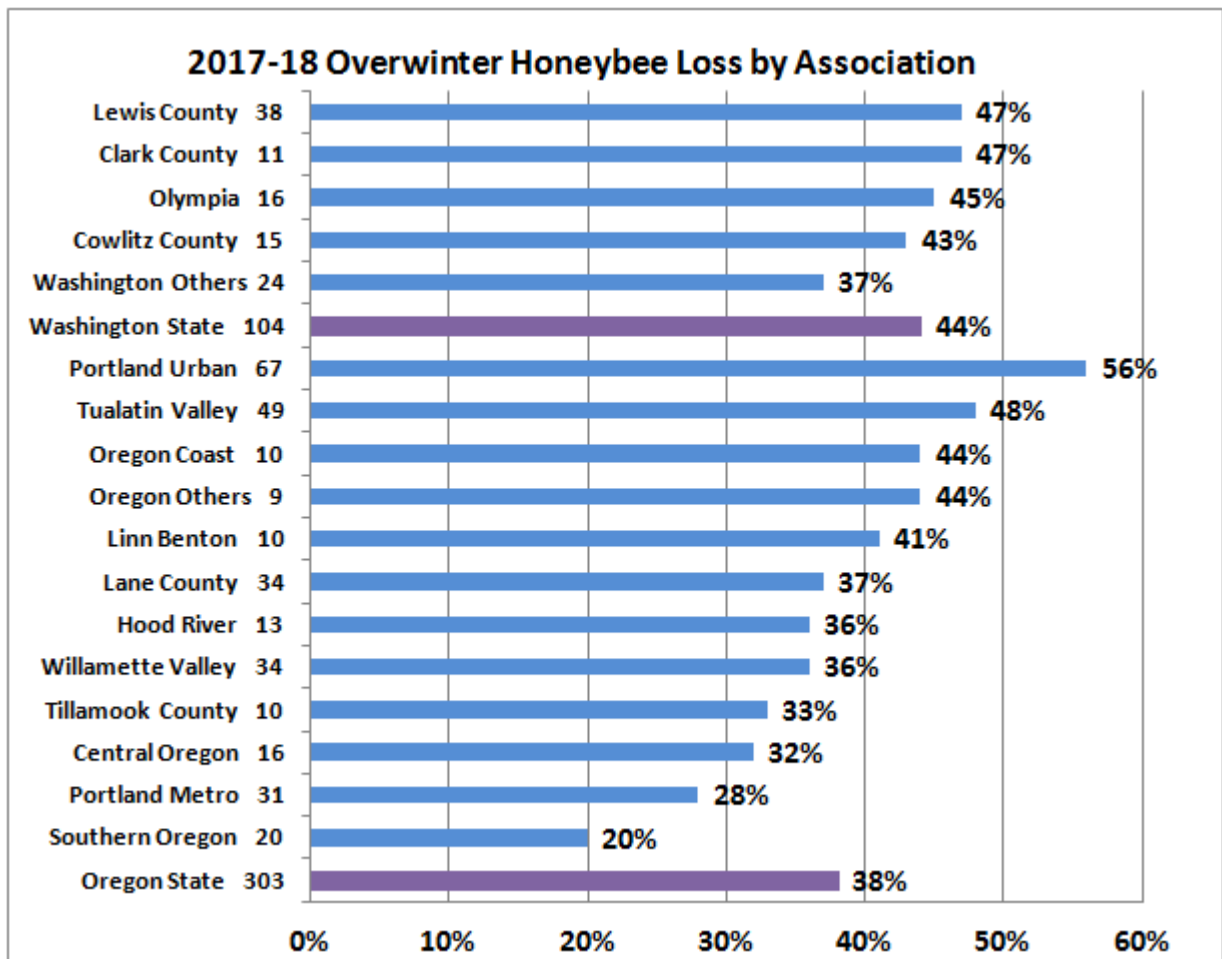


## Washington backyard beekeeper Winter Losses 2017-18 Dewey Caron

One hundred four WA beekeepers supplied information on winter losses and several managements related to bee health with an electronic honey bee survey instrument [www.pnwhoneybeesurvey.com](http://www.pnwhoneybeesurvey.com). Overwintering losses of small scale Washington beekeepers was reduced from the previous elevated loss levels in 2016-2017.

