

The Bee Line

Newsletter of the Oregon State Beekeepers Association

Volume 37, Number 3

April 2012



Jan Lohman

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Image above: With the bloom of almond in California, no question about it: the bee season has begun!

Some Upcoming Events

April 21: Bee Day, Colton OR
(see OSBA Website)

June 2, 3, or 15: WSU Queen Rearing courses, various WA sites
(see OSBA Website)

October 4-7: Western Apiculture Society Conference, Seattle

OSBA WEBSITE: www.orsba.org
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IMPORTATION, PROPAGATION, AND DISTRIBUTION OF GERmplasm FROM OLD WORLD HONEY BEE STOCKS

Steve Sheppard and Sue Cobey

European honey bees were introduced into the United States and established by the early 17th century. The Honey Bee Act of 1922 restricted further US importations to prevent the introduction of the tracheal mite. With only a few exceptions, these early importations represent the foundation for all existing honey bee populations in the US, including commercial breeding stocks and colonies managed by beekeepers. Over time, this limited gene pool has been further reduced due to additional factors, including genetic drift, the loss of our feral honey bee population to parasitic mites, and the genetic consequences of large-scale queen production practices.

One goal of the Washington State University honey bee program is to enhance the genetic diversity of US honey bee populations through supplementation with germplasm derived from the original progenitor honey bee populations of Europe. An essential component of this goal is to facilitate the incorporation, maintenance, and distribution of these imported stocks into domestic breeding populations. A collaborative undertaking to address these needs was established with the California Bee Breeders Association (CBBA). As a result, CBBA queen producers have provided virgin queens annually from proven domestic stocks to be inseminated at WSU with the imported semen.

Various Carniolan, Italian, and Caucasian honey bee stocks were selected from homeland locations (Germany, Italy, Serbia, and Georgia) and evaluated for combining ability with domestic stocks. Additional selective factors included productivity, hygienic behavior, and reduced susceptibility to pests and diseases. In partnership with the California Technical Transfer Team, these evaluations will continue in commercial operations in California. Eventually, collaborating queen producers will be responsible for the production and nationwide distribution of queens reared from these select stocks.

At present, semen of *Apis mellifera carnica* imported from Germany has been incorporated into the New World Carniolan (NWC) stocks and is available commercially. During spring of 2012, we will test the addition of the Slovenian carnica germplasm into NWC. Semen of *A. m. ligustica* from Italy is still undergoing evaluation in crosses with commercial US Italian honey bee stocks. In 2010 and 2011, we collected and imported semen of *A. m. caucasia* from the Republic of Georgia and made initial crosses with US Carniolan honey bees. We will continue to backcross this stock to imported and cryopreserved Caucasian honey bee semen to develop and re-establish this as a distinctive strain within the US.

We will also incorporate specific imported genetic material into the WSU breeding program to further develop honey bees that are well adapted to Pacific Northwest conditions. The outcome of this work will likely include incorporation

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MESSAGE FROM THE PRESIDENT

In Eastern Oregon, things become pretty darned quiet during the winter (non-bee) months because we are a distance away from neighboring beekeepers. After the fall conference, our phones slow down, our bee work has stopped, and we have a hard time stirring up some fun! Soon the phone starts calling to us, beekeepers all a-twitter with excitement before heading their operations toward the almonds, comparing notes on queens, syrup, new trucks, and bee trucks heading south. All is well in the world again.

There is a very special feeling that beekeepers get when, having been away from the buzzing of the bees for a few months, they are presented with one of those 60°F, California-blue-sky, February days in a bee yard; the beekeepers are happy and the bees are happy. This year in February in the almonds, we had plenty of those incredible days.

In our very quiet life in Eastern Oregon, of course we are sad that more of our beekeeping friends don't choose to vacation in Hermiston, but I suppose that would be too much to ask! We do keep asking, but seldom have takers. Well, things are different in the almonds. Not only are our bees a buzzin' but our social life as well. We have a few beekeepers who stay nearby, and it is great to catch up with everyone's day.

We had the privilege of spending time with the OSU crew for a day in March. The team comes to California to trap pollen and begin to take samples of colonies that they follow throughout the year. Well, we put them through the beekeeping paces, and they were all troopers. Devon, an OSU student and owner of forty beehives, and Dr. Louisa Hooven helped Vince shake bees; Carolyn Breece, Ellen (Ramesh's new grad student from Minnesota), and Alexis Delong from the OSU Honey Bee Lab helped with brood pulling; and they all helped put queens into nucs. I think they had a good time, and I know that it was really fun for our crew.

I think one of the many joys of beekeeping is the pleasure we get from our relationships with other beekeepers. I will give credit where credit is due. Mark Johnson was at a Central Oregon Seed Meeting with me in February and said, "Oregon beekeepers are not so much competitors as collaborators." That says it all.

If you have not read the March issue of *American Bee Journal*, do yourself a favor and read the articles about both Dr. Dewey Caron (they call him the "Bee Preacher") and Terry Fullan and his wonderful enthusiasm for honey bees.

Jan

Importation—Continued from page 1

of both Carniolan and Caucasian germplasm into the WSU line. These bees are available to regional and local beekeeping associations interested in selecting and propagating honey bees adapted for their local conditions. In general, these "mountain originating" bees are well adapted to cold climates and geographic locations with a relatively short productive field season, so the expectation is that this honey bee genetic material may benefit efforts to reach our breeding goals.

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PACIFIC NORTHWEST POLLINATION SURVEY

Dewey M. Caron, Ramesh Sagili, and Michael Cooper

Beginning in 1986, Dr. Michael Burgett of the Honey Bee Lab at Oregon State University provided an annual survey of pollination economics in the Pacific Northwest (PNW) states (Oregon, Washington, and Idaho). The 25th annual report was published in the August 2011 *Bee Line*. With Burgett's concurrence, Sagili and Caron, with Mike Cooper of the Idaho State Department of Agriculture, have continued and expanded this annual pollinator survey. Our 2011 report will be published in the May issue of *American Bee Journal*. This is a summary of that report with specific Oregon information.

