

## 2017-18 PUB Winter Loss Part 1 by Dewey M. Caron and Jenai Fitzpatrick

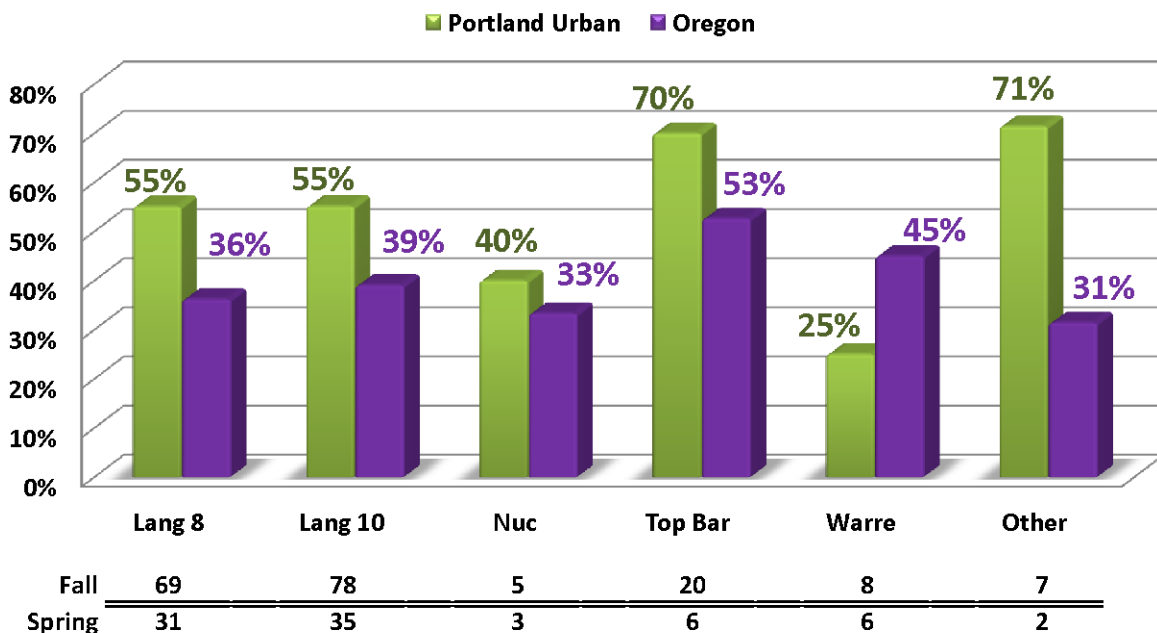
Overwintering losses of small scale Oregon backyard beekeepers were 38% down 10 percentage points in 2017-2018, compared with the previous season loss (48%). During the 2017-2018 overwintering period, 67 PUB members supplied information on winter losses and several managements related to bee health with an electronic honey bee survey instrument developed within the PUB bee group [www.pnwhoneybeesurvey.com](http://www.pnwhoneybeesurvey.com).

A total of 303 responses, up 7% from 282 OR responses last year, were analyzed with the 2017-2018 statewide survey. PUB response numbers were up by 10 individuals (16%) from the previous year and were once again the highest response of all the OR and WA clubs (see overall reports on [www.pnwhoneybeesurvey.com](http://www.pnwhoneybeesurvey.com) website).

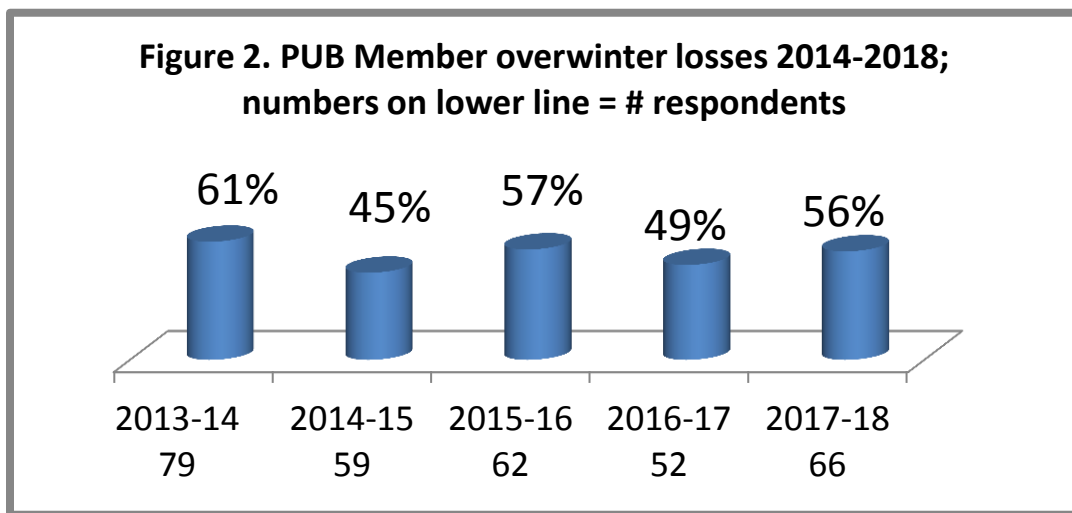
**Total overwintering losses of PUB respondents was 55%**, which was 17 percentage points (32%) above the statewide loss of 38% (database of 303 OR backyarders). This loss level was 6.6 percentage points above the previous year and 2.6 percentage points higher for the four previous seasons (See Figure 2). PUB loss rate of 55% was highest of all other OR associations with 10 or more responses, as has been case in previous four of five survey years.