Figure 1 shows total OR and WA response by local association. Statewide loss level is highlighted. Number individuals ( ) to left of association name is number of respondents, bar length is % overwinter losses by club. Total fall colony response was 303 OR and 104 WA individuals; survey includes 1277 OR colonies (789 surviving = 38% loss) and 457 WA colonies (256 surviving = 44% loss).



The WA respondents to the electronic survey were a mixture of single digit colony numbers and others with more colonies and of new beekeepers mixed with more experienced individuals. Thirty seven percent (37%) of WA respondents had 1 or 2 years of experience; 28% had 3 to 4 years' experience (medium number = 3). 10 individuals (12%) had 5 to 7 years, 10% had 7 to 10 years and 12% had 14+ years of experience, [40% above 30 years]; highest was 55. For fall colony numbers, 40.5% had 1 to 2 colonies, 26% had 3 or 4 colonies (medium was 3 colonies/individual), 19% had 5, 6 or 7 colonies, 8% had 8, 9 or 10 colonies and 7% had 12+ colonies; largest number was 35 colonies. Of

the last 7% (>12 year's experience) there was 17.5% average years of experience and average of 6 colonies lost/individual.

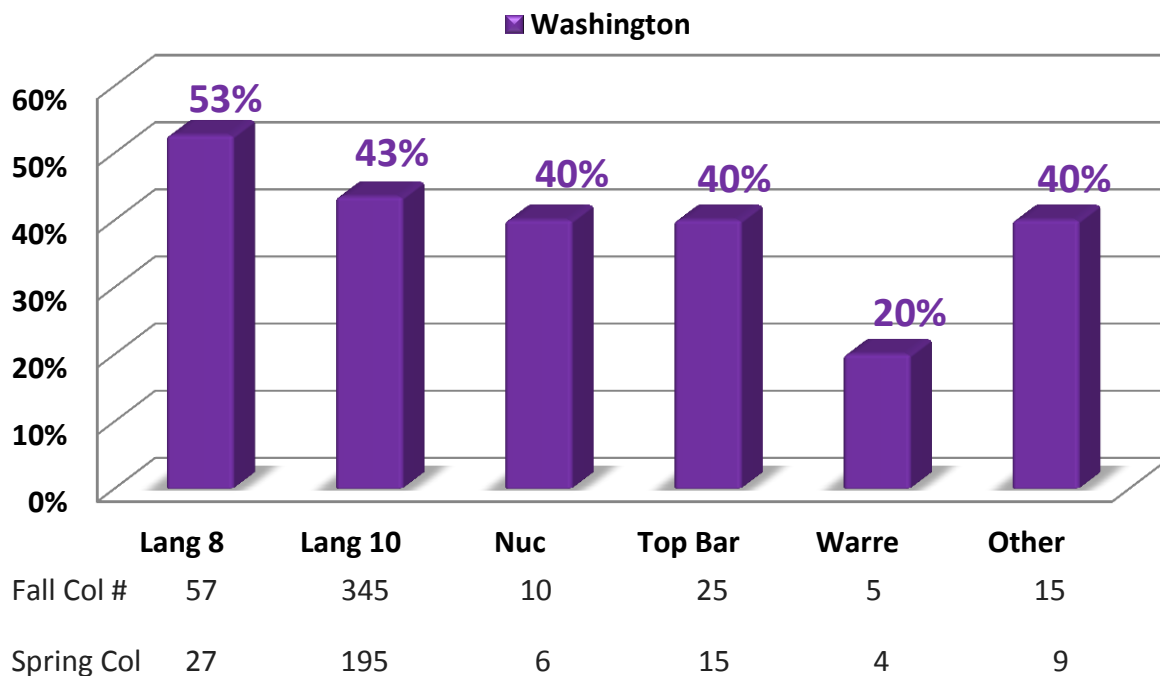
Seventy one (73%) of WA beekeepers had an experienced beekeeper mentor available as they were learning beekeeping. This percentage was up from 62% the previous year.