To obtain pollination information, we sent electronic and snail mail requests to approximately 150 commercial and semi-commercial Oregon and Washington beekeepers. A similar survey was sent by Michael Cooper to 144 Idaho beekeepers. We were able to utilize returns from 50 commercial beekeepers (13 from Oregon) and 13 semi-commercial beekeepers (5 from Oregon), who all together managed 155,424 colonies (simple averages = 3,108 colonies/commercial with 2,617 Oregon colonies; 228 colonies/semi-commercial with 300.6 Oregon colonies). If we consider 2010 NASS statistics that there were 59,000 Oregon honey-producing colonies (estimated from beekeepers owning five or more colonies), 71,000 in Washington, and 98,000 in Idaho, which is 228,000 colonies for the three states, our survey represents 69.5 percent of those beekeepers (60 percent in Oregon).

The 2011 pollination survey continues to illustrate the importance of pollination rental for PNW beekeepers. Overall, these 63 PNW beekeepers reported 234 crop rental opportunities of 16 crops for a total of 254,000 colony rentals. This represents a simple average of 1.6 rentals per colony owned; however, the average rental as listed per PNW beekeeper was 4.1 (Oregon = 5.8 rentals/commercial individual) with a range of 1–15 rentals. The 2011 weighted average fee of PNW rental colonies was \$90.62, an increase of 0.72 cents over the 2009 weighted average and \$20.23 over the drastic 21 percent drop last year (Figure 1).

By far the largest rental fee generator for PNW beekeepers is California almond rental, which has been the case for the last several survey years. Almond rentals were reported by all but three Oregon and four Washington semi-commercial beekeepers (56 of 63 individuals rented to almond). Respondents reported renting from 40 to 9,571 colonies to almond, for a total of 118,850 colonies.

Rental fee ranged from \$121 to \$172, weighted average = \$139.20 (Oregon = \$128.37), for a total rental income of \$16,542,802.

The steep 21 percent decrease in weighted average pollination fee (\$89.90 in 2009, but only \$70.85 in 2010) was due largely to a lower price for almond rentals of the 18 respondents to Burgett's 2010 survey, as borne out by plotting annual average weighted fee of almond and other crops (Figure 1). The average weighted almond rental fee reported by the 63 beekeepers in 2011 (\$139.20) was \$2.00 above 2010 (and 2007), but less than the average almond rental fee for 2008 (\$148.15) and 2009 (\$150.30). This argues for a leveling of rental price in California almond. In 2011, almond rentals accounted for nearly half (47 percent) of approximately 254,000 total rentals and 72 percent of total rental fee income of PNW beekeepers (for Oregon beekeepers, the weighted average rental fee was \$128.37 for the 29,174 Oregon colonies rented for almond pollination, which represented 35 percent of total Oregon colony rentals and 60 percent of their total rental fee income).

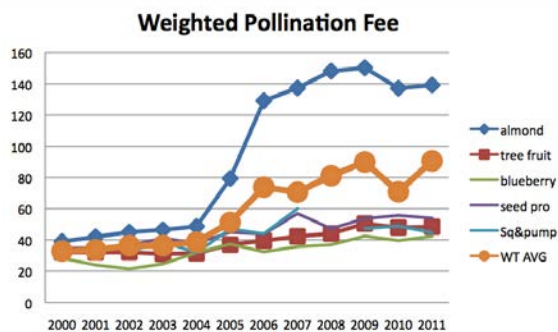


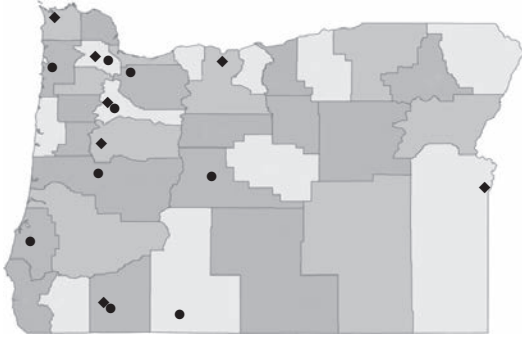
FIGURE 1. 2000–2011 weighted colony rental fee for all PNW rentals (middle line with circles), almond (top line with diamonds), tree fruit—including pear, sweet cherry, and apple combined (lower line with squares); also shown are blueberry, vegetable seed crops (principally carrot, radish, and onion), squash and pumpkin, and meadowfoam.

Within the PNW region, tree fruit remains the top pollination opportunity. In 2011, almond plus tree fruit was 79 percent of all rentals and 89 percent of income (for Oregon beekeepers, 64 percent of total rentals and 78 percent of total income). For comparison, almond and tree fruit combined accounted for 67 percent of all rentals and 79 percent of pollination income in 2010.

Berry rental (blackberry, raspberry, marionberry, blueberry, and cranberry) represented a distant third in importance for PNW beekeepers with 8.3 percent of rental colonies. For Oregon beekeepers, berry was also the third most important rental opportunity at 18 percent of all rentals. It should be noted however that one crop, blueberry, represented 65 percent of berry rentals and

Continued on page 9

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63211 Service Rd, Suite 130, Bend
President: Dennis Gallagher; 541.389.4776
For information, please contact John Connelly
johncobka@gmail.com

Coos County Beekeepers
Meets 6:30 PM, third Saturday (except December)
Ohlsen Baxter Bldg, 631 Alder St, Myrtle Point
President: John Gardner; 541.572.3847
Vice President: Shigeo Oku; 541.396.4016
Secretary: Bobbi Gardner; 541.572.3847
Treasurer: Jane Oku; 541.396.4016
janeoku1958@gmail.com

