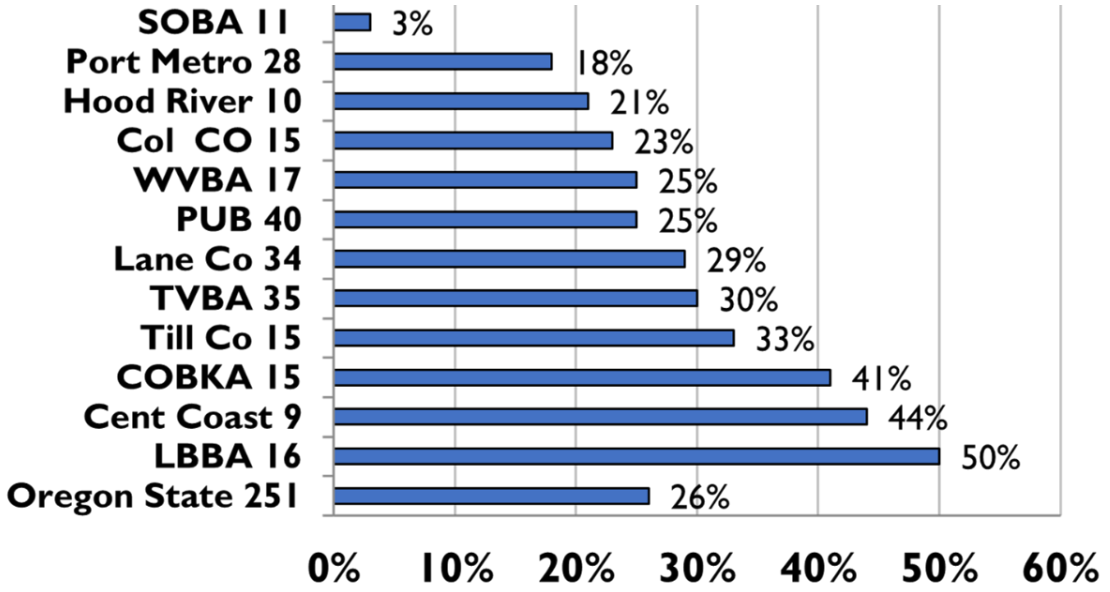
# **2024-25 PUB Winter Loss** by Dewey M. Caron

For the past 16 years, PNW winter colony losses and several managements related to bee health were solicited with an electronic honey bee survey instrument developed within the PUB bee group www.pnwhoneybeesurvey.com. A total of 251 survey responses were received from Oregon beekeepers, 40 members of PUB. This was 2/3rds increase of 16 returns compared to the previous year. **PUB loss rate was** 25%, one percentage point below the overall state losses.

