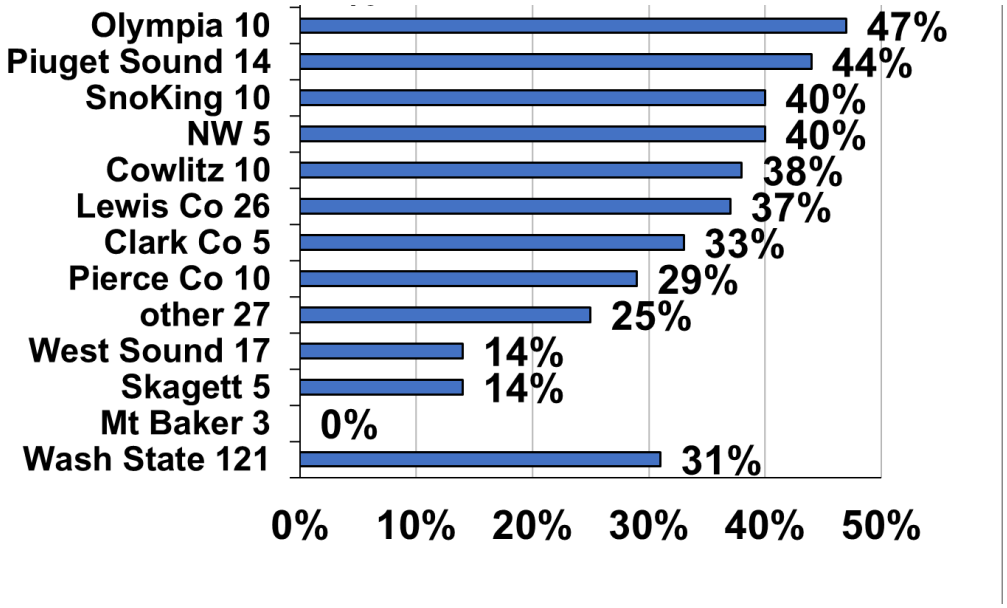
Winter Bee Losses of Clark County Washington Backyard Beekeepers for 2023-2024

by Dewey M. Caron

Overwintering losses of small-scale Washington backyard beekeepers=31%, a decrease of five percentage points from last year, 14 percentage points below the 9-year loss average. One hundred twenty-one Washington respondents completed a survey, one more than last year and two above the 119 average respondent rates of last five years. Information on winter losses and several managements related to bee health was included on the electronic honey bee survey instrument www.pnwhoneybeesurvey.com. Clark beekeeper losses were 33%, but only five surveys were returned well below the 7-year average of 18.5 returns annually.

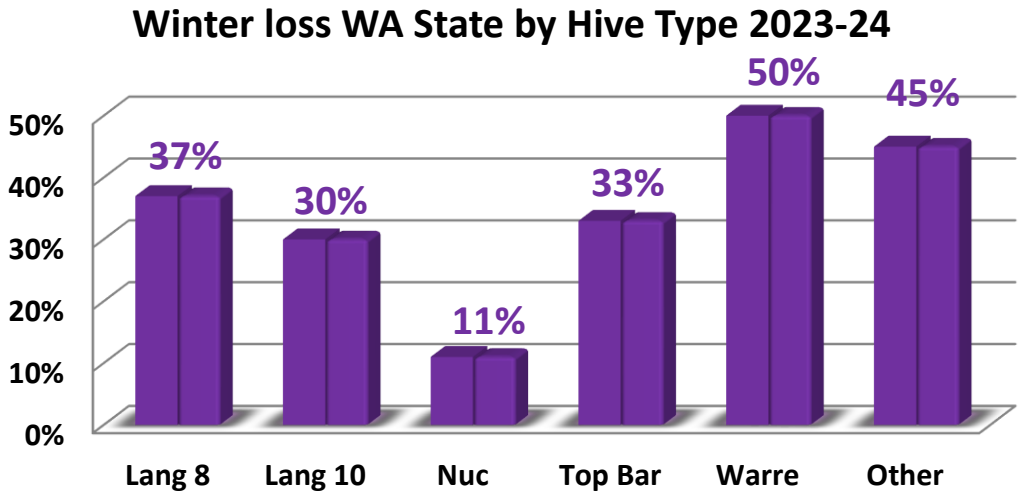


Response by local Washington (WA) association varied as indicated by blue bars in Figure 1. The number of respondent individuals is listed next to the association name. The bar length is the average club loss percentage for the year. Survey included 692 fall Washington beekeeper colonies; 42 were from Clark County beekeepers. This report primarily includes information form state responses as there were too few Clark Co respondents.

2022-2023 Overwinter Losses by Hive Type

The Washington survey overwintering loss statistic was developed by subtracting number of spring surviving colonies from fall colony number supplied by respondents by hive type. Results, shown in Figure 2 bar graph, illustrate overwintering **losses of 121 total WA beekeeper respondents =31%.** Langstroth 8 frame beehives had higher average losses (37%) than Langstroth 10 frames hives. Only two nucs of 18 in the fall failed to survive. Top Bar hive survival rate was similar to the Langstroth hives.