Klamath Basin Beekeepers
Meets 9:00 AM, last Saturday (except Nov/Dec)
OSU Extension, 3328 Vandenberg Rd, Klamath Falls
President: Tom Chester; 541.850.8384
klamathbeekeepers@gmail.com
Vice President: Chris Kerns; 541.884.8664
Secretary: Donna Schmerbach; 541.891.3066
Treasurer: Kathy Nelson; 541.882.3141
Website: www.klamathbeekeepers.org

Lane County Beekeepers
Meets 7:30 PM, third Tuesday, Trinity United
Methodist Church, 440 Maxwell Rd, Eugene
President: Judy Scher; 541.344.2114
judyscher@gmail.com
Vice President: Rita Ostrofsky; 541.685.2875
Secretary: Barbara Bajec; 541.767.9086
Treasurer: Nancy Ograin; 541.935.7065
woodrt@pacinfo.com
Website: www.lcbaor.org

Linn-Benton Beekeepers
Meets 6:30 PM, fourth Wednesday, South First
Alternative Co-op Meeting Room, Corvallis
President: Linda Zielinski; 541.929.4856
Secretary: Marie Laper
Treasurer: Suzi Maresh

Portland Metro Beekeepers

Meets 7:00 PM, second Thursday, Clackamas Community College, Clairmont Hall, Room 118, Oregon City
 President: Nancy McFarlane; 503.260.3930
 nancymariamcfarlane@yahoo.com
 Vice President: Jim Barlean; 503.659.9718
 jbarlean@msn.com
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 Treasurer: Rex McIntire; 503.720.7958
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Southern Oregon Beekeepers

Meets 7:30 PM, first Monday, Southern Oregon Res & Ext Ctr, 569 Hanley Rd, Central Point
 President: John Jacob; 541.582.BEES
 john@oldsolenterprises.com
 Vice President: Floyd Pawlowski
 541.482.4797; fmpawlowski@ashlandwireless.net
 Secretary: Michele Bashaw; 541.512.0155
 hapistitch@earthlink.net
 Treasurer: Ron Willing; 541.582.9694; rwilling@charter.net

Tillamook County Beekeepers

Meets 7:00 PM, second Tuesday, Art Space Hwy 101 & 5th St, Bay City
 President: Bob Allen; 503.322.3819

Tualatin Valley Beekeepers

Meets 7:30 PM (7:00 PM to socialize), last Friday
 Cameron Public Svcs Bldg, 155 N First Ave, Hillsboro
 President: Kevin Beckman; 503.539.5996
 kevin_beckman2@msn.com
 Vice President: Herb Brasington; 503.701.4180
 herb@hwbsystems.com
 Secretary-Treasurer: Jerry Maasdam
 503.648.7906; jmaasdam@mac.com

Willamette Valley Beekeepers

Meets 7:00 PM, fourth Monday, Chemeketa Community College, Building 34, Room A, Salem
 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: Patricia Swenson; pkswenson@gmail.com
 Website: www.wvbatoday.com

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REGIONAL NEWS**Regional Representatives****South Coast**

The Coos County Beekeepers Association met on February 18 and hosted special guest Carolyn Breece from Oregon State University. She made a presentation about the Oregon Master Beekeeper Program. Nearly 50 members benefitted from the information presented and had a lively question-and-answer exchange during the presentation. Members were especially interested in the requirements to achieve the Apprentice Beekeeper level and the potential to become Master Beekeepers. Much of the work of the program is in progress. Four members of the Coos organization have fulfilled the instructor/mentor requirements for the Master Beekeeper program. They are excited to involve their peer and novice beekeepers in this important process. Ms. Breece noted that to date only one person from the South Coast has indicated an interest. With planned presentations to civic groups, we hope to encourage more interest in the program.

A research question that could be of interest to our club is to examine the impact of yellow acacia as a source of pollen and nectar in mid-February when it blooms. A member brought a specimen branch from an acacia in full bloom. Those who were able to identify the plant were uncertain regarding its nectar and pollen value in our area. Several reported on winter losses and were uncertain regarding the related causes of their losses. There was discussion regarding the need for analysis of hive remains to determine cause.
 —Del Barber

North Willamette Valley

Beekeepers report that they were very pleased with their initial grading of colonies headed for almonds this year. After working hives in California, most beekeepers report very strong, healthy bees overwintered this year. “Beekeepers Disease” has seemingly hit an all-time high across the board, big and small, with Oregon beekeepers. Bee populations will support the increase for many, but shortages of nucs and packages are expected due to demand. The Willamette Valley Beekeepers Association



once again had a great turnout for its annual Bee School with over 90 in attendance. WVBA Bee School Director Kurt Swenson provided a strong program that returned grateful reviews!

WVBA membership is projected to approach 250 in 2012.

The Oregon Master Beekeeper Program is off to a very good start thanks to the very hard work of OSBA Secretary Carolyn Breece and her awesome crew. *Thank You* to all involved! In Salem, the program got off to a running start under the direction of WVBA President and Master Beekeeper Instructor Richard Farrier. Mentors are needed!! There is a waiting list for beekeepers wanting to enroll in the Oregon Master Beekeeper Program due to a shortage of mentors. Please consider sharing your knowledge and experience with an eager beekeeper this year. Think about it, then email Carolyn with any questions: info@oregonmasterbeekeeper.org. —*Harry Vanderpool*

South Willamette Valley

Well, fellow keepers, another year is upon us so get those smokers lit and pray to Mother Nature for good weather. April can be a difficult month for managing bees. Be vigilant in your duties, for losing sight of your main objectives will cause needless suffering for you and your bees. For the commercialists out there, be sure to keep an eye on population-to-honey ratios as well as the potential for swarming due to confinement. We check weight and look for swarm cells as soon as bees return from down south, and keep checking all the way until after boxes go on. Treatment time is here, so don't delay too long. Weak colonies during honey flow will drain your pocketbook in the fall. Requeen?