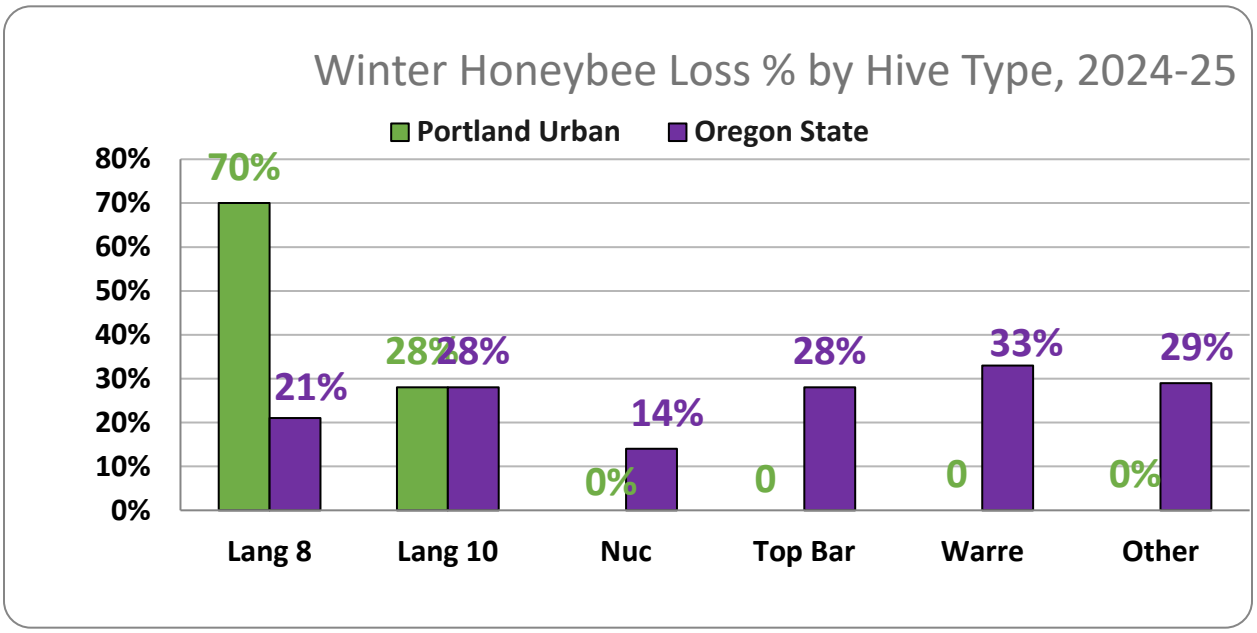
**Figure 1**




Overwintering losses of small-scale Oregon backyard beekeepers were 25.5%, slightly above the 20% of the previous year. Average 15-year loss statewide is 36.7%. The average overwintering losses of PUB respondents was 25 %. This is the fourth year in a row losses have been below 30% overwinter.

PUB losses, reporting on 176 fall hives, showed higher losses of 8-frame (29%) compared to 10-frame (20%) Langstroth hives. For the past eight years, PUB member losses of 8 frame hives are the same as 10-frame hives at 38%. The seven overwintered nucs fared worst – 71% loss level. Nuc losses are typically higher (8-year statewide average= 49%). Thirteen Top Bar hives reported by PUB members did well with all but 3 surviving; two of five Warré hives were lost. PUB member holdings of Top bar and Warré hives two years ago (2020-21) were one half of the total statewide but were only 11% this year. Statewide the past 8-year loss averages have been 50% for Top Bar and 41% for Warré hives. There were 4 other hive types, 1 tree, 1 long hive and 2 Layens hives. All but the tree hive survived. Loss of PUB members alongside statewide loss is shown in Figure 2.

