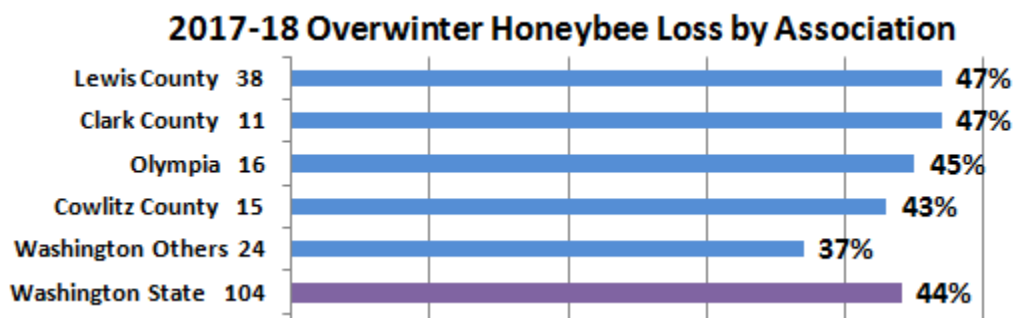


Lewis backyard beekeeper Losses 2017-18 Winter by Dewey Caron

Overwintering losses of small scale Washington beekeepers was down considerably from the previous season loss level of 63%. During April, 104 WA beekeepers 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 response. Number in () to left of association name is number of individuals; % is overwinter losses by club.



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), while 12% had 14+ years of experience with 55 the greatest. In the fall 40.5% had 1 to 2 colonies, 26% had 3 or 4 colonies (medium was 3 colonies/ individual), and 7% had 12+ colonies; largest number was 35 colonies. Seventy one (73%) of WA beekeepers had an experienced beekeeper mentor available as they were learning beekeeping.

Total WA backyard beekeeper overwinter loss = 44% loss

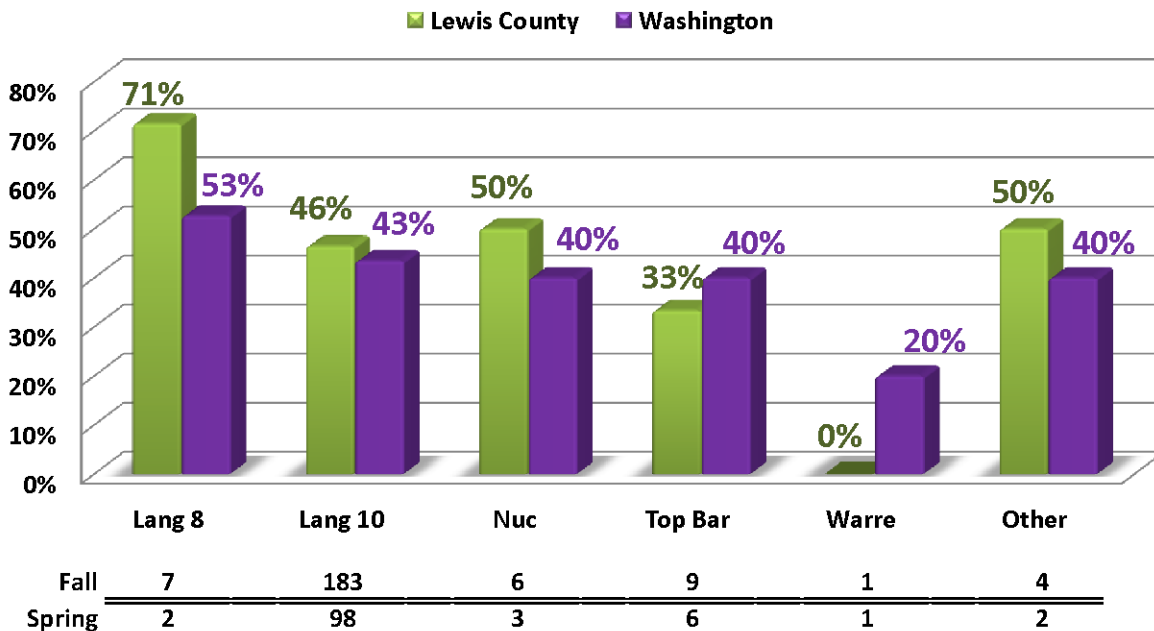
Lewis Co respondents were mostly new, single digit beekeepers. Sixteen individuals (39.5%) had 1 to 3 year experience, 13 (34%) had 4-6 years experience, 6 (16%) had 7-10 years experience and the remaining 6 had 14-55 years experience. Sixteen individuals (42%) had 1, 2 or 3 colonies, 29% (11 individuals) had 4-6 colonies, 4 had 7-9 colonies, two individuals had 10 colonies and 2 owned 12 colonies. The remaining 2 had 14 and 35 colonies (the last individual lost 43% of their colonies.) Eighty-six percent (86%) had an experienced mentor available in first years of bees.