For the backyarders, it's time to open those hives and see what is what. Check for brood production and feed stores. An April pollen supplement is a good idea to get things moving. Watch for swarm tendency as the weather changes, but you still have some time before that fun begins. Treat early for best results; try to get most of the mites before they take hold. Spring nectar awaits if the weather is right. If not, watch their weight. It would suck to lose a colony after a long winter for something you can control. If you are going to treat, do it right and do it safe: everyone wins. Requeen?

Use good stock and enjoy. Good luck!

—*Jason Rowan*

Regional Associations

Klamath Basin Beekeepers

The Klamath Basin Beekeepers Association has had a successful beginning to 2012. At its January meeting, 50 were in attendance. In February, despite a snow storm, 65 showed up to hear John Jacob from Old Sol Apiaries discuss opportunities for beekeepers to raise their own queens. The club held a beginning beekeeping class on Saturday, March 10, that drew more than 50 students. In addition to the class, the KBBA is coordinating a group order of packages of bees for members and expects the number of packages to exceed 100. The club leadership committee is considering the possibility of holding an intermediate-level beekeeping class in late spring or early summer. —*Tom Chester*

Lane County Beekeepers

On Saturday, March 3, the Lane County Beekeepers Association held the annual Bee School. Around 70 attendees, mainly first-year beekeepers, were present. Our evaluation feedback was very positive.



Q and A session with presenters (above) and Ken Ograin discussing frame construction (right) during the LCBA Bee School.



Just like last year, the talks included an introduction to beekeeping by Chuck Hunt, equipment by Barbara Bajec, packages and handling bees by Jonathan Loftin, spring management by Morris Ostrofsky, and fall management by Judy Scher. Demonstrations on woodenware assembly and feeders were given by Ken Ograin, Brant Weaver, Max Kuhn, and Morris and Rita Ostrofsky. Ken Ograin will give a talk on package bees and feeding at our regular meeting on Tuesday, March 20. —*Judy Scher*

Portland Metro Beekeepers

President Nancy McFarlane opened the meeting greeting a great number of new beekeepers to their first meeting! She reminded everyone of the annual Bee Day on April 21. Limited to the first 175 people to sign-up, forms are on the OSBA website [www.orsba.org]. Jim Barlean described some of the most critical things to do with colonies this month, which led to a lively discussion of organic or natural beekeeping versus more recent methods. Kerry Haskins then gave a demonstration and discussion of installing package bees, the values of nucs,

and information about requeening. John Holderness will lead on the topic of Catching Swarms during our next meeting on April 12. —*Paul Jarrett*

Tillamook County Beekeepers

It's special when you can see manzanita blooming in a town named Manzanita. It's a sure sign that Spring is on its way! The March meeting of beekeepers in Tillamook County allowed everyone to make last-minute adjustments on planned bee orders. Bob Allen once again this year is helping everyone in the club with transporting bees back to the Coast. We have new beekeepers who are very excited to begin the craft of beekeeping. Most of us at the meeting discussed methods of hiving packages and nucs. Everyone is keenly aware of making sure equipment is ready for the approaching spring. The monthly meeting was another opportunity to share knowledge and just enjoy being with people who care for and love bees. Members made suggestions for things they'd like Dewey Caron to cover in an upcoming workshop. He and Carolyn Breece are visiting on May 19. Carolyn will cover the Oregon Master Beekeeper Program to stimulate interest. The club decided to organize a potluck for this event. Overall our club is growing, and that is certainly good news from the coastal region. —*Terry Fullan*

KEEPING BEES IN APRIL

Todd Balsiger

Each spring we need to verify that colonies are queenright, healthy, and well fed so they can build up to maximum populations to capitalize on the summer's nectar flow. In that endeavor, consider the following:

- ❖ Check for weight by hefting hives. Colonies can starve quickly at this time of year. Feed light colonies with heavy sugar syrup.
- ❖ Sample for Varroa infestation; treat if thresholds are exceeded. Last month I recommended the powder sugar shake. I've learned that the sugar shake can be fatiguing to the arm and the alcohol wash may be preferred. The procedure is the same as the sugar shake, albeit the bees and mites don't walk away. Whatever method you choose, take care to be consistent in use so you can make comparisons of mite counts in colonies over time.

This is some of what Randy Oliver writes about the alcohol wash: "It meets all my criteria for simplicity and quickness in the field, requires a minimal amount of equipment, and does not require sharp eyes nor much counting. Best of all, the alcohol wash gives an immediate and suitably accurate assessment of mite levels in a yard within a few minutes. Many in the

research community have gone to using the alcohol wash of 300 bees from the broodnest as their standard method of mite assessment. The suitability of the alcohol wash is supported by extensive sampling and statistical analysis by Katie Lee for her doctoral research."

I recommend visiting Randy's website at scientificbeekeeping.com to see how he makes his sampling kit and how he samples. I wish they sold these sampling kits at beekeeping supply stores; they'd be a hot item! Whatever procedure you use, continue to sample so you know your estimated infestation rate and whether or not treatment is necessary.

Randy's treatment thresholds are much lower than others I have read. In the summer, he treats anything above 2 percent infestation (6 mites out of 300 bees). Most other sources recommend treatment at 10 percent infestation. I do not know what threshold is appropriate for us.