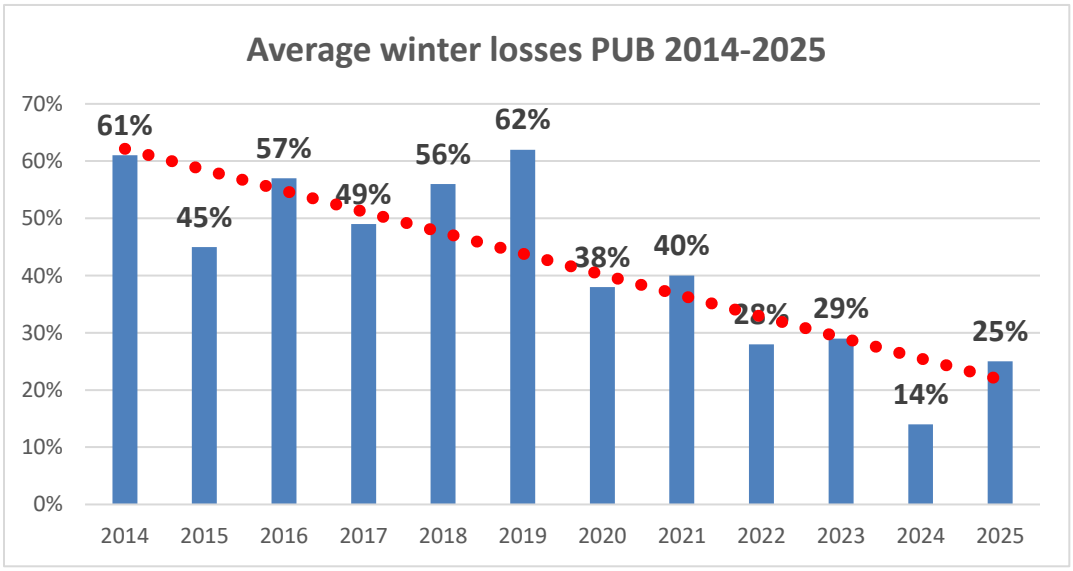
## Figure 2




| | | | | | | |
|---|---|---|---|---|---|---|
| Fall | 34 | 113 | 7 | 13 | 5 | 4 |
| Spring | 24 | 90 | 2 | 10 | 3 | 3 |

Figure 3 below illustrates the loss levels of PUB respondents for the last 12 years. The red dotted line is the trend line. Gratefully, losses are trending in the right direction.

## Figure 3




## Overwinter Losses the Past 16 Seasons

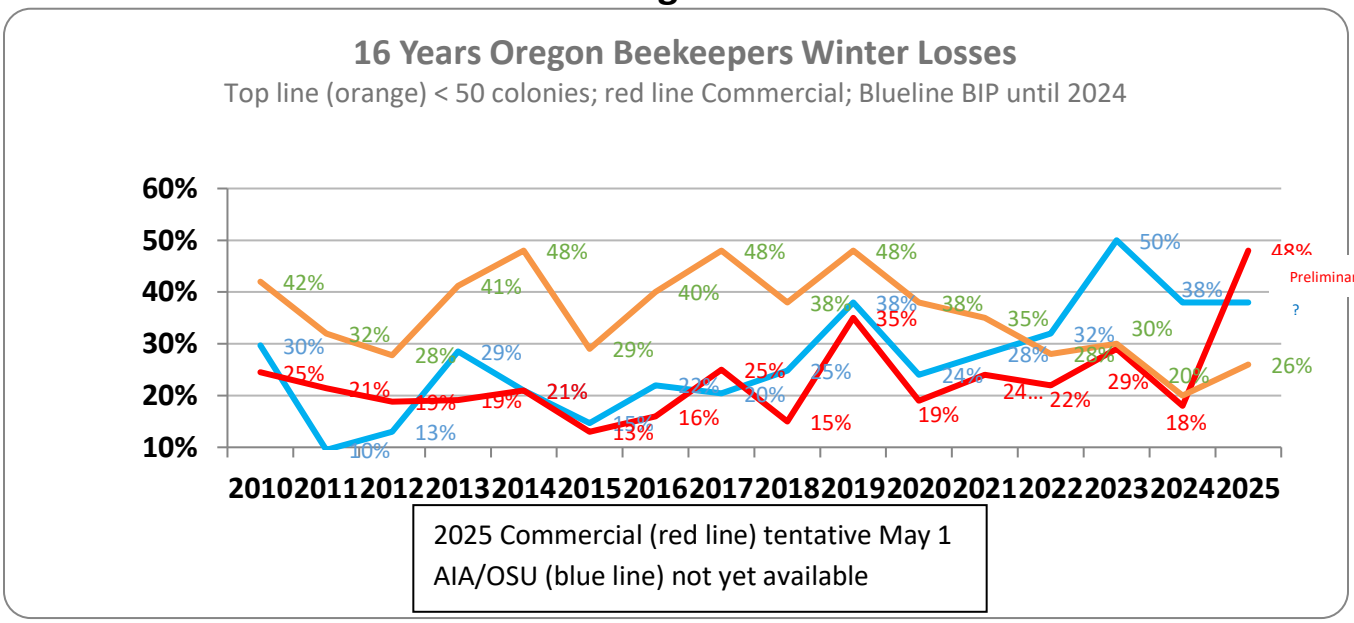
Comparison of the annual losses of backyarders with commercials is shown in Figure 4 The commercial losses are obtained from a different paper survey distributed by Oregon State University.

