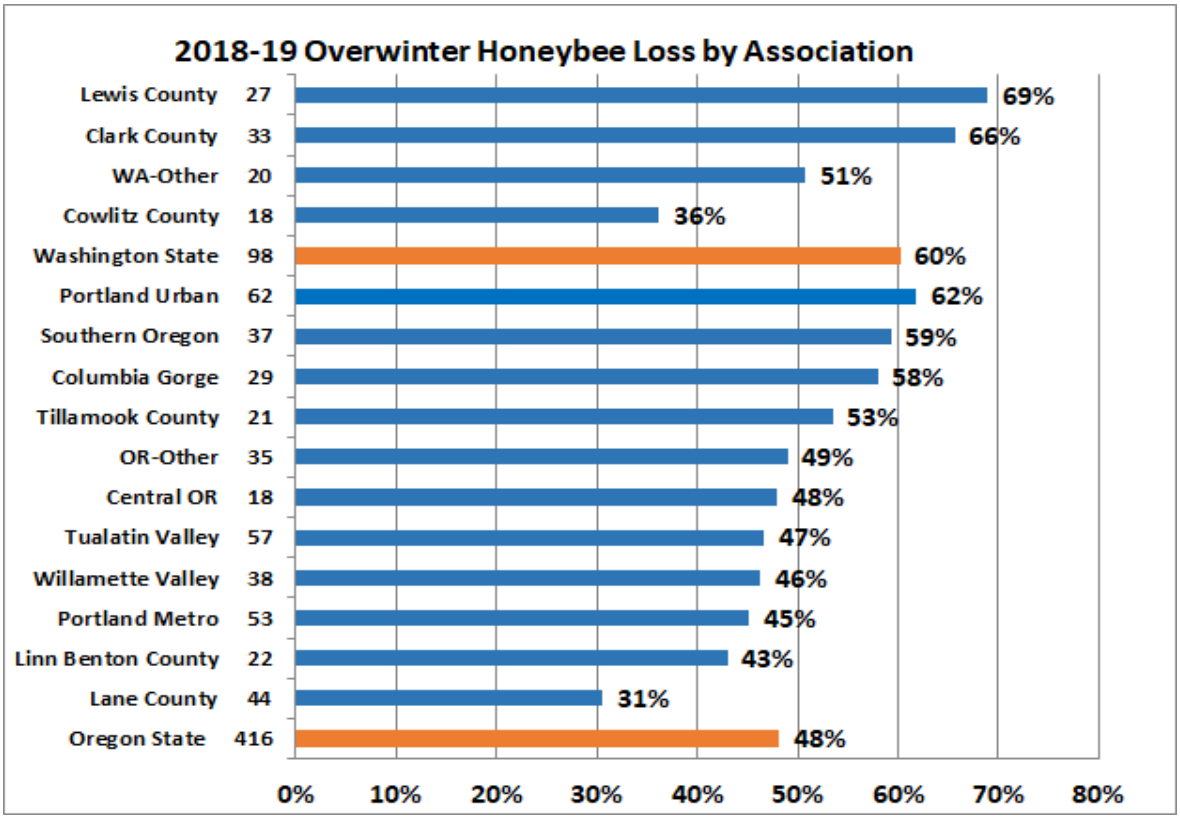
Cowlitz Co beekeeper Losses 2018-19 Part 1 by Dewey Caron

Overwintering losses of small scale Washington beekeepers was elevated by sixteen percentage points over the 2017-18 loss level (44%) but returned to the high levels (60%) of 2016-17. 98 WA beekeepers (six fewer than last year) supplied information on winter losses and several managements related to bee health with an electronic honey bee survey instrument www.pnwhoneybeesurvey.com. Figure 1 shows total WA & OR response. Or losses (48%) were 12 percentage points lower than those of Washington beekeepers.



Cowlitz Co backyard beekeeper overwinter loss = 36% loss.

The loss survey overwintering statistic was developed by our asking number of fall colonies and surviving number in the spring by hive type. Results, shown in Figure 2 bar graph, illustrates overwintering losses in comparison with other Washington beekeepers. Fifty four of the 58 hives or respondents were movable frame hives; the survival rate was 32% as all 4 of the non-traditional hives did not survive. For consistency the higher loss level of 36% will be sued as all hive types are include in the data reports for the various clubs.

