2023-24 Columbia Winter Loss by Dewey M. Caron

For the past 14 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 171 responses were received, only 2/3rds of the number last year and well below the previous 5-year average of 305 respondents. Results of the 121 Washington respondents completing surveys (the average response rate of last few years) are included in a separate loss report. Oregon average loss was 20% and Washington average loss was 31%, both the lowest reported for both state groups in my surveys. During the 2023-2024 overwintering period, 11 Columbia County member surveys were returned, slightly below the previous 5-year average of 13.6.

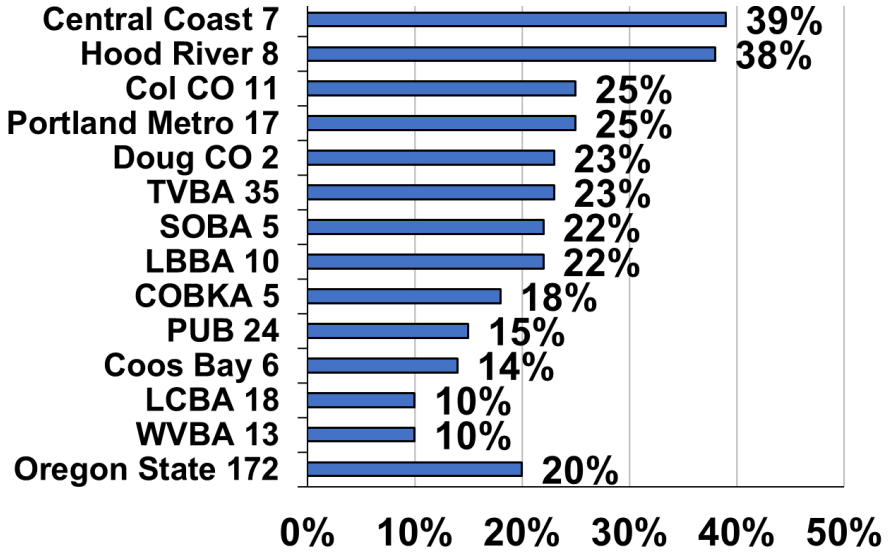


Figure 1

Columbia responses, reporting on 69 fall hives, showed doubly higher losses of 10-frame compared to 8-frame Langstroth hives. Only other hive types reported were two tree hives, both of which did not survive.

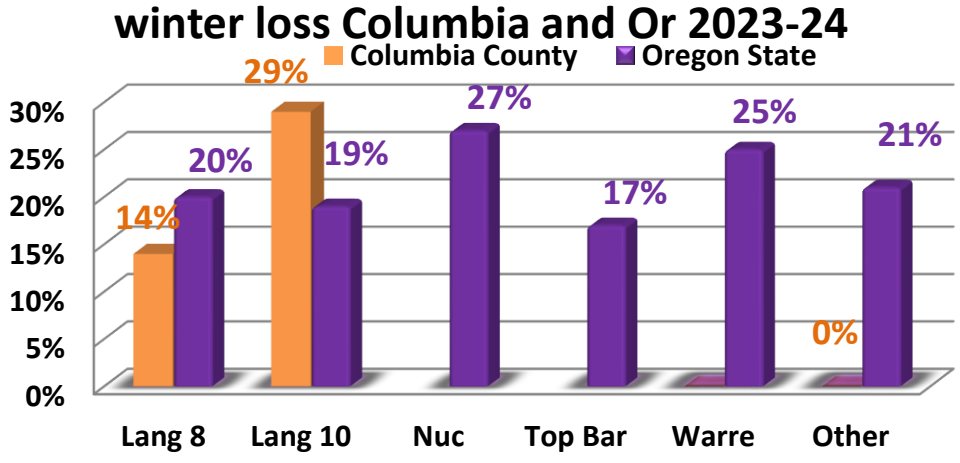
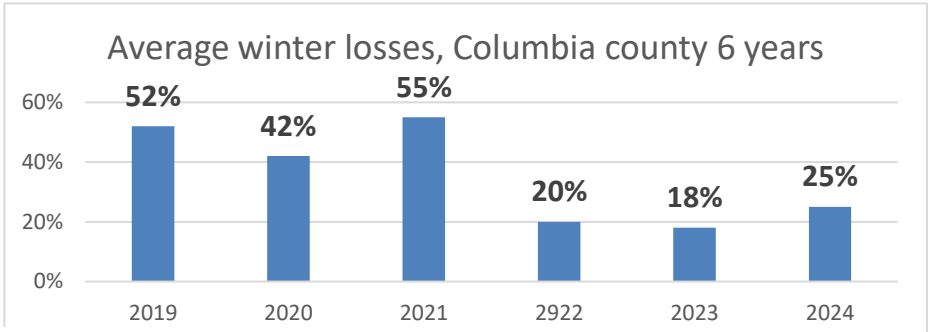


