
THE BEE LINE

The Newsletter of the Oregon State Beekeepers Association

Volume 28, Number 3

April 2003

Keeping Current in Beekeeping

It started with a call for proposals from the Oregon Department of Agriculture, set to fund work promoting specialty crops in Oregon. Then-president Ray Varner attended the ODA meeting, gathered information and formed a committee. A group of honey bee enthusiasts sat around a table of sorts, and developed and submitted half a dozen proposals under the auspices of the Oregon State Beekeepers Association. The Department funded three proposals: one submitted by Harry Vanderpool for his work with the ultimate sugar shake, another submitted by Chuck Hunt for his work on Russian queens, and a third submitted by George Hansen to help keep Oregon beekeepers current on recommended treatment and management practices for honey bee pests and diseases. Vanderpool reported on the results of his efforts at the 2002 OSBA Conference. Hansen coordinated the second day of that conference and hosted nationally known researchers who provided the latest information on Varroa mites, tracheal mites, nosema, and foulbrood to be used for updates in beekeeping.

The grant submitted by Hansen provided for workshops to disseminate information on recommended sampling techniques for detection, threshold levels, and control methods for honey bee pests and diseases. It also provided for opportunities for hands-on experience to be held at various locations throughout the state.

Two workshops are scheduled for spring 2003—one in the Clackamas/Colton area: April 25 (7–9 PM) and April 26 (9 AM–3 PM), and the other in the Central Point/White City area: May 23 (7–9

PM) and May 24 (9 AM–3 PM). The \$15 cost per participant includes workshop materials and lunch on Saturday. Additional workshops are planned, with locations depending in part on expressed interest of area beekeepers.

Another aspect of making current information available involves providing a means to easily disseminate information about management and treatment options (particularly updates and changes) and educational opportunities (e.g., workshops and conferences) as they occur. To accomplish this, a database of regional beekeepers and honey/pollination companies is being updated. The database includes names, mailing addresses, phone numbers, and e-mail addresses (where available). It will not be shared with any other group, nor will it be used for commercial purposes.

For additional information, to register, to express interest in having a workshop in your area, and/or to include your name in the database, please e-mail honeybeeworkshop@attbi.com or write Honey Bee Workshops, PO Box 42363, Portland, Oregon 97242.

WHAT'S INSIDE:

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Oregon State Beekeepers Association

April 2003

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Bus Peterson Dies

Long-time beekeeper Bus Peterson of Scappoose died March 10, 2003 after a long illness. The OSBA extends condolences to his wife Mavis and their family. Mary Moss is preparing a story to share in the *BeeLine's* May issue. Bus was known by many and will be missed.

OSBA Spearheads Effort to Keep Bee Expert at OSU

Oregon State University, faced with budget cuts, abolished its Department of Entomology and does not plan to replace Dr Michael Burgett, Oregon's renowned expert on honey bees and pollination of Oregon crops. OSU is turning its back on cash crops that produce more than \$500,000,000 dollars at the farm gate.

The Oregon State Beekeepers have arranged the introduction of HB 2805 which has been sent to

the House Ways and Means Committee. The bill seeks an additional \$200,000 "for research and extension work to serve the bee industry, including the hiring of one full-time researcher at Oregon State University."

Readers are urged to contact members of the Ways and Means Committee and their own legislators, urging support of HB 2805. These members can be reached by writing them at Capitol Building, Salem, Oregon 97310. You may call them toll free at 1-800332 2313. To send legislators an e-mail go to:

<http://www.vannattapr.com/orepol.html> and click on the legislator's name.

Members of the Ways and Means Committee include Senator's Kurt Schrader, Steve Harper, Margaret Carter, Richard Devlin, Joan Dukes, Gary George, Avel Gordly, Ken Messerle, Frank Morse and Jackie Winters. House members are Representative's Randy Miller, Alan Bates, Tom Butler (the sponsor of our bill), Gary Hansen, Elizabeth Johnson, Wayne Krieger, Susan Morgan, Rob Patridge, Greg Smith and Tootie Smith.

If you have any questions, please contact Fred VanNatta (fred@vannattapr.com or phone 503 910 9664).