PUB losses were 55% of both Langstroth 8 and 10 frames hives; losses of top bar hives and “other” hive types were 70% and 71% respectively. Langstroth moveable frame hives (8/10 frame and 5 frame nucs) represented 81% of hives maintained; 20 fall Top bar (53% of total reported in state) losses (70%) were higher than statewide, 8 fall Warré hive (40% of those reported in state) loss was lower than statewide. Seven “other” hives pf PUB members included insulated and tree hive – losses were heavy.

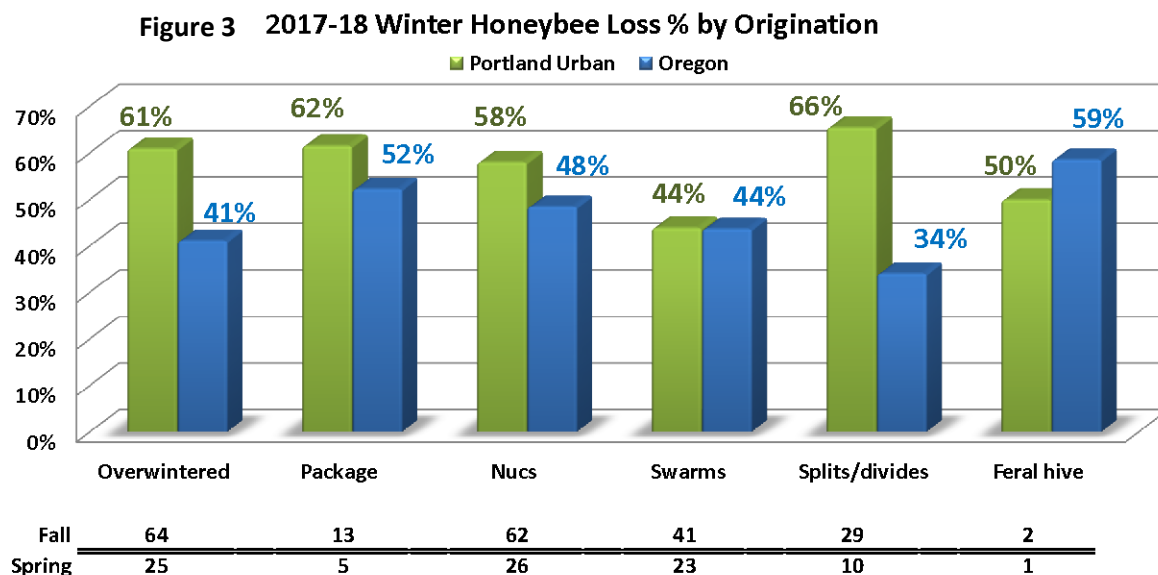
**Figure 1 2017-18 Winter Honeybee Loss % by Hive Type**



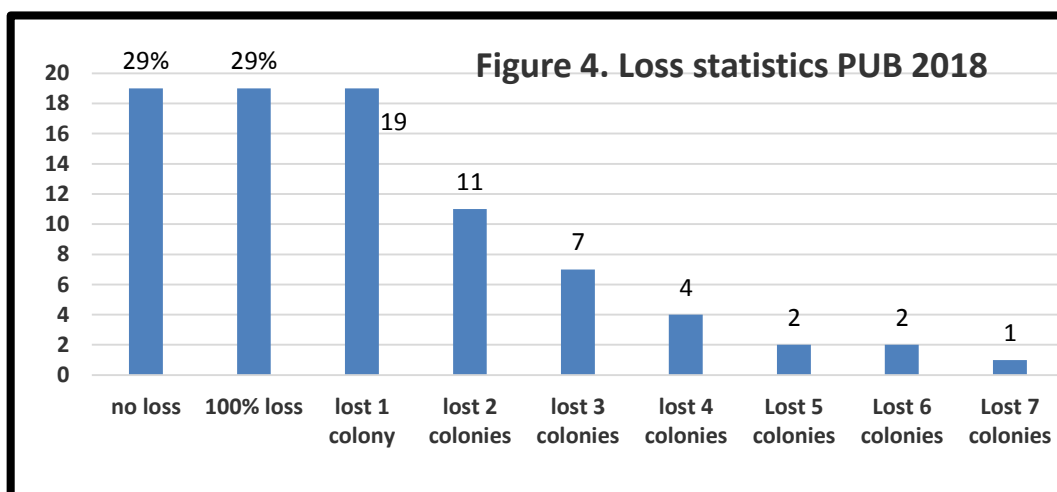
PUB losses this past winter were 3 percentage points higher than the average loss level for the four previous seasons (See Figure 2). Number of surveys returned was 2<sup>nd</sup> best of past 5 years.