Figure 2

Figure 3 shows losses for Columbia County last 6 years. A bit of caution – I have had relatively few responses – the respondent numbers shown below years.

Figure 3



# responses	11	17	16	8	16	11

The survey also asked for **loss by hive origination.** Overwintered colonies (12 lost of 38 fall colonies) did not have the best survival in Columbia County respondents (34%) compared to statewide (13%). Swarm originated colonies did better (2 of 14 lost).There were no packages. Of 4 nucs 2 were lost (50%) and of 19 splits 8 were lost (42%) higher. Single feral transfer survived.

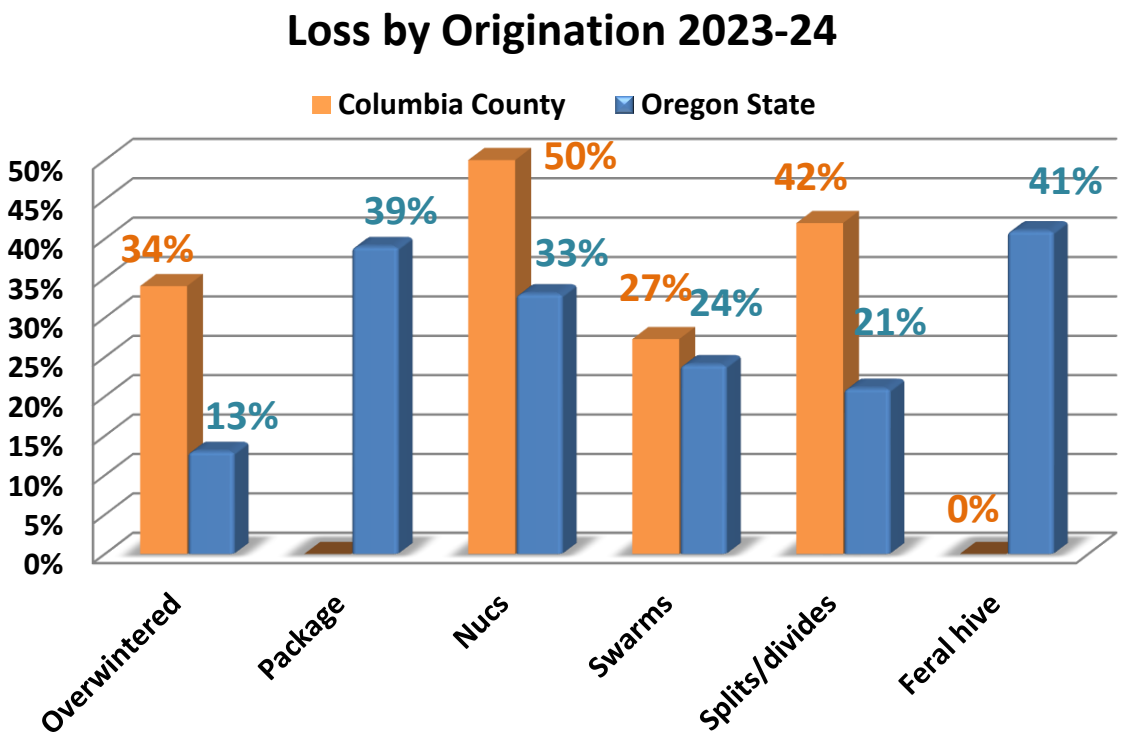
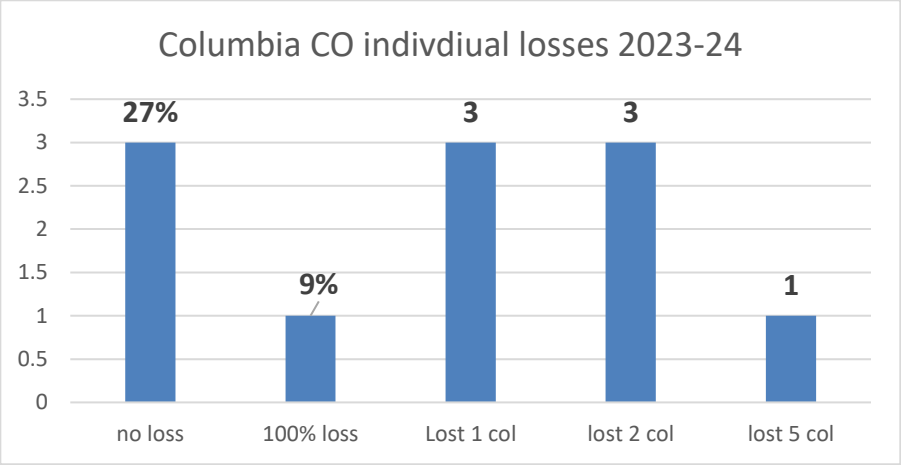