The number of commercial respondents (5 commercial and 2 sideliners) is preliminary as of May 1 (we are hopeful we will continue to receive a few more commercial returns); this preliminary loss includes only 22,400 colonies (NASS, USDA estimated colony number in Oregon (2022) =76,colonies, meaning we have only about 30% of the state numbers captured so far – most years we are above 50%). This preliminary loss rate is 47.8%.

Sixteen-year average backyard losses =36.3% loss and 15-year commercial/semi-commercial loss = 21.4%. The BeeInformed average (14 years) =25.4%; in 2024 the national survey was conducted by a consortium of Apiary Inspectors of America/Auburn University and Oregon State University. The 2024 winter loss was 37.7%; 2025 losses will be announced in May 2025.

Average backyard losses for the last 11 years of Oregon backyarders is 40.3%; for PUB members it is 43.5%, 3 percentage points higher. For comparison, the average 11-year loss average for OR Commercial beekeepers (50+ colonies) is 23.6%.

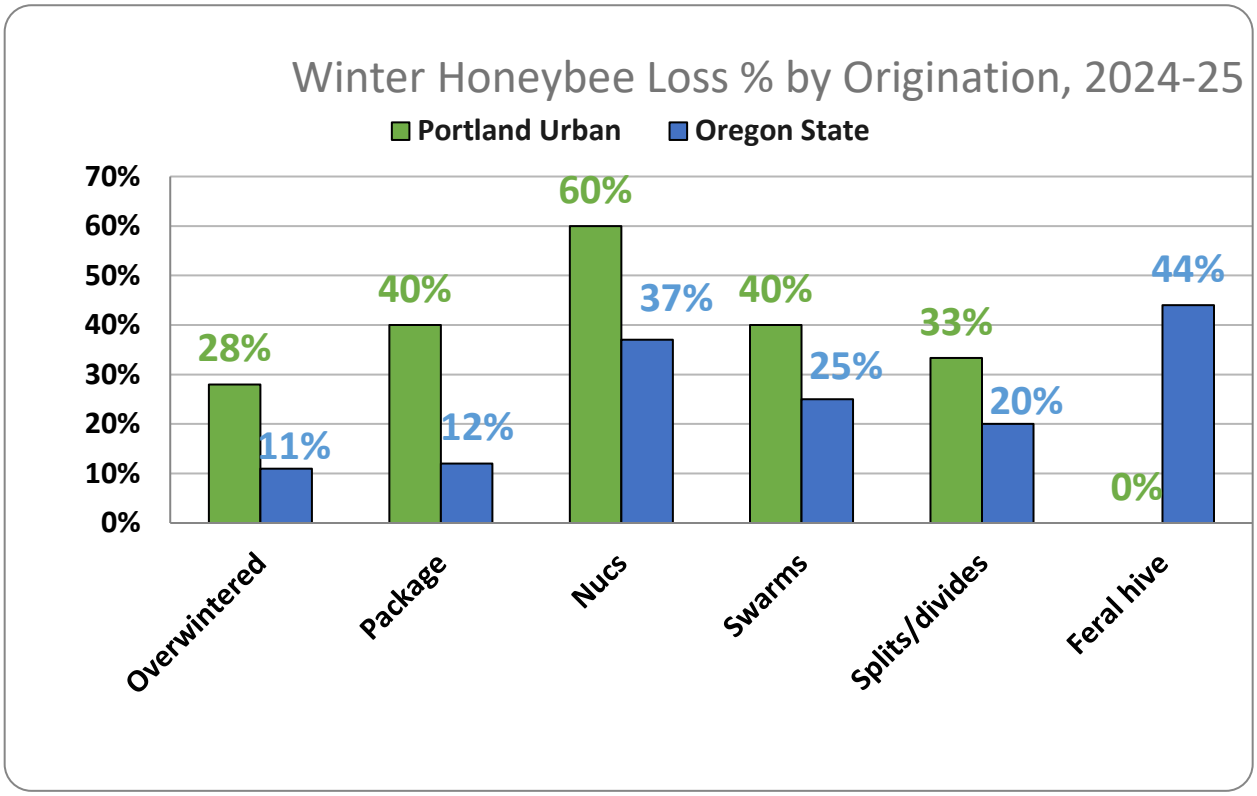
## Figure 4




The survey also asked for **loss by hive origination.** Overwintered colonies had the best survival in PUB (28% loss) and statewide (11%). Nuc originated overwintered colonies fared the worst (6 of 10 colonies died). Of five packages 3 survived. Swarm and split survival were similar with PUB survival not as good as statewide although numbers are small. Figure 5.

