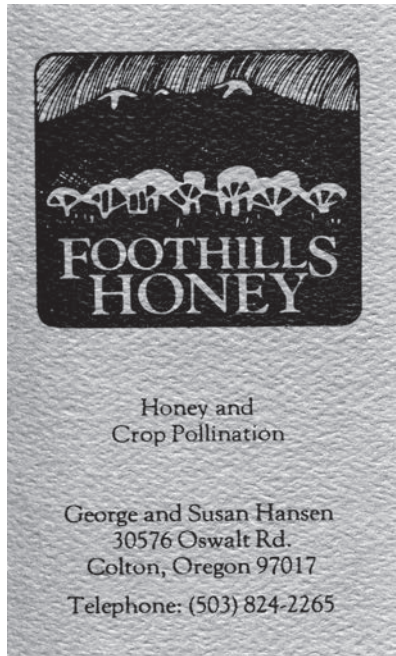
bees during the 30 minutes. Next they looked at seed counts based on the type of bee that visited the flowers. Flowers that were visited by honey bees produced 3 seeds per visit; flowers that were visited by native bees produced on average 15 seeds. This would follow my own observations. My sunflowers were located about 100 yards from my hives, but the flowers were visited by mostly native bees, leave cutters and digger bees.

FOR DONATIONS TO THE NORTHWEST APICULTURE FUND FOR HONEY BEE RESEARCH, EXTENSION AND EDUCATION

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Membership in the Oregon State Beekeepers' Association is open to anyone with an interest in bees and beekeeping. You do not need to own bees or reside in Oregon to join. Membership includes a vote in OSBA elections, discounts on publications, and ten issues of *The Bee Line*. To become a member, send check made payable to OSBA with completed form to: Patricia Swenson, OSBA Co-Secretary/Treasurer, 11665 SE Webfoot Rd, Dayton OR 97114.

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Note: *The OSBA respects the privacy of members and will not sell any information provided. May we include your name and address in a membership list that will be given to OSBA members only? YES/NO (please circle one).*

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The Bee Line

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Some extra appreciation may be due the dandelion this time of year—among other things, for feeding the bees so well and so early in the season!

The **Oregon State Beekeepers' Association** is a nonprofit organization representing and supporting all who have an interest in honey bees and beekeeping.

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