- ❖ Do some "hive house cleaning" activities on a nice spring day. This allows a variety of tasks to be accomplished based on your objectives. With all hive manipulations, have a plan before starting and try to combine tasks to minimize hive intrusions. At the minimum, at least clean or swap out the bottom board for a dry one (a new pair of underwear, as Dr. Burgett would say), and make sure the colony is queenright. From there, the sky is the limit: reversing, making divisions, equalizing, and so forth. Many beekeepers systematically go through their hives and remove burr comb, poor quality comb, and old brood comb; clean bottom boards; replace queens if necessary; check brood frames for foulbrood; and create uniform strength hives.
- ❖ Consider stimulative sugar water feeding about 6 weeks prior to the onset of the major nectar flow. *Discontinue* stimulative sugar feeding before supering. For more on this topic, I am going to share what John Jacob wrote on the OSBA web page. From John: "An old timer once told me anybody can grow bees on a flow, but a good beekeeper will grow the bees before the flow in order to maximize honey production. I have found this to be very true for maximizing honey production. The key is to keep the bees from hanging in the trees before or during the flow. This can be accomplished several ways through better brood nest management. Several thoughts come to mind here:
 1. Super early and often.
 2. Checkerboard and keep the brood nest open.
 3. Monitor for signs of swarm impulse and take appropriate action.

Number three is very important and there will be many opinions on this. Personally I like to model my management on the bees' natural life history. In other words, help the bees do what they want to do. When there are signs of the urge to swarm I like to take the old queen off in a small nuc with a couple frames of brood and some food (much like how a swarm leaves with the old queen to establish a new hive). This way the parent hive is left strong for gathering nectar and rearing a new queen. A break in brood rearing during the flow actually can increase honey production because there will be less brood for workers to tend to during this period and the colony will naturally allocate more workers to foraging. If the new queen fails to mate or is marginal in any way, she can be dispatched and the old queen with her nuc combined back to the parent hive. Explosive growth before the flow is actually a good thing if one can manage the swarm impulse productively."

Other things to consider:

- ❖ Be prepared to catch swarms. The beginning of swarm season is marked by the flush of new growth on plants. It begins in earnest in April, peaks in May, and continues into June. Requeening, reversing, checkerboarding, equalizing, and making divisions are all strategies to reduce swarming.
- ❖ Maple trees bloom around the beginning of the month, which is a major nectar source for honey bees. If the weather cooperates, it is possible to fill supers with honey. Some beekeepers super now; others feel that their bees need the maple honey to ward off starvation. Only you know how well provisioned your hives are and the typical weather in your area. I personally do not super until May.
- ❖ Heed your super withdrawal times based on your pest and disease treatments. Also, if you use paradichlorobenzene for wax moth control, then before supering place supers out on a warm day to allow the paradichlorobenzene residues to vaporize.
- ❖ Divisions in April are ideal if a robust honey crop is desired. However, well-mated queens are not always available, and well-balanced divisions (ratio of adults to brood) are necessary to prevent chilled brood. Making divisions is a form of Varroa control as it disrupts the brood cycle. (Swarming does the same thing, but to a greater extent.)
- ❖ Keep the front of hives clear of grass to promote ventilation and forager access.
- ❖ Mouse guards can be removed.

QUESTION OF THE MONTH

Question

In the January 2012 issue of *Bee Culture* article on Guarding Behavior by Clarence Collison and Audrey Sheridan, there is reference to two honey bee task groups, *soldiers* (page 21) and *responders* (page 22). I've never heard of soldiers except in ant colonies. Are soldiers and responders one and the same? If I understand it from the article, *responder* bees are house bees that fly at a large intruder with the intention of stinging. The article implies that guard bees induce responder behavior by alarm pheromones.

Response



CO₂-Emitting Dewey Caron:

As I understand it, guard bees alert hive mates with alarm pheromones. On intrusion and lots of pressure (robbing bees for example), bees inside the hive respond (i.e., responders) to assist in protecting the hive. They fly outside and seek to protect by flying in front of moving (and CO₂-emitting) organisms, bounce into intruders, and are the bees most likely to sting outside (guards stay in place at the entrance mostly). The name *soldier* has been applied to this "backup force" of the colony, but *responder* is more descriptive—so I think responder and soldier are referring to the same workforce population of the hive. Responders would be older-aged bees, not young house bees.

WELCOME, NEW & RENEWING MEMBERS!



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Eugene Evers	Henry Storch
Marc Gonzales	Charlene Thompson
Darren Gordon	Todd Waddell

Pollination Survey—Continued from page 3

nearly 72 percent of the total berry rental fee income for PNW beekeepers. For Oregon beekeepers, blueberry was 12.7 percent of total rentals and 8 percent of total reported income. Seed production (vegetable and clover seed) was slightly lower in rentals at 6 percent for PNW (and 11 percent for Oregon beekeepers). Rentals to canola and meadowfoam (oil seed crops) and cucurbits (watermelon, pumpkin, and squash/pumpkin) were the other major crop groups bringing in rental income. There were no canola rentals reported by Oregon beekeepers, while all but one meadowfoam rental was performed by Oregon beekeepers. For Oregon beekeepers, meadowfoam was 3 percent and cucurbits were 4 percent of reported rentals.

As Burgett has pointed out in his earlier surveys, tree fruit rental income is not consistent with the demand for colonies. Although tree fruit colony rentals were reported at a third of total PNW colony rentals, income was only half that level (17 percent). This held true for Oregon beekeepers as well with tree fruit: 29 percent of total rentals, but only 18 percent of total income. For many, these rentals are to neighboring farmers and have been long-standing services provided by beekeepers in many instances.

Pear pollination (23 individuals reported rental of 28,600+ colonies), apple (13 individuals provided almost 26,000 colonies), and sweet cherry (23 beekeepers rented almost 20,000 colonies) were, in that order, the best fee generators among tree fruit rentals for PNW beekeepers (Oregon beekeepers had nearly equal numbers of colonies in pear and sweet cherry rental situations and only half as many apple rentals). As with other crop rentals assessed in this survey, the range in rental price was over two times (\$28–\$60/colony for pear and sweet cherry and \$33–\$60/colony

for apple). Only almond (\$121–\$172) and meadowfoam (\$40–\$48/colony) exhibited narrow rental price ranges.