Lewis Loss rate = 45%

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 graph below, illustrates overwintering losses for 38 Lewis Co beekeepers. Loss of 8 frame Langstroth (5 of 7 lost overwinter) was higher than statewide while 10 frame Langstroth losses were very close to statewide. 50% of nucs survived, 6 of 9 top bar hives survived and the single Warré also survived. Two

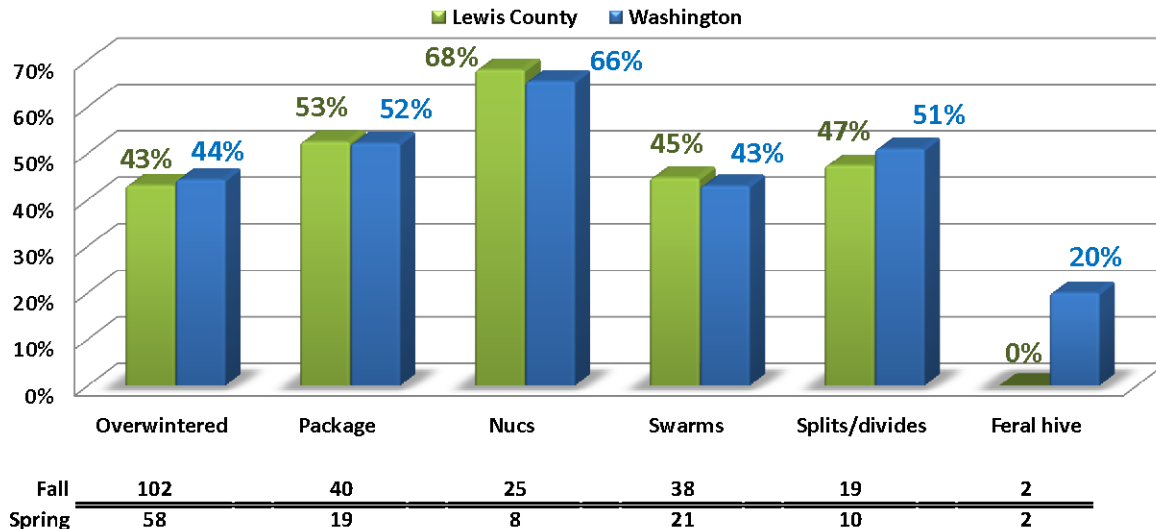
long hives survived but 2 other hive types (not further IDed) did not. Nine individuals (24%) had more than a single hive type.