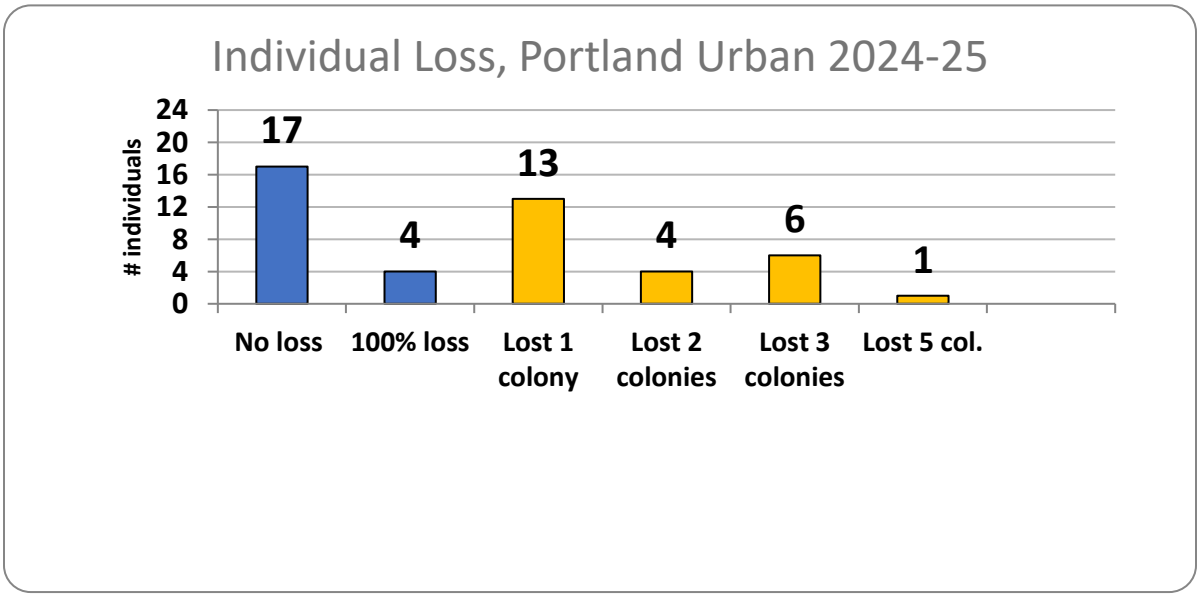
Not all individuals had a loss. Seventeen individuals (42.5%) had total survival, i.e., no colonies lost; four beekeepers lost 100% of fall hive number (9 colonies total). Thirteen individuals lost one colony. The greatest number lost was five colonies. See Figure 6.

**Figure 5**




| | | | | | | |
|---|---|---|---|---|---|---|
| Fall | 29 | 5 | 10 | 15 | 9 | 0 |
| Spring | 21 | 3 | 4 | 9 | 6 | 0 |

**Figure 6**



Typical of the statewide data, the PUB respondents are **largely beekeepers with few colonies.** Sixty-five percent (65%) of PUB respondents had 1, 2 or 3 fall colonies (3 was median number and 4.4 was average number) with a 38% loss level. Ten individuals had 4 to 6 colonies (34% loss) and four had 8 or more colonies with 29 the highest number; they had 18% loss. This relationship of individuals with increasing colony numbers having, on average, lower losses has been constant every survey year.