### 2017-2018 Overwinter Bee Losses

**Total WA backyard beekeeper overwinter loss = 44% loss.**

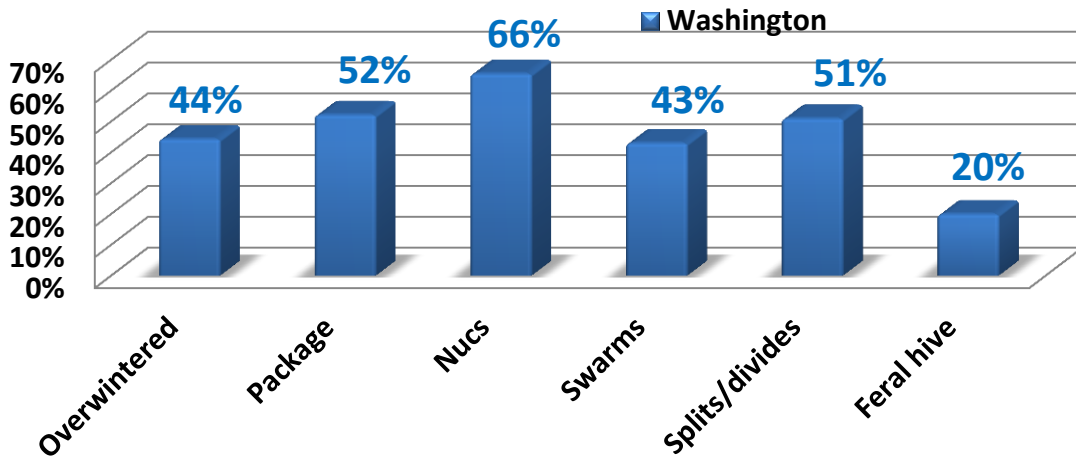
The WA survey overwintering loss statistic was developed by our asking number of fall colonies and surviving number in the spring by hive type. Results, shown in Figure 2 bar graph, illustrates overwintering losses for 104 total WA beekeeper respondents. Langstroth 8 and 10 frame beehives (88% of total) had heavier losses than 5 frame nucs (40% loss) and alternative hives. Other hive types Identified included long hives, tree hive and skeps plus others not specifically IDed. The previous year overall WA colony loss was 63%.