For a variety of vegetable seed crops, 33 PNW beekeepers reported rentals (range 20–5,000 colonies) for a total of 16,357 colony rentals. Pollination fees ranged widely, at \$35–\$75/colony. Weighted average rental fee was \$54 with a total value of \$884,551. Clover (red/white primarily and some vetch seed production) was reported by 14 individuals as garnering a rental income. There were five additional surveys submitted where \$0 income was reported; they were not included in clover seed colony number or income fee statistics. The 14 individuals reporting rental income rented just under 5,000 colonies to clover fields, range 8–1,192 colonies, at a fee range \$10–\$45/colony, the widest price range of any of the crops in the PNW, perhaps reflecting the presumed importance of clover for honey production. Weighted average for clover seed was \$33.47 for a total value of \$166,899. Clover seed and blackberry, raspberry, and marionberry rentals were the only two of the fourteen crops with a weighted average rental price below \$40 according to PNW beekeeper respondents.

Thirteen Oregon commercial beekeepers estimated their approximate income source as 28 percent honey sales, 69 percent pollination, and 4 percent other. For the five Oregon semi-commercial beekeeper respondents, it was more nearly a 50:50 split, slightly in favor of honey sales (51 percent) to pollination rental (49 percent).

Our survey asked if a pollination contract was used. Equal numbers of PNW commercial beekeepers indicated *yes* and *no* (16 each); 13 said *sometimes*. For semi-commercial beekeepers, four said *yes*, seven said *no*, and two indicated they used one *sometimes*. For Oregon commercial and semi-commercials, it was three *yes*, seven *no*, and five *sometimes*.

Respondents also were asked for number of employees. Responses included 1–12 employees with 60 percent saying 0 or 1; 1 was the most common number.

When asked to estimate the cost of maintaining a colony, responses varied widely, with only 60 percent providing a response to this survey question. Annual colony costs of Oregon commercials averaged \$200 (range \$130–\$250); for the five semi-commercials, the average annual cost was \$103.40.


TABLE 1. Pollination rentals and income by crop type as reported by 63 Pacific Northwest beekeepers (18 Oregon beekeepers) for 2011.

Crop	PNW & OR Beekeepers (number)	Colony Rentals (number)	Colony Rentals (%)	Rental Income	Rental Income (%)
Almond	PNW/56	118,850	47	\$16,542,802	72
	OR/15	29,174	35	\$3,744,968	60
Tree fruit	PNW/59	80,746	32	\$3,919,276	17
	OR/29	24,070	29	\$1,111,788	18
Berry	PNW/49	21,879	8.3	\$843,919	3.7
	OR/29	13,872	18	\$661,438	10.6
Seed production	PNW/47	16,357	6	\$884,511	3.9
	OR/30	9,424	11	\$435,385	7
Cucurbit	PNW/17	3,447	1.4	\$177,618	0.8
	OR/14	3,333	4	\$171,547	2.8
Canola & meadowfoam	PNW/10	7,684	3	\$410,788	1.8
Meadowfoam	OR/8	2,584	3	\$111,788	1.8
Total	PNW/234	253,899		\$22,945,813	
	OR/125	83,457		\$6,237,024	

The use of managed honey bee colonies for commercial crop pollination continues to be a major management decision requiring large numbers of pollination rental colonies for Oregon and PNW beekeepers. The 63 PNW 2011 survey respondents (18 from Oregon), the 26th pollination economics survey year, reported a weighted average pollination fee of \$90.62, an increase over the 2009 survey average (\$89.90) and the much lower weighted average of last year (\$70.85). The 2011 figure is in fact the highest average in the 26-year survey. The steep decrease found last year appears to be due both to a smaller number of returns and a decrease in almond rental prices. Although the average almond rental fee was not as high as in two previous survey years (2008 and 2009), an increase average of \$2.00/colony was noted.

This survey demonstrates that, in the words of Dr. Burgett in his 25th annual report, “The vast and diverse agriculture of the PNW relies on a healthy and strong beekeeping industry to maintain optimum production. An enlightened knowledge of pollination economics is crucial to every beekeeper that enters the world of commercial crop production.” We couldn’t agree more. Although the survey populations have varied over the 26 years of the survey, we believe the representation in our 2011 survey of over 69 percent of the estimated colony numbers maintained in the PNW region (60 percent Oregon) points to the rigor of the survey and validity of our sampling method. Comparing the hypothetical PNW rental income value (\$30 million) with the farm-gate value of PNW crops needing supplemental pollination (\$2.75 billion) demonstrates that pollination “costs” are barely 1 percent of total crop value. This varies with the individual crop market value (almond is not included in the PNW figure).

The average pollination fee has increased from \$32.85 to \$90.62, an increase of 175 percent, since 2000. While dramatic, it should be stressed that payment of pollination fees represents a minor operating cost to growers of crops benefitting from supplemental pollination and has consistently lagged behind the real value of the service. It is only the last half-dozen years, as illustrated in Figure 1, that the pollination fee for services has improved, largely as a result of almond rentals.



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The neighborhood crops of Oregon beekeepers benefit greatly from the early season almond rentals that provide the vast majority of pollination income (60 percent), although preparations to produce exceptionally strong early season colonies and transport costs are considerable. Downstream benefits include stronger colonies for subsequent rentals, opportunities for division of colonies that exit almond rental fields in greater strength, and colonies with large brood populations (sometimes sold for extra income). The wide disparity in the range of rental prices in tree fruit and a half-dozen other crops (almond and meadowfoam were the exceptions) also seems to indicate that not only the pollination colony renters but also the beekeepers who provide the rentals do not have a good sense of the need for pollination services. Nearly as many beekeepers operate on a “handshake” or telephone call system as with a pollination contract. Is the undervalue of tree fruit pollination the result of both parties not fully recognizing the real values here?