2017-18 Winter Honeybee Loss % by Hive Type

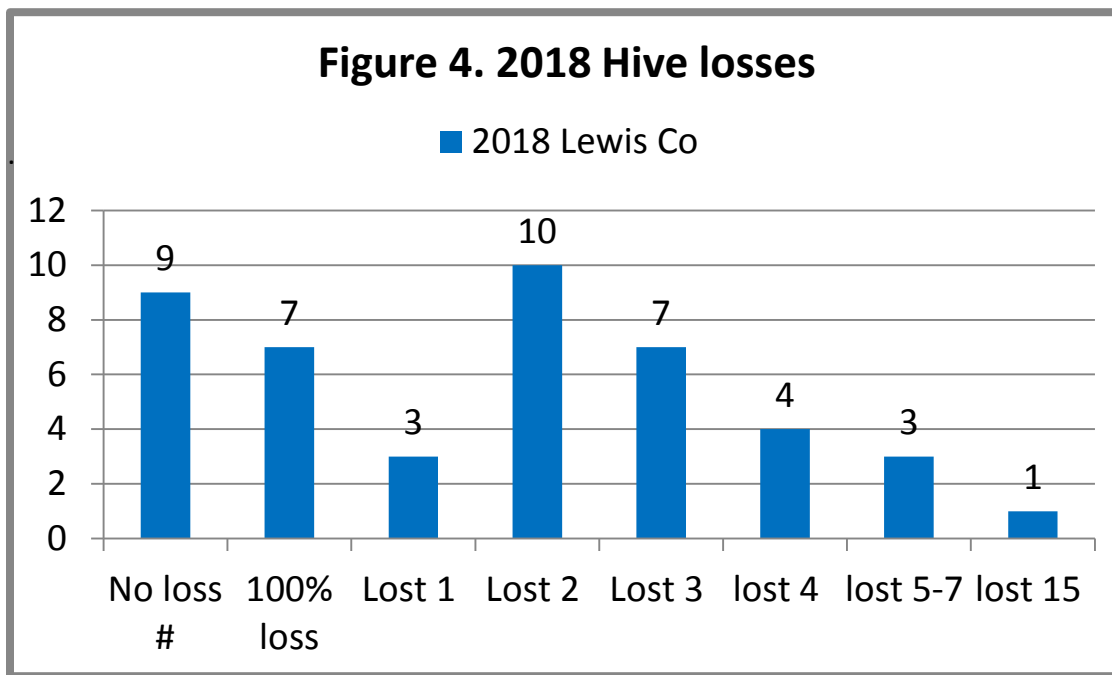


Loss by hive origination: The PNW survey also included a question of beekeeper loss by hive origination. The result is graphically presented below for both WA and Lewis Co beekeepers. Overwintered colonies, as expected, had the best survival. Swarm and split losses were comparable. Package losses were 15 percentage points lower than nucs. Two feral transfers survived.

2017-18 Winter Honeybee Loss % by Origination



Not everyone had loss. For the total WA beekeepers, 27 (27%) had no loss and 23 individuals (23%) had total loss. For Lewis Co beekeepers, 9 had no loss (24%) and 7 (18%) total loss. Highest loss was 15 colonies. Data in Figure 4.



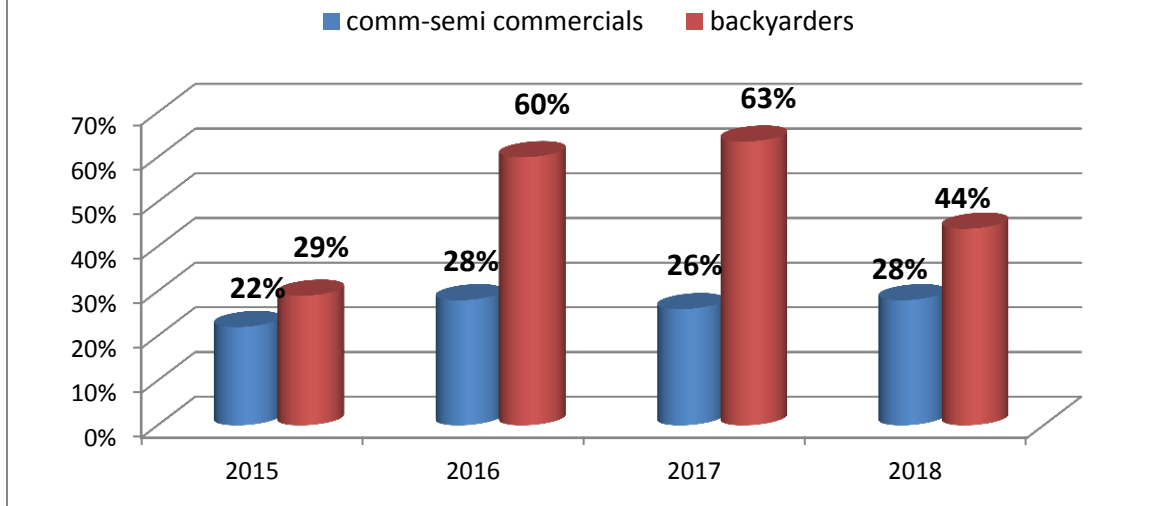
Three individuals had colonies in a 2nd apiary and 2 had bees in 3+ apiaries. Loss at 2nd/3rd apiary sites were lower (45%) compared to the home apiary site (53%). Four individuals moved bees – 3 because of property sale and the 4rd wanted to try a different site.