**Figure 2 2017-18 Winter Honeybee Loss % by Hive Type**



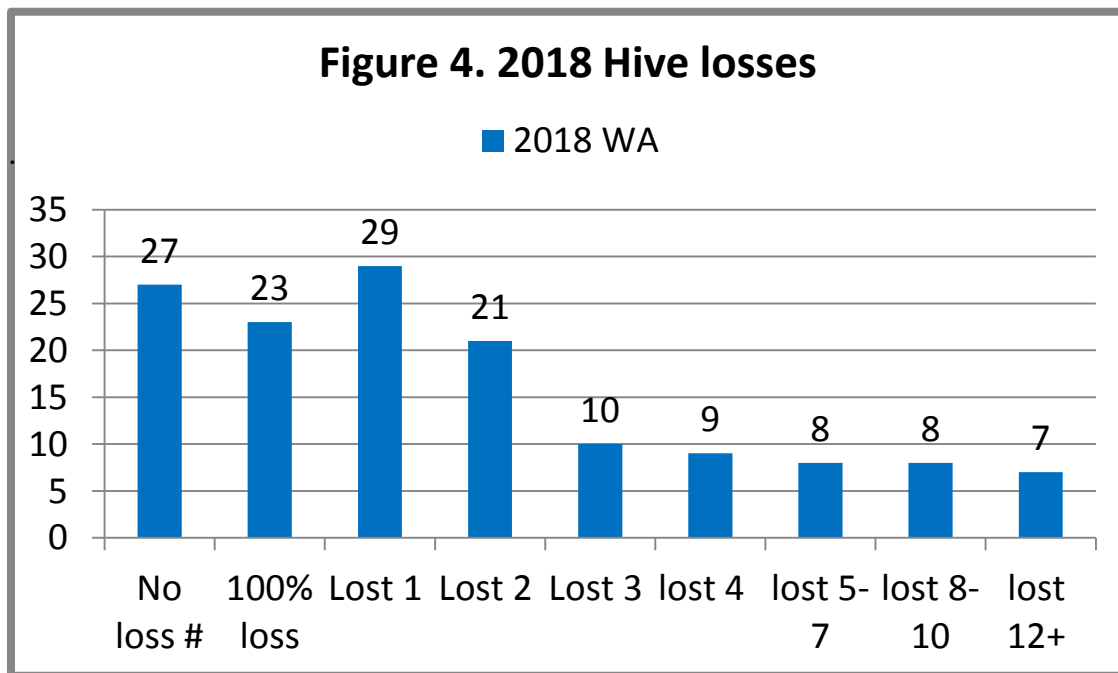
**Origination:** We also asked about hive loss by origination. Data shown in Figure 3. Overwintered and swarms had better winter survival than did packages, nucs and splits. Feral colonies exhibited the best survival rate, although fewest in number.

**Figure 3 2017-18 Winter Honeybee Loss % by Origination**



Fall Col #	230	69	58	86	51	15
Spring Col	128	33	20	49	26	12

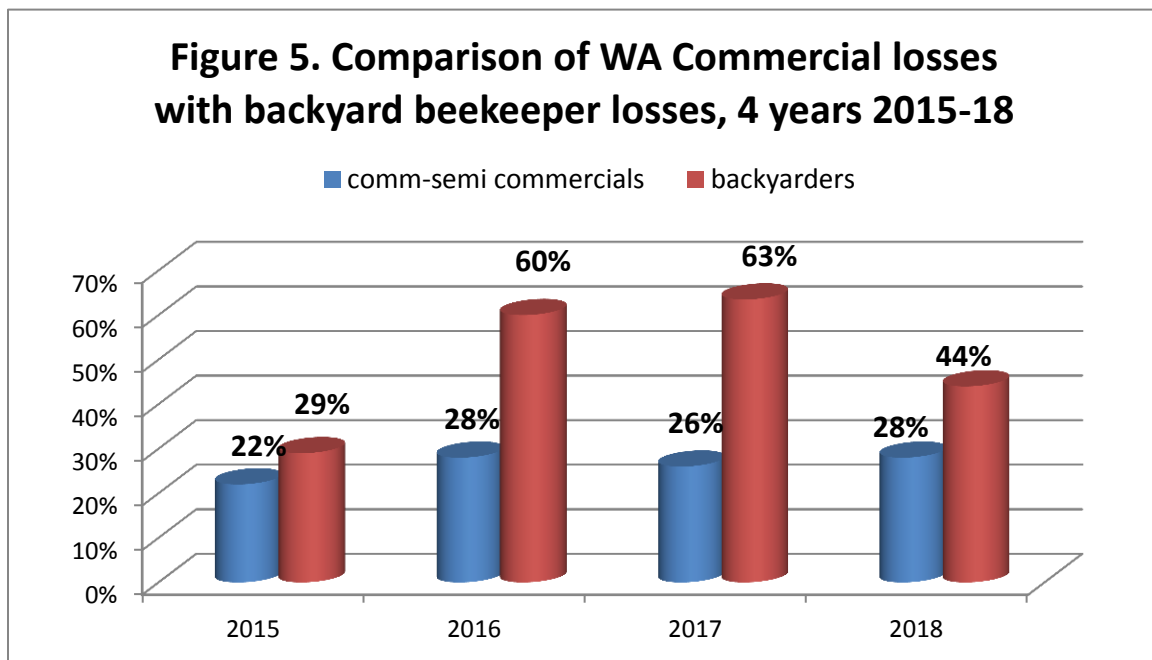
Among 101 total WA beekeepers (4 individuals were new beekeepers), 15 individuals (15%) maintained more than one hive type. For the total WA beekeepers, 27 (27%) had no loss and 23 individuals (23%) had total loss. Twenty-nine WA individuals lost 1 colony, 21 individuals lost 2 colonies and 10 individuals lost 3 colonies (60% of individuals with losses). Seven (7) individuals lost 12 or more colonies; highest loss was 20 colonies. Data in Figure 4.