Beekeeping in Western Oregon

By Harry Vanderpool, WVBA

April:

- Check colony stores regularly, particularly after extended warm weather. Add feed to light colonies to maintain 10 to 20 lbs until the nectar flow in your area and elevation.
- Equalize brood and feed between healthy colonies whenever possible.
- Add second brood box to singles. Checkerboard frames of feed upstairs.
- Reversing brood boxes is an extremely important procedure. The decision to reverse must be based on hive conditions. Generally speaking, at this point in the year, reverse when the it will result in the brood nest moving down,

and available comb space with an adequate amount of feed moving to the upper brood box.

- During inspections, watch for signs of scale in empty combs or spotty brood that is partially uncapped that would indicate American foulbrood. Ask a senior beekeeper to help you in disease identification if you are unsure.
- Dust the top bars with 3 tablespoons or more of Terramycin and powdered sugar mix often enough to keep a steady supply lasting at least 21 days.
- Quarantine colonies showing signs of Nosema disease if possible. Scrape the top bars of all frames in the hive to remove the debris. Scrape the bottom board also. Make a note to feed Fumidil-B in the fall. Dr. Eric Mussen has found that 2 years of persistent treatment and care can clear a colony of this disease.
- Queens are available now. Feed your "Beekeeper's Disease" and make as many splits as possible. This will give you a good excuse to buy more equipment next winter!
- It is generally accepted that yearly requeening of colonies is beneficial in many ways. Definitely consider requeening colonies with undesirable traits, poor laying patterns, or if the queen is of an unknown age.
- Blow the dust off of your Nuc boxes and put them to good use. Nucs are great for proving out your new queens and also smooth introduction.
- Clean bottom boards and remove entrance reducers.
- If you are starting package bees on foundation, feed light syrup continuously until the nectar flow increases in your area. Giving them a couple frames of drawn foundation if possible will give them a major boost.
- Check your calendar to remind yourself of the exact day that mite strips are to be removed from your hives. Read the product label and follow the recommended length of time for application.
- Attend your regional Beekeepers Association meeting. We all have something to learn, and a whole lot we can teach.

Bee Day at the Legislature Planned

Mark your calendar for May 21st.

Reservations for beekeepers have been made in room H470 in the Capitol Building. We will be meeting at 9:00 AM for a short briefing on HB 2805 and on legislative protocol and lobbying techniques.

You can call your legislator now and make arrangements for lunch, either in the legislator's office, at the Capitol Coffee shop or, if their time permits, at a nearby restaurant. (Call 1 800-332-2313 to make the appointment)

The OSBA Executive Committee will meet in the same room H470 from 2:00 to 5:00 PM on the same day, May 21st.

Thank the Bees for Your Next Cup of Coffee

By Mary Moss

Coffee growers always thought that bees and other insects did not make a difference when it came to coffee harvests. After all, coffee plants are self-pollinating . . . aren't they? It turns out that the answer is a big, emphatic "no." In fact, scientists have discovered that honeybees can help boost coffee harvests by more than 50%. That's a lot of coffee!

This discovery was made by a U.S. scientist studying the effects of non-native African honeybees on coffee plantations in Panama. The plantations contained the shrub *Coffea arabica*, which produces 70% of the world's coffee. The previously-held belief that the plants were self-pollinating could explain why coffee yields have fallen in some areas of Africa and Indonesia. Now, intensive farming has been blamed for destroying natural habitats, where pollinating insects are found.

David Roubik of the Smithsonian Tropical Research Institute revealed his findings in the journal *Nature*. He said, "These findings, together with world coffee-harvest statistics and results from field studies of organically shade-grown coffee, indicate that coffee plants would benefit from being

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grown in habitats that are suitable for sustaining valuable pollinators.”

Pacific Northwest Honey Bee Pollination Survey – 2001/2002

By Michael Burgett, Professor Emeritus
Oregon State University

Since 1986 the Honey Bee Laboratory at Oregon State University has conducted an annual survey of pollination economics in the Pacific Northwest (PNW). An annual report was not published for the pollination year 2001, so this year's report will include data from both 2001 and 2002.

With each year's information, the strength and importance of our region's beekeeping industry is highlighted. All participants in a regional agricultural industry need to understand the critical role played by beekeeping in overall agricultural production. This is especially true today with the increased costs and problems caused by the presence of honey bee mite parasites and the expanding geographical range of our European honey bee's tropical "cousin" the Africanized honey bee, now well established southern California, as well as Texas, New Mexico, Arizona and Nevada.

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.