Figure 4

Not all individuals had loss. Three individuals (15 colonies) had total survival, i.e., no colonies lost. One individual had a 100% loss (2 total colonies). Three individuals lost one colony and 3 lost 2 colonies with a single individual losing 5 colonies (heaviest loss).

Figure 5



Typical of the statewide data, the Columbia County respondents are largely beekeepers with few colonies. Five individuals had 2 colonies (60% loss), and one had 3 colonies with one loss (33%). So loss of individual with 3 or fewer colonies was 50%. One individual had 5 colonies with no loss and two individuals had 8 and 9 colonies with two lost (12%). Two individuals had 15 colonies with 23% loss. Statewide as individuals manage more colonies the loss percent is reduced.

Four Columbia respondents had a one to three years experience; their loss was 75%. The 3 respondents with 3 years experience (total 7 colonies), lost 2 for 28.5% loss level, the four individuals listing 5 or 6 years of bee experience lost 4 of 40 colonies – 10% loss level, the two individuals with 7 or 8 years of experience has 14 colonies but lost 5 for 36% loss level and those four individuals with 10+ years experience (highest number was 45 years experience) had an 18% loss level (7 of 39 colonies didn't survive). Statewide, as years of experience increase generally loss level falls; this relationship not evident for Columbia county respondents due to small sample size.

Twelve of sixteen CC respondents (75%) said they had a mentor available as they were learning beekeeping;. state level was 74%. Four individuals had 2 apiary sites. Two said they moved hives during the year.

Reasons for Colony Loss/Acceptable loss

We asked individuals that had colony loss to estimate what the reason might have been for their loss (multiple responses were permitted. A total of 8 choices were listed. Highest selection, 2, was varroa; there were 1 each of CCD, Pesticides, poor wintering, weak in fall, starvation and wintering.

When asked about an acceptable loss, one said none, 3 said 10%, and 3 said 25% (median number), 3 said 33% and 1 said 50%.

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, 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. We are dealing with living animals which are constantly exposed to many different challenges, both in the natural environment and the beekeeper's apiary. Our acceptable loss level has crept upwards over time.

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 and diseases. Pesticides in the agricultural environment weakens 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.

Managements

We asked in the survey for information about some managements practiced by respondents. 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. With 11 respondents the numbers are skewed. Refer to the statewide report when it is posted.

Closing comments

This survey was originally designed to 'ground truth' the larger, national Bee Informed loss survey. See statewide PNW reports for OR and WA for this comparison (graph 5 in OR and WA reports). The numbers while slightly different do in fact track well. Unfortunately, the

national BIP survey was discontinued after 2023. See the BeeInformed website www.beeinformed.org for additional information and to examine that data base as well. The BeeInformed survey is measuring the larger scale OR beekeepers not the backyarders as loss rates are of total colony number. Reports for individual bee groups are customized and only available from the PNW website; they are posted for previous years.

I intend to continue to refine this instrument each season and hope you will join in response next April. 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 May 2024