## Comparison of backyarders and commercial/semi-commercial beekeepers

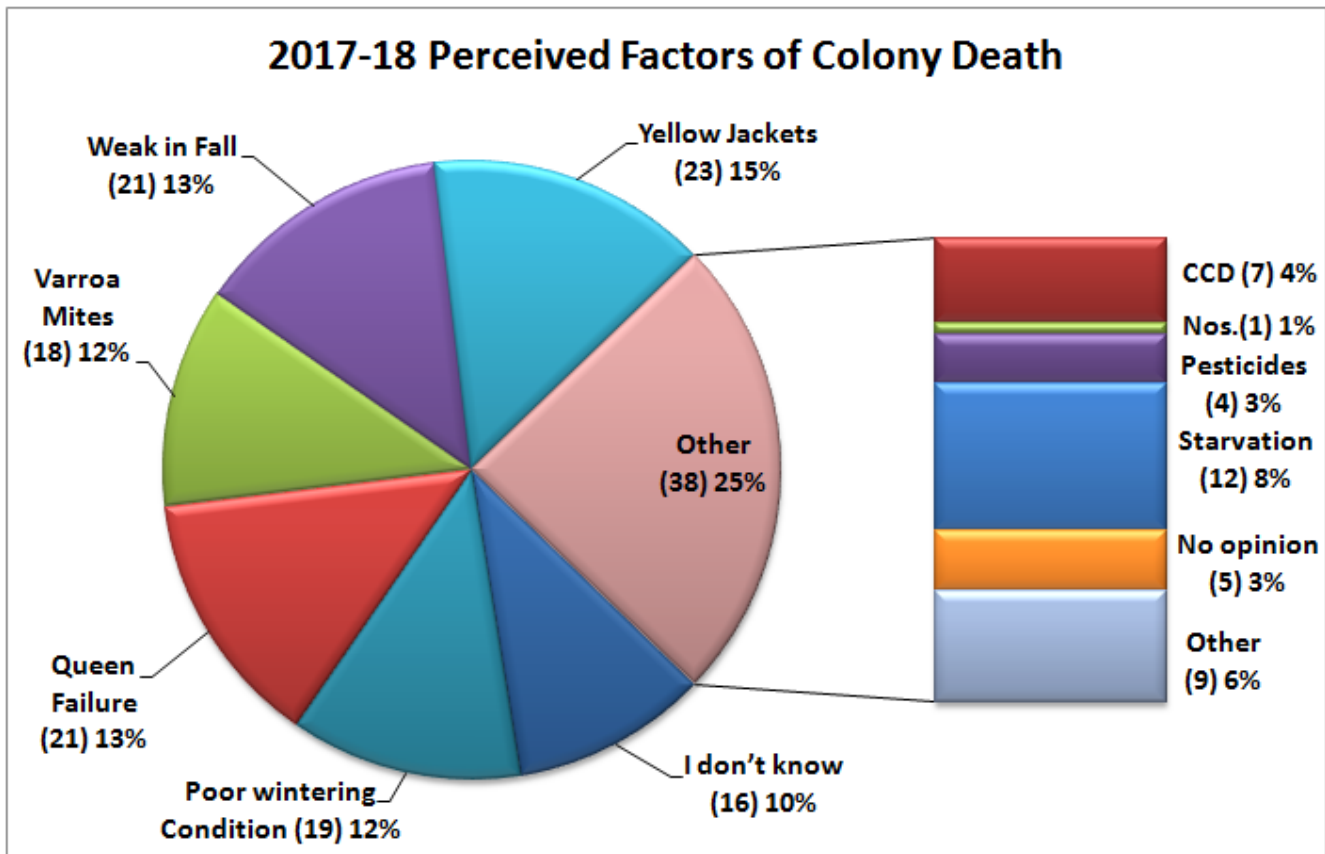
A different (paper) survey instrument was mailed to Pacific Northwest (PNW) semi-commercial (50-500 colonies) and commercial beekeepers (500+) asking about their overwintering losses. Comparison is shown in Figure 5 below with approximate number of colonies represented by the commercial/semi-commercial beekeepers and number of individual backyarder survey respondents.