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 2001/02 the average commercial beekeeper reported receiving 70% of his or her annual operating gross from pollination rental. I am aware of no region in

the U.S., or the world for that matter, where the rental of honey bee colonies for pollination is of such importance to the economic survival of a regional beekeeping community and of such benefit to the agricultural base that requires insect pollination for optimizing product yield. Even in California, the state with the largest and most varied beekeeping industry in the U.S., pollination rental income is just slightly over 50% of operational revenues (California State Beekeepers' Association 2000 pollination rental survey).

Ever since the arrival of the tracheal mites and varroa brood mite the average size of an individual commercial operation has increased. This is a reflection of higher colony mortality and the need to maintain adequate colony numbers for pollination contracts. The mite "plague" effectively eliminated marginal beekeeping operations and those that remained needed to become larger in order to fulfill the need for rental colonies by the at-large agricultural base in the PNW and in California.

As in past years, the 2001/02 surveys were sent to all Washington and Oregon beekeepers that registered more than 25 colonies with their respective state agriculture departments. A total of 14 commercial beekeepers returned completed surveys. These individual beekeepers collectively owned 59,576 colonies. A total of 104,322 colony rentals were reported for all respondents, which produced \$3,799,814 in rental income for the participating beekeepers.

For 2002 the average pollination rental fee, computed from commercial beekeeper rentals on all crops reported, was \$36⁴⁰. This is a \$2⁷⁵ (8%) increase from the average pollination fee charged in 2001 (\$33⁶⁵) (see Table 1). The 2002 average rental fee is nearly an 11% increase from the 2000 average of \$32⁸⁵ (the last published figure.)

Table 1. Average Pollination Fee 1992-2002

<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>	<u>1998</u>
19.25	22.50	28.10	29.60	31.55	31.05	29.65

<u>1999</u>	<u>2000</u>	<u>2001</u>
32.25	32.85	33.65

Commercial beekeepers were responsible for 99% of all reported pollination rentals and a corresponding 99% of all pollination income. This

is very similar to past years and shows how dominant commercial beekeepers are in the arena of large-scale agricultural pollination and what a minor role is played by semi-commercial beekeepers in contributing to the regional pollination requirement.

The average pollination rental fee for semi-commercial beekeepers for the 2002 season was \$30³⁵, which was significantly lower than that charged by commercial beekeepers (\$36⁴⁰.) For semi-commercial beekeepers the average annual per colony pollination income was \$37⁴⁰. A semi-commercial colony, on average, was rented for 1.23 sets in 2002 which accounts for the difference in the per colony income generation compared to a commercial hive.

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 2002 this figure was calculated to be \$271,213. This dramatic increase results largely from the increasing size of the average commercial operation.

During the past eight years the average rental fee has increased from \$28¹⁰ (1994) to \$36⁴⁰ (2002). 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 decade that rental fees have begun to more accurately reflect the enormous value-added service of managed pollination. This is shown by the 98% increase in the average pollination fee during the last twelve years; 1990 = \$18⁴⁰ to 2002 = \$36⁴⁰.

Within the PNW, tree fruits are the dominant crops for pollination income (see Table 2). In 2002 the combination of pears, sweet cherries and apples accounted for 55% of all reported rentals and 48% 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 36% of all rentals and 44% of all rental income in the 2002 survey. Almonds possessing the highest average pollination fee reported for 2002 (\$45⁰⁰). More than 95% of all commercial colonies in Oregon and Washington are taken to California for almond pollination. In 2002 the combination of

almonds and tree fruit accounted for 90% of all rentals and 92% of pollination income, which illustrates the dominance and importance of these crops for a commercial PNW beekeeper.

In 2002, for crops pollinated in the PNW, cranberries pollination provided the highest average fee at \$39⁰⁰ per colony rental. In terms of acreage, apples are the largest crop grown in the region and this is reflected by the large number of reported rentals (44% of all rentals and 40% of the total reported rental income.)

