

OVERWINTERING LOSS SURVEYS OF OREGON BEEKEEPERS: 2010–2011

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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%)

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

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.