Backyard losses have consistently been higher, most years double the losses of larger-scale beekeepers. The reasons for this dichotomy are complex. Commercial and semi-commercial beekeepers examine colonies more frequently and they examine them first thing in the spring as they take virtually all of their colonies to Almonds in February. They also are more likely to take losses in the fall and are more pro-active in varroa mite control management.



# Comm hives	~40,000	33,200	16,604	26,115
# backyarders	31	52	101	104

**Self-reported “reasons” for colony losses:** We asked survey takers who had winter losses for the “reason” for their losses. More than one selection could be chosen. In all there were 156 WA selections (1.5/individual) provided. Weak in the fall (21 individual choices), poor wintering conditions (19 choices), Varroa mites (18 individuals) and queen failure (21 individuals) were the major factors listed, closely followed by don’t know (16 individuals). The side bar shows other selections.



There is no easy way to verify reason(s) for colony loss. Colonies in the same apiary may die for different reasons. **Doing the dead colony examination (necropsy) is the first step in seeking to solve the continuing heavy loss problem. More attention to colony strength and checking stores to help avoid winter starvation will help reduce some of the losses. Control of varroa mites will also help reduce losses.**

Respondents were asked to select an acceptable loss level, being offered several categories to check. Four individuals said zero, while 8 said 10% ((25% for both responses) 19 said 25% (40%), 5 said 33% and 9 said 50% loss (19%) was acceptable. One individual each said 75% and 100% (4%).

**Why do colonies die?** There appears to be no single reason for loss and 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. Major factors are thought to be mites, pesticides, declining nutrition adequacy of the environment and diseases, especially viruses and Nosema. Management, failure to do something or doing things incorrectly, remains a factor in our losses.

What effects our alteration to the bee's natural environment and other external factors play in colony losses are not at all clear.

Langstroth wrote about the importance of taking winter losses in fall management saying if the beekeeper neglects such attention to his/her colonies 45% loss levels may occur, depending upon variable environmental conditions. It can be argued that losses of 30, 40, 50% or more might be the new “normal.” Older, more experienced beekeepers recall when loss levels were 15% or less. Honey production fluctuates each year but, once again, seem to be declining on average. Numbers of U.S. bee colonies have declined since the 1940s, returning to numbers for 100 years ago, although numbers for the last 3 decades have not changed. Worldwide numbers of bee colonies are steadily increasing.

**So there is no simple answer to explain the levels of current losses nor is it possible to demonstrate that they are excessive for all the issues facing honey bees in the current environment.**

**Pro-active Managements:** Do you feed bee colonies in your care with sugar, honey or protein? Do you take extra measures for wintering preparation? Are we doing the sanitary practices we would in animal husbandry with our bees such as cleaning hive tools/frequently washing gloves (if used) between inspecting different hives or, when we find it necessary to take a frame from one colony to another do you check to confirm the donor colony is healthy?

Part 2 of the loss survey asks some basic questions to allow comparison of loss rates from beekeepers who may perform one management with those who don't do that management or with the average loss level. This analysis takes longer to complete. It will be posted as soon as available.

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**THANK YOU. Bee counted-Bee informed!** I hope you find this useful. Please consider participating in the PNW and/or the National BIP survey next April! Help make the Washington state report more robust with an even larger participant base next year