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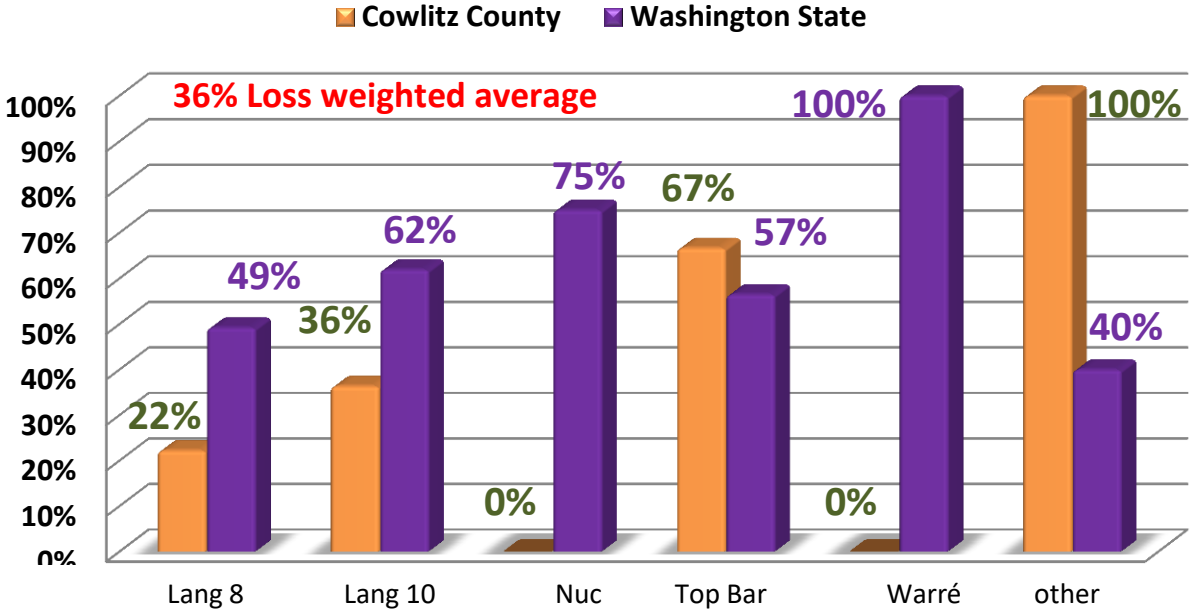
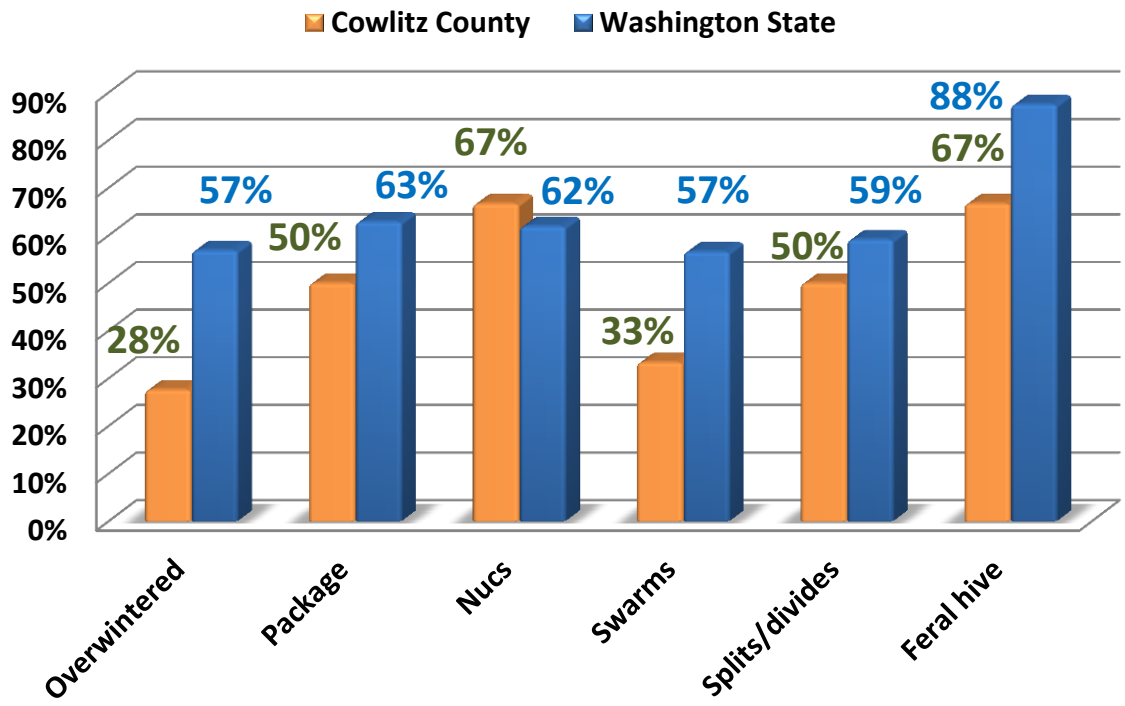
Figure 2 2018-19 Winter Honeybee Loss % by Hive Type



Fall #	9	44	3	3	0	1
Spring #	7	28	1	0	0	0

Loss by hive origination: We also asked survey respondents to list their loss by hive origination. The result is graphically presented in Figure 3 for the 18 Cowlitz Co respondents alongside the data for the 98 Washington State survey returners show great similarity.