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.

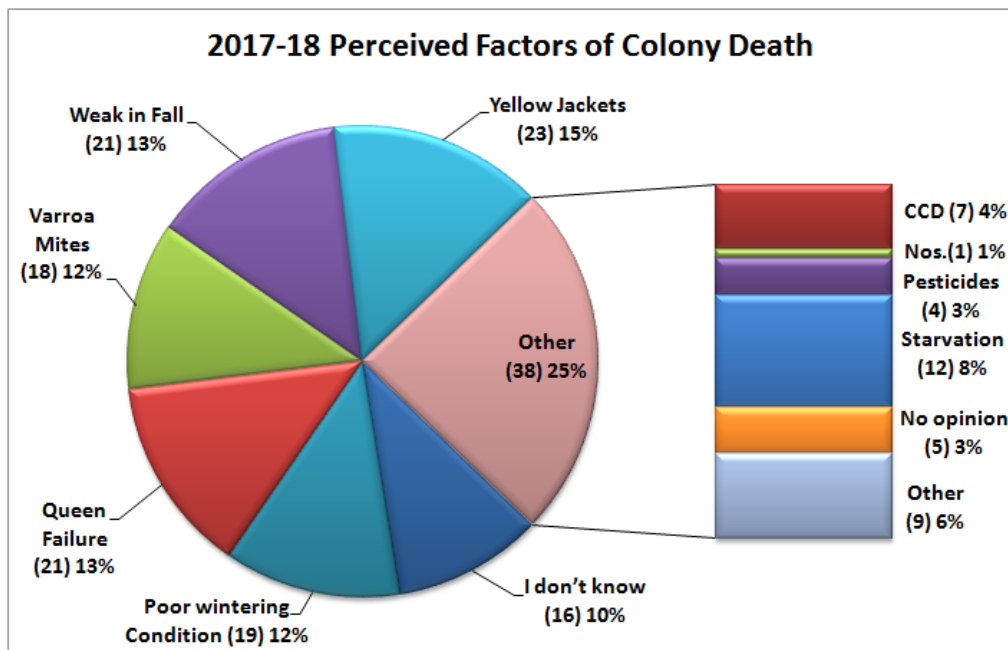
Figure 5. Comparison of WA Commercial losses with backyard beekeeper losses, 4 years 2015-18



# 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 63 selections (2/individual). Most common was Yellow jackets (11 individuals=33%) followed by 9 individuals (29%) each selecting don’t know, queen failure and poor wintering. Seven selected varroa, 5 weak in the fall, and 4 starvation. Two indicated pesticides and there were single selections for Nosema, CCD, moisture, multiple swarming, bald faced hornets, late spring(mid-April) freeze and lack of effort on mite controls. /individual) are illustrated below.

The self reported losses for the 104 WA beekeepers (1.5/individual) are illustrated below. When asked about an acceptable loss, choices were zero to 100%. The medium was 20%.



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. **Doing a dead colony necropsy is the first step in seeking to solve the heavy loss problem**

Langstroth wrote about the importance of taking 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 "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 but 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.

The WA report when posted to the website www.pnwhoneybeesurvey.com will include responses to management such as feeding, wintering colonies, sanitation, mite monitoring, non-chemical mite controls, including use of screen bottom boards and the effects of the chemical controls legally available for beekeeper use.

Thanks to all Lewis beekeepers that completed a survey and shared their information.