Beekeeper estimates varied widely on the annual cost to maintain a colony (from \$50 to over five times that amount) and a considerable percentage (40 percent) did not provide a response. Lack of response to the cost per colony could be due to individuals not computing costs in that manner or simply not computing annual operating expenses at the time of completing the survey, as stated on two survey forms. Responses did roughly track with the number of employees, as higher colony operating costs were generally listed by those respondents with the higher number of employees (lack of a response was not interpreted as 0 employees). Oregon/Washington beekeepers had a higher operating cost (perhaps reflecting the fact they had double the number of rentals) compared to Idaho beekeepers.

With our expansion of sample size in the 2011 survey, we believe we present a realistic snapshot of the pollination industry by PNW beekeepers. While not valid to directly compare one year with another, with the large participation of beekeepers, we feel that these data are robust and representative of the larger scale beekeeping activities of Oregon and the region. Information is only as accurate as provided by individual respondents. The individuals who contribute, in fact any individual renting bee colonies, should use the information to compare to their own individual operation.

We wish to thank the Oregon beekeepers who took the time to participate in the survey. The 26-year record represents the most extensive and accurate assessment of commercial pollination in the US and points to evolution of our bee industry over this quarter-century time frame. We trust you find this report of interest and the information of value. We welcome your feedback.

OVERWINTERING LOSS SURVEYS OF OREGON BEEKEEPERS: 2010–2011

Dewey M. Caron and Ramesh Sagili

Note: This article is continued from the March 2012 *Bee Line*. It is part of the study reported in the March 2012 issue of the *American Bee Journal*, pages 257–260.

Twenty-five Oregon commercial beekeepers (owning a total 57,022 colonies in the fall) lost 9,315 colonies for a 17 percent weighted overall loss in 2010/2011 winter, the lowest loss rate in the past four years of direct beekeeper surveys and lower than the 24.5 percent loss rate of the previous overwintering period. Seven Oregon semi-commercial beekeepers (average apiary size of 155 colonies) reported a 24 percent loss (261 of 1,088 colonies going into winter). Thirteen Washington commercial and semi-commercial beekeepers had heavier colony losses, a 33 percent loss rate for commercials and a 37.3 percent loss rate by semi-commercial beekeepers. Twenty-six Idaho commercial and semi-commercial beekeepers reported losing 15,508 colonies, a 22 percent loss rate (range 2–78 percent). Oregon survey respondents owned 98.5 percent of total number of colonies as reported by USDA, NASS statistics (total honey producing colonies of individuals with more than five colonies) in the state in 2010. Survey respondents represented 67 percent of the total numbers of estimated colonies of the three states.

As in past survey years, small scale beekeepers experienced higher losses over the winter of 2010/2011. Responses of 102 Oregon small scale beekeepers surveyed at local association meetings in April revealed that 42 percent had no loss. As a group, 158 of 493 colonies died over winter 2010/2011, equating to a 32 percent weighted loss rate (range 1–18 percent; median colony number lost = 2, most common number lost = 1). For the three states, weighted small scale beekeeper losses (n = 188, average 5.5 colonies) was 30.7

percent, significantly lower than the 45.3 percent loss rate experienced by small scale beekeepers of Oregon and Washington for the previous winter. Although only a three-year record, the same oscillation of small scale beekeepers may be occurring similar to larger scale beekeepers, but with loss levels consistently heavier.

In addition to asking about losses, the one-page survey includes additional questions. Larger scale beekeepers were asked to provide an estimate of an acceptable loss level. In 2011, 52.5 percent said up to 10 percent and an additional 30 percent said up to 15 percent would be acceptable. Losses were actually 17 percent for this group, so loss levels are clearly above acceptable levels in the vast majority of beekeeper opinion. Additional questions asked perceptions of loss compared to the previous year. More beekeepers identified them as reduced rather than greater in 2011 and the reverse in 2010. Respondents were asked whether they perceived higher, lower, or about the same levels of loss before the loss symptoms identified as CCD came into general usage. Oregon beekeepers do not report extensive losses with the field symptoms of CCD (no dead bees but dead/dying colonies with honey and brood), but those that do, on average, also report heavier losses in their apiaries.

Beekeepers who participated were asked to estimate the reason(s) for the losses they are reporting. Most list more than one reason (see Table 1). In the 2010 survey, 27 respondents (24 percent of total listings) said mites; 19 (17 percent) listed starvation; 33 (30 percent) listed queen failure; 17 (15 percent) listed CCD, and 15 (13.5 percent) listed other reasons such as yellowjackets, ppb, flood, and virus, with 5 listing Nosema as the reason for their colony losses. The 2011 survey suggested that starvation was a

TABLE 1. Pacific Northwest commercial/semi-commercial beekeeper survey-selected reasons for winter losses (more than one choice could be selected).

Year	Mites	Starvation	Queen Failure	CCD	Other
2009–2010	27 (24%)	19 (17%)	33 (30%)	17 (15%)	15 (13.5%)
2010–2011	17 (16%)	22 (21%)	30 (28.5%)	13 (12.5%)	13 (12.5%)

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more common estimate with mites and CCD somewhat lower. Small scale beekeepers in 2011 listed a wider variety of reasons under the category *other* than did larger scale

beekeepers. Factors listed by 57 (35 percent) included weak in fall to pesticides, pests, Nosema, and weather, and 25 (15 percent) said *don't know*. Mites were listed by 12 (7 percent), starvation by 29 (17.5 percent), and queen failure by 33 (20 percent), while CCD was indicated by only 8 individuals (5 percent of listed choices).

What do these surveys help tell us? The overwinter bee losses of Oregon beekeepers appear to fluctuate from heavier to lighter in alternate years. What are you seeing this winter? Are losses heavier than last? Losses experienced in lighter loss years 2008/2009 and the last most recent winter (not including the current overwinter period) 2010–2011, are similar in magnitude to the losses reported by Burgett for PNW beekeepers during the years from the mid-1980s to the mid-1990s, when beekeepers were dealing with newly introduced mite problems, while heavier loss years are at a greater magnitude. Losses are below national loss levels in Oregon and generally a bit lower than for our neighbors in Washington and Idaho.