Figure 3 2018-19 Winter Honeybee Loss % by Origination



Fall	**29**	**8**	**12**	**18**	**10**	**3**
Spring	**21**	**4**	**4**	**12**	**5**	**1**

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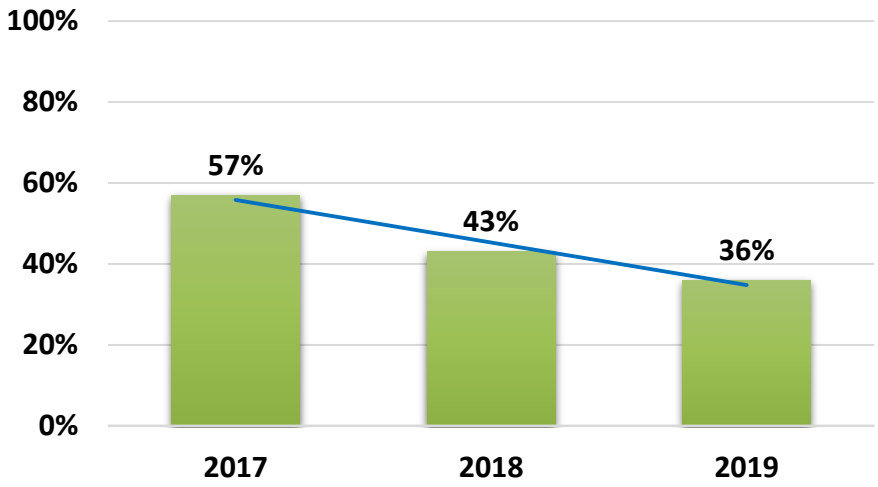
Loss History Losses this past overwinter were below the previous two seasons but earlier surveys had fewer County respondents (18 this year, compared to 15 last and only 3 the previous year). Figure 4 shows number of Cowlitz loss history. Trend line is one of very few club records that is trending downward.

Figure 4. Cowlitz County Loss History



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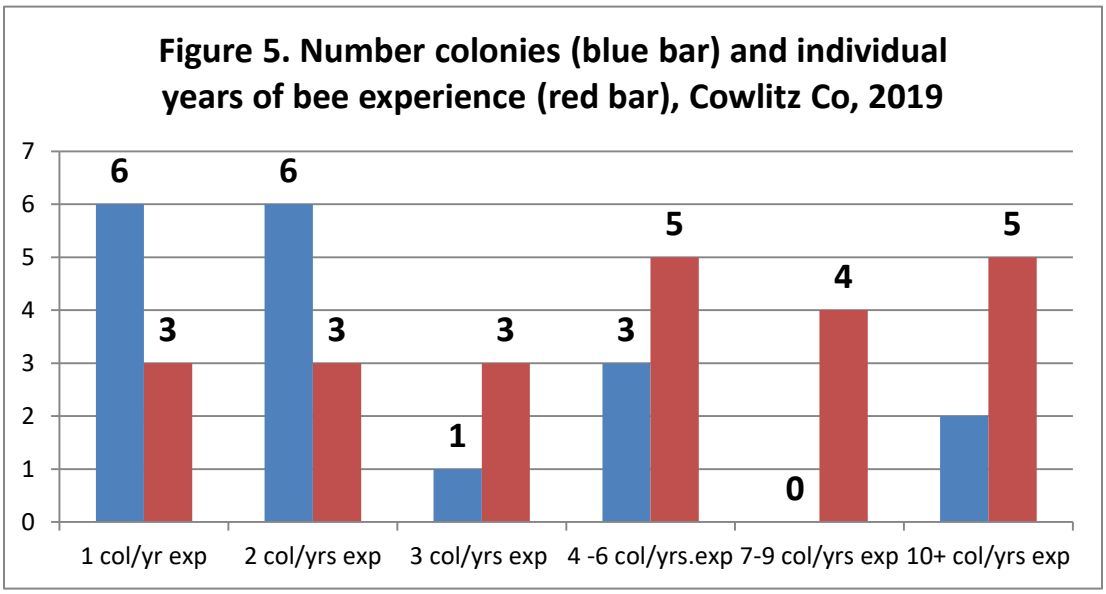
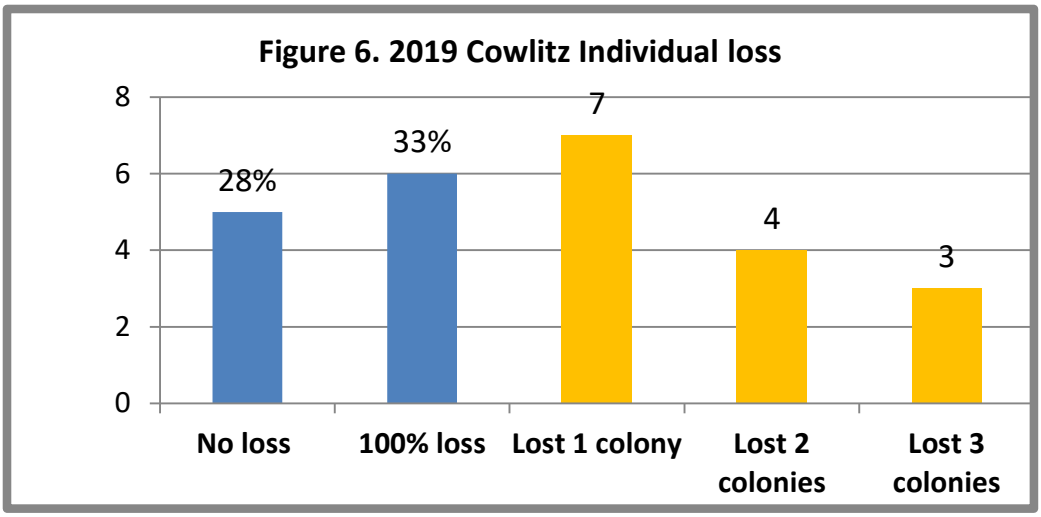
The 18owlitz Co respondents to the electronic survey had 1 to 11 colonies. Two-thirds had 1 or 2. Eleven percent had 11 colonies. Two thirds had 1, 2, 3 or 4 years' experience. Two individuals each had 7 or 8 years experience. Figure 5 shows colony number colonies (blue bars) and respondent years of experience (red bars) for Cowlitz Co respondents.