Table 2. 2002 Average Commercial Pollination Fees by Crop

Crop	#Rentals	Avg.Fee	Income
Pears	4,694	\$30.85	\$144,822
Cherries	5,566	30.05	176,156
Apples	46,657	32.30	1,506,986
Berries(1)	2,460	23.75	58,435
Blueberries	1,103	21.45	23,672
Cranberries	1,416	39.00	55,224
VegSeeds	1,748	36.60	64,008
CloverSeed(2)	420	32.00	13,440
CrimCloverSeed	75	15.00	1,125
RadishSeed	344	14.60	5,016
Cucumbers	400	23.00	9,200
Sq&PumpSeeds	532	32.60	17,354
Watermelon	1,132	34.80	39,420
Meadowfoam	42	35.00	1,470
Misc.(3)	337	27.05	9,112
Almonds	<u>37,396</u>	45.00	<u>1,683,374</u>
Totals	104,322		\$3,799,814
			Avg. Pollination Fee \$36.40

- (1) Includes blackberries, raspberries, Marionberries and Loganberries
 - (2) Includes red and white clover grown for seed
 - (3) Includes apricot, kiwi, vetch and holly.
- *****

The crops with the lowest pollination fees are the legumes crimson clover and hairy vetch, both of which are grown as seed crops but are also traditional honey producers, hence historically low fees. Their significance to regional pollination income is very minor, in terms of rental income, the number of colonies involved, and the very regional nature of both crops (mid- to northern Willamette Valley).

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Berry crops (blackberries, raspberries and blueberries), which as late spring to early summer bloomers and copious nectar producers (blackberries and raspberries), often produce honey crops as well as pollination fees. The 2002 average pollination fee for all combined berry crops was \$23⁷⁵.

The crop with the most remarkable change from the late 1990s is meadowfoam. For 2002 only one beekeeper reported colony rentals on meadowfoam, which compares to 21 beekeepers with 3,830 rentals reported in 1999. The reason is simple: very little meadowfoam is now being grown due to major financial disruptions in the meadowfoam industry within the Willamette Valley.

The average PNW commercial honey bee colony was rented 1.75 times in 2002 and this includes California almonds. This is a decrease from the 1.92 figure generated from the 2001 survey. This statistic has been dropping for the past four years; in 1999 the average number of rentals per colony was 2.77 times during the pollination season. 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?

For the 2002 pollination season an average rental fee of \$36⁴⁰, combined with an average of 1.75 pollination sets per colony, results in an annual per colony pollination income of \$63⁷⁰, which is an 29% decrease from the 1999 colony income statistic of \$89⁷⁰. This trend of reduced per colony rentals, along with the accompanying reduced per colony income result in a lessening, or at least a stagnation in pollination "effort" on the part of regional beekeepers. Agriculture at-large is presently experiencing serious financial problems, and one needs only look to the apple and cranberry industries to see this. Beekeepers have been reluctant to implement increased pollination fees to an already stressed agriculture industry within the PNW.

The combined colony numbers from those commercial beekeepers who responded to the 2002 survey, (59,576 hives), represent at least one-fourth

to perhaps as many as one-third of the commercial hives in Oregon and Washington. Therefore, if we multiply the reported pollination income (\$3,799,814) by a factor of 4 and 3, we have a ball park estimate of the pollination income generated by commercial beekeeping in the PNW, *i.e.*, a pollination income perhaps as low as \$11,000,000 to a reasonable high of \$15,000,000. This is far more than the normal "estimates" assigned to the bee industry by agricultural economists, who, for reasons unexplained, usually do not include pollination rental income in their estimates of 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 four to five times greater than honey and wax sales in any given year.

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 1992-2002.

<u>Year</u>	<u>Avg# Colonies</u>	<u>Avg.Rental Fee</u>	<u>Avg.Annual Rental Income/Colony</u>
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	1,153	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

An added question to the survey in 2001 and again in 2002 was how frequent is the use of written pollination contracts between beekeepers and their respective growers. In both years the responses were very similar. It appears that using written contracts is the unusual case. 70% of the commercial beekeepers said they do not use them; 15% said they always use them; and 15% said they use written contracts only for new accounts involving growers they have never worked with in the past. A frequent beekeeper comment went along the lines of 'a handshake has always been enough for me and my growers.'

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 beekeepers, who have over the years maintained excellent cost accounting records, have responded with numbers that are very reasonable relative to today's economy. The average annual hive maintenance cost was \$96³⁵ per colony for the year 2002 (highest maintenance cost = \$180; lowest = \$52⁵⁰), which is obviously, a reduction from the \$104 reported for 1999.