Smaller scale beekeepers report the heaviest loss levels. Reasons small scale beekeepers have considerably higher losses compared to commercial beekeepers (with semi-commercial intermediate in loss level) are not evident from survey responses. Management differences likely are involved. Commercial/semi-commercial beekeepers are more likely to inspect colonies earlier in the spring and

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more frequently, and they are more likely to supplement colony food stores in early spring and fall. In addition, commercial beekeepers treat prophylactically for Nosema and brood diseases, and are more likely to have a proactive Varroa mite treatment plan in place, whereas many small scale beekeepers do not practice prophylactic Varroa or Nosema treatments. Commercial beekeepers are more likely to save a colony via addition of a nuc and/or uniting colonies compared to smaller scale beekeepers.

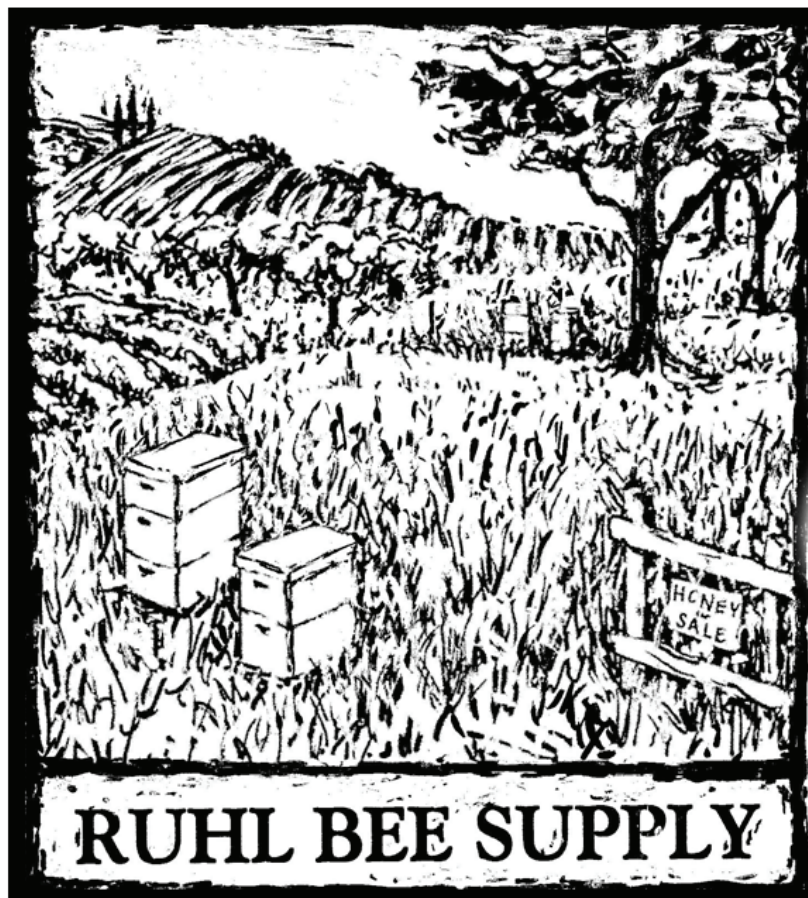
From our surveys, we find commercial beekeepers are replacing lost colonies in numbers that actually exceed the number of colonies lost overwinter, although the replacement rates reported have been lower in the past two seasons. Splitting of colonies from successfully overwintered colonies is the preferred method, with purchase of nucs or package bees being less preferred. One reason for higher purchase versus splitting the last two years could perhaps be due to possible federal reimbursement (Farm Service Agency) funding. Smaller scale beekeepers are either giving up in face of heavy losses or starting over with package bees and/or captured swarms.

It appears in the face of continuing heavy losses that evolving management practices have allowed the Oregon beekeeping industry to maintain sufficient colony numbers to service the agriculture industry's pollination requirements, including California almond. Almond and

tree fruit rentals constitute over 50 percent of larger scale beekeeper income, though another dozen crop rentals contribute as well. Pollination rental income continues to be significant, representing over three-fourths of total income for the year, for PNW commercial beekeepers.

The national survey will again be conducted in early April (2–20). We urge all Oregon beekeepers to participate; 168 backyarders and 5 commercial beekeepers did submit loss results this past year. Thank You. To receive an automatic message to participate, go to beeinformed.org, click on *Participate*, and submit your email address. You will get a message when the survey is open. A special thanks to all who elect to send 2011–2012 winter loss and 2011 management information.

For a more complete report of losses in the PNW, see the March 2012 *American Bee Journal*, pages 257–260. For the 2010–2011 national report, see the January 2012 *Journal of Apicultural Research*, pages 115–124. Special thanks to all the Oregon beekeepers who made the effort to complete a survey and send it back to Sagili at Oregon State University. A survey will be conducted again this spring, and we ask once again if you would take the few minutes the one page survey requires to *fill* it in and *send* it in. Small scale beekeepers attending spring association meetings will be asked to fill out a similar survey. We sincerely appreciate your continued cooperation.



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The **Oregon State Beekeepers Association** is a nonprofit organization representing and supporting all who have an interest in honey bees and beekeeping. Membership 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 the ongoing work of the organization on behalf of the honey bee and beekeeping, a vote in OSBA elections, discounts on publications, and an annual subscription to *The Bee Line*. For new memberships and renewals, please send check made payable to OSBA with this completed form to:

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—Shakespeare

To bee is to do.
—Sartre

To do is to bee.
—Nietzsche

Do bee do bee do.
—Sinatra

The Bee Line

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The next issue to be printed will be the May 2012 issue. The deadline for submitting copy is April 10, 2012.

Thank you!

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