Figure 5. Number colonies (blue bar) and individual years of bee experience (red bar), Cowlitz Co, 2019



Colony Losses. For the 18 respondent Cowlitz beekeepers, 5 individuals (28) had no loss but 6 individuals =33%) loss all their colonies. Seven individuals lost 1 colony, 4 individuals lost 2 colonies and 3 lost 3, heaviest loss. See figure 6.



Self-reported "reasons" for colony losses: One survey question asked respondents to check the "reasons" for winter loss; multiple responses were possible. There were a total of 35 selections (2.7/individual) provided by Cowlitz County respondents as the reasons for their overwintering losses. Six individuals said they didn't know reason for loss. Varroa mites, most commonly chosen by statewide beekeepers was indicated by 3 Cowlitz individuals. Starvation (6 individuals) and poor wintering (5 individuals) were the most common Cowlitz member choices. Under other, 4 individuals said CCD, one indicated moisture and the other said their colony left (absconded).

	Varroa mites	Poor wintering conditions	Weak in fall	Queen failure	Star-vation	pesticides	Yellow jackets	Other
Cowlitz Co # %	3 (23%)	5 (38%)	2 (15%)	1 (8%)	6 (46%)	0	2 (15%)	6 (46%)
Statewide %	33%	28.5%	32%	23%	21.5%	7%	28.5%	28.5%

Acceptable loss. When asked to choose an acceptable loss Cowlitz Co mirrored statewide respondents. Greatest % selection was 25%, both for Cowlitz Co and Statewide. Medium number for Cowlitz was same as statewide 20%.

Don't know	None 0%	5%	10%	15%	20%	25%	33%	50%	75%	Total 100%
Cowlitz CO 0	3	1	0	2	3 MED	4	3	0	0	1
Statewide 2	12	7	10	4	16 MED	21	12	8	3	1

Why 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, at best confusing, and, although some options may be ruled out, we are often left with two or more possible reasons for losses. I am working on a book chapter on necropsy of dead bees and will post it as report on the www.pnwhoneybeesurvey.com website.

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. Cowlitz Co individual choices varied from zero to 75%, with medium of 25%. This 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) and declining nutritional adequacy/forage and diseases. Pesticide in the agricultural environment weakens colonies. Yellow jacket predation is a constant danger 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 facing honey bees in the current environment. Varroa mites and the viruses they transmit are considered a major factor colonies are not as healthy as they should be.

Part 2: Management selections and losses

We asked in the survey for information about some managements practiced by respondents. Multiple responses were accepted. 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 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 requires further data crunching and analysis. Report will be posted as soon as available.

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 2019