PUB survey respondents reported one to eight years' **beekeeping experience**. Three individuals had one year's experience (they had 50% loss), 5 individuals had two and 6 more had 3 years' experience; the 14 (35%) having 1 to 3 years' experience had a 34% loss. Thirteen individuals had 4 to 6 years' experience (5 was median number) with 23.5% loss. Eleven individuals had 7- or 9-years' experience with 26% loss. Four individuals had 10 years' experience with a 19% loss. As years of experience increased, generally loss level fell. Thirty-six of 40 PUB respondents (9087.5%) said they had a mentor available as they were learning beekeeping up 2.5 percentage points from last year.

Six individuals had 2 apiary sites. Survival levels were exactly the same at three and at the other three there was better survival. Two moved hives during the fall season, one for wintering site and the other to loss of a site following an allergic reaction of homeowner. None said they moved hives.

## Reasons for Colony Loss/Acceptable loss

We asked the individuals that had colony loss to estimate what the reason might have been for their loss (multiple responses were permitted – recall that 17 (of 40) individuals had no loss). Twelve said weak in fall, 10 indicated queen issues, and 7 said varroa – these were same top issues for beekeepers statewide. In addition 2 said pesticides, 3 poor wintering conditions,, 2 starvation, 2 yellow jackets and the 4 that listed an "other" the issues listed included entrance reducer clogged, entrance reducer put on too late and cold killed bees, another also indicated cold and the last one indicated colony split too late in the fall.

When asked about an acceptable loss, eleven said none, 1 said 10%, 2 said 15%, 9 said 20% (the median, same as statewide), 2 said 33, 5 said 25%, 7 said 50% and 1 indicated 75% was an acceptable level of loss.

### Why do colonies die?

There is no easy way to verify reason(s) for colony loss. Colonies in the same apiary may die for different reasons. Examination of dead colonies is often confusing, some options may be ruled out, but we are often left with two or more possible reasons for losses. There is a good deal of variance in opinion as to what might be an acceptable loss level. PUB choices ranged

from none to 75% acceptable loss level. We are dealing with living animals which are constantly exposed to many different challenges, both in the natural environment and the beekeeper's apiary.

Major factors in colony loss are thought to be mites and their enhancement of viruses, especially DWV (deformed wing virus), plus declining nutritional adequacy/forage availability and diseases. Pesticides in the agricultural environment weaken colonies. Yellow jacket predation is a constant challenge to weaker fall colonies, 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 currently facing honey bees. Varroa mites and the viruses they transmit are considered a major factor why colonies are not as healthy as they should be. Thankfully the loss trend for PUB members is favorable.**

## Managements

We asked in the survey for information about some managements practiced by respondents. New this year, respondents could elect FAST TRACK and bypass providing this information. 70% (28 individuals) of PUB respondents did provide management information. The survey inquired about feeding practices, wintering preparations, sanitation measures utilized, screen bottom board usage, mite monitoring, both non-chemical and chemical mite control techniques and queens. Respondents could select multiple options and there was always a none and other selection possible. This analysis seeks to compare responses of this past season to previous survey years. This analysis takes longer. Results will be posted when available.

This analysis will take more time. I will supply this information for PUB members, including comparisons with previous seasons. It will be presented at the June PUB monthly meeting and then posted to this same site.

## Closing comments

This 16th year of the PNW survey marks the exit of Jenai Fitzpatrick from the analysis team. She had an allergic reaction to her bees and had to sell her colonies and due to health issues of her mother she moved to Florida. I sincerely appreciate and thank you Jenai for all you did for survey activity over these past years. Enjoy your own retirement in the warmer shores of Florida.

I intend to continue this survey activity and will seek to find someone who can help in the capacity that Jenai was so helpful. If you would like a reminder when survey is open please email us at info@pnwhoneybeesurvey.com with "REMINDER" in the subject line. I have a blog on the pnwhoneybeesurvey.com and will respond to any questions or concerns you might have. Email me directly for quicker response. dmcaron@udel.edu

**Thank You to all who participated.** If you find any of this information of value, please consider adding your voice to the survey in a subsequent season.

Dewey Caron with thanks to Jenai Fitzpatrick, May 2025

**Thank You to all who participated.** If you find any of this information of value, please consider adding your voice to the survey in a subsequent season.