The survey also asked for **loss by hive origination**. Twenty five of the 64 overwintered PUB member colonies were alive in the spring (61% loss rate), one-third higher loss rate compared to statewide (41%). PUB member respondents reported highest losses for packages (62%) and splits (66%); nuc losses (58%) were similar to overwintered colony losses, with swarm losses the same as statewide (44%). One of two feral hives were lost. See Figure 3.



Over 1/3<sup>rd</sup> PUB respondents (fall colony numbers) keep 1, 2 or 3 colonies (35.5%); the largest number was 31. Not everyone had loss. Nineteen **PUB individuals (29%) reported total winter survival** while the same number had total colony loss. Nineteen individuals lost one colony (41% of individuals with loss); largest loss was 7 colonies. See Figure 4.



Ten individuals (15%) had two apiary locations three had three and one had four. Six individuals reported they moved bees during the year; three moved a short distance, one due to neighbor issues, one moved for better location and one moved new hive to Oregon from California.

Forty-five (71%) of PUB respondents said they had a mentor available as they were learning beekeeping, two percent points greater than the 69% statewide response and 10 percentage points above the percent indicated last year.

PUB survey respondents reported a **range of beekeeping experience**. Thirty five individuals (55%) had 1 or 2 or 3 years of experience. Twenty-one individuals (33%) had 4 to 6 years, three (10.5%) had 7 to 9 years and five had from 13 to 33 years of experience, the largest number. Three years' experience was the greatest numeral response (14 individuals) and the median was 3, the same as the statewide response.

**Reason for loss:** We asked individuals that had colony loss to estimate what the reason might have been for their colony losses. Multiple responses were permitted. Of 44 PUB member responses (85 total choices - 1.9/individual), 18 individuals selected varroa mites (41% of respondent choice), 10 individuals said don't know, 11 individuals indicated weak in the fall and queen failure (25% of respondent choice each), 7 chose yellow jackets and 5 poor wintering and CCD each. Other reasons indicated included pesticides and robbing (3 each), starvation, beekeeping error and too much moisture (2 each) and choices indicated by one individual each were flooding, too little honey, bear, rodent, absconding and cold snap.

**Acceptable loss:** Survey respondents were asked reason for loss. Selections shown below in table.

	Zero	5%	10%	15%	20%	25%	33%	50%	75%	100%
	10	3	2	3	7	11	10	9	2	3

There is no easy way to verify reason(s) for colony loss nor an acceptable loss level. 50% percent of PUB beekeepers felt 25% or less was acceptable while statewide 15% loss was the median selection. Colonies in the same apiary may die for different reasons. Doing a dead hive examination is the first step in seeking to attempt to resolve why we experience such heavy losses. The PUB apiary a Zenger lost their Warré hive before the fall and both Top Bar hives did not survive winter. I did a Dead hive examination workshop April 15<sup>th</sup>; one colony died in the fall, likely from BEE PMS and the other died between March 15 and April 15 from starvation. See this report on the PUB website or elsewhere under reports here in the PNW website.

More attention to colony strength and possibility of mitigating winter starvation will help reduce some of the losses. Effectively controlling varroa mites will definitely help reduce losses – see the analysis of survival following management practices in following section and in report on statewide losses.

**Why colonies die?** Major factors in colony loss are thought to be mites and their enhancement of viruses especially DWV (deformed wing virus), pesticides, declining nutritional adequacy/forage and diseases, especially viruses and Nosema. Management, especially learning proper bee care in the first years of beekeeping, remains a factor in losses. What effects our changing environment such as global warming, contrails, electromagnetic forces, including human disruption of it, human alteration to the bee’s natural environment and other factors, play in colony losses are not at all clear.

**There is no simple answer to explain the levels of current losses nor is it possible to demonstrate that they are necessarily excessive for all the issues facing honey bees in the current environment. Varroa mites and the viruses they transmit are considered a major factor, but by no means the only reason, colonies are not as healthy as they should be.**

## **Part 2: Management selections and losses**

This requires further data analysis. Report will be posted as soon as available.