It is very important to recognize that the average colony maintenance cost is higher than the average per colony pollination income and this is especially so from the 2002 survey information (colony pollination income = \$63⁷⁵; colony maintenance cost = \$96³⁵; a difference of \$32⁶⁰ per colony.) This illustrates that operation profits are generated by other sources of income outside of pollination rental, most importantly, honey production. As all beekeepers realize, the year 2002 resulted in the most dramatic increase in the wholesale price of honey in the history of American beekeeping. Depending on when you sold or contracted your honey in 2002, the wholesale price was from a low of \$0⁹⁰ to as much as \$1⁶⁰ per pound. Basing wholesale honey prices at a conservative \$1²⁵ cents per pound, the average commercial hive had to produce about 26 pounds of honey in order to break even.

Remember that much of the data presented here represent the pollination rental situation of the "average" commercial beekeeper. 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.

Reflections:

There are some recent observations that perhaps do not necessarily represent the "normal"

conditions for commercial pollination rental by PNW beekeepers. One is the dramatic increase in the average size of a commercial beekeeping operation (4,255 colonies in 2002; 3,168 in 2001; and 2,055 in 2002.) In the past few years a number of very large sized operations have begun contributing to the survey, while the number of medium sized operations who report has dropped. This has unduly, perhaps artificially produced an "average" for a PNW commercial operation that does not really reflect the actual situation.

Additionally, the average number of rentals per individual colony has decreased (1.75 in 2002; 1.92 in 2001; compared to 2.77 in 1999.) A small amount of this decrease could be explained by a shift of colonies away from pollination to honey production due to the incredibly dramatic increase in the wholesale price of honey in 2002, but that is far from the whole picture, especially considering that the sharp rise in honey prices began at least mid-way through the 2002 pollination season. For the production year of 2003 I would expect to see the higher honey price remove colonies from the pollination rental scenario.

A bright spot for PNW beekeepers is the steady and significant increase in the average price paid for almond pollination (\$45⁰⁰ in 2002; \$40⁷⁰ in 2001 and \$39⁰⁰ in 2000.) These almond averages represent the highest fees for any single crop pollinated by PNW beekeepers and reflect the concern and willingness of California almond growers to pay a premium rental fee in order to ensure adequate colony numbers.

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 eighteen years, has generated the most accurate assessment of commercial pollination known in the U.S.

Summary Information - 2002

A total of **14** commercial beekeepers, owning **59,576** colonies returned surveyforms.

A total of **104,322** colony rentals generated **\$3,799,814** in rental income.

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The average per colony pollination rental fee (for all beekeepers, for all crops including California almonds) was: **\$36⁴⁰**

The average commercial colony was placed in **1.75** pollination sets in 2002, for an average per hive rental income of **\$63⁷⁵**.

The average commercial bee operation maintained **4,255** colonies and grossed **\$271,256** in pollination rental income for 2002.

Honey Bee Pest and Disease Updates For Hobbyist and Commercial Beekeepers

Learn the sampling techniques for detection, threshold levels, and control methods for a variety of pests and diseases of honey bees in Oregon. This Friday evening/full-day Saturday workshop provides current information and hands-on experience with recommended practices for managing honey bees. The focus includes varroa mites, tracheal mites, nosema and foulbrood. In addition to the information provided during the workshop, participants will receive lunch during the field day, as well as workshop materials and updates on practices as they become available.

Spring Workshops

Clackamas/Colton area: April 25 (7-9 pm) and April 26 (9am-3 pm)

Central Point/White City area: May 23 (7-9 pm) and May 24 (9 am-3 pm)

Cost per participant \$15*

Pre-registration is advised. Although every effort will be made to accommodate on-site registration, lunches cannot be guaranteed nor may workshop materials be immediately available. Confirmation and directions will be sent to participants upon registration. Information is available at <http://www.orsba.org>.

For additional information, please email honeybee workshop@attbi.com or write:

Honey Bee Workshops
PO Box 42363
Portland, OR 97242

Note: Additional workshops are being planned for the fall. Let us know if you are interested in one being held in your area.

**workshops are supported by a grant from the Oregon Department of Agriculture to the Oregon State Beekeepers Association.*

For each person registering, please provide the following:

Name of participant: _____

Complete mailing address: _____

Phone: _____ ***Email:*** _____

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Workshop materials: Printed version _____ Powerpoint version on CD: _____

Any special meal considerations: _____

Amount enclosed (number of participants x \$15) _____

Please make check or money order payable to Honey Bee Workshops and mail this form with payment to Honey Bee Workshops, PO Box 42363, Portland, OR 97242.