One of two Warré hives survived. Of the 18 individuals listing another hive type, 9 were IDed as AZ (only 1/3rd survived), 4 as Layens (all survived) and 13 as long hives (9 survived =31% Loss). The remaining 21 were not identified. (NOTE: Hive type of 47 Fall colonies not captured). For the 5 Clark Co respondents the 12 Langstroth 8-frame colonies had 17% loss and the 30 Langstroth 10-frame colonies had 30% loss (same as statewide).



Statewide, forty-six individuals had no loss (38%) = 217 colonies while ½ that number (22) 18% had total loss = 68 colonies. Greatest loss was one colony. Heaviest loss was 14 colonies. See Figure 3 graph. One Clark Co respondent had no loss (2 colonies), The other four lost 1, 2, 3 and heaviest loss was eight colonies.

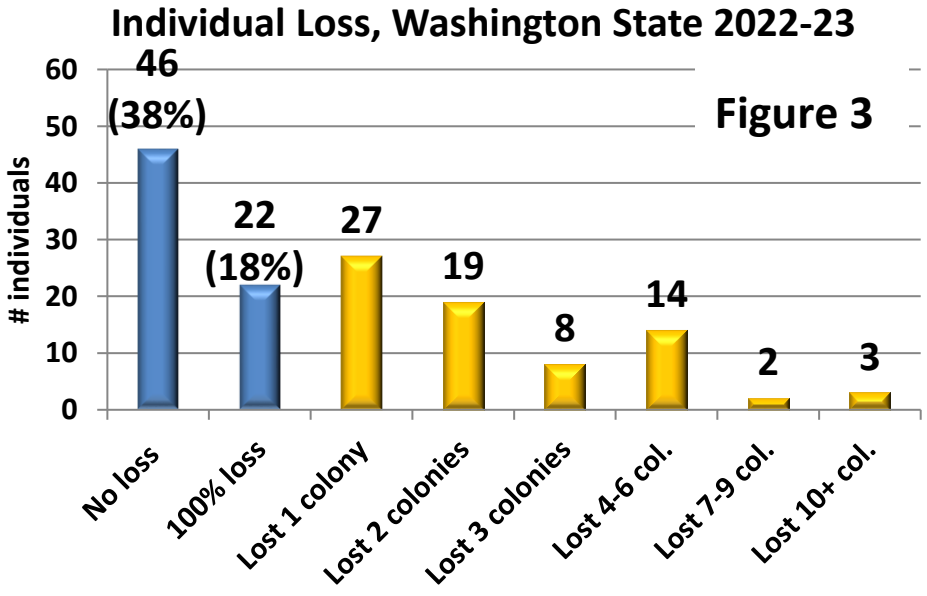


Figure 3

The WA respondents to the electronic survey managed up to 26 fall colonies. Generally, as colony numbers increase loss percentage decreases. Statewide, fifty-one individuals (42% of respondents) had 1, 2 or 3 fall colonies (loss level of 41%), thirty-five individuals had 4 to 6 fall

colonies and had loss level of 43%. Five was median number. Eighteen individuals had 7 to 9 colonies, they had loss level of 19%. The 16 individuals with 10+ colonies lost 27%. With only five respondents the Clark Co numbers are not representative

Forty-seven respondents statewide last year (39% of total) had 1, 2 or 3 years of experience; they had a 50% loss level (all Clark Co individuals had more than 3 years' experience.) Thirty-eight individuals (31.7% of total respondents) had 4 – 6 years' experience (medium number = 4) with a 35.5% loss, 15 individuals had 7-9 years' experience (loss level 28%), 17 had 10+ years keeping bees with 30% loss level. Clark Co respondents had 4 years' experience or 10+ years' experience; greatest was 25 years. Examining the relationship of colony numbers and years' experience related to loss of the larger database shows that percent loss of colonies decreases with a greater number of colonies and/or years of experience.

Eighty-six (72%) WA beekeepers had an experienced beekeeping mentor available as they were learning beekeeping. This percentage was five percentage points lower than last year, but similar to 5-year average. For Clark County last year only two individuals (11% of respondents) reported not having a mentor available as they were learning. This year one of five said they lacked a mentor.

Statewide last year the loss for 104 individuals with 1 to 9 colonies was 43% while for Clark the loss of the 14 individuals with 1-9 colonies was 42%. Statewide 16 individuals with 10+ colonies had a 23% loss and the 4 Clark Co individuals with 10+ colonies (maximum was 38) was 24% loss. This year loss of individuals with 2 to 8 colonies was 29% and loss of individual with 10+ colonies was 38%.

Eight-year loss record for Clark Co beekeepers and 10-year loss record for Washington survey respondents is shown in bar graph below (Figure 4). The numbers below the graph indicate the number of Clark Co respondents. Average Statewide loss (10 years) =44.8%, average Clark Co losses (last 7 years = 48.9%).

Figure 4

12 11 33 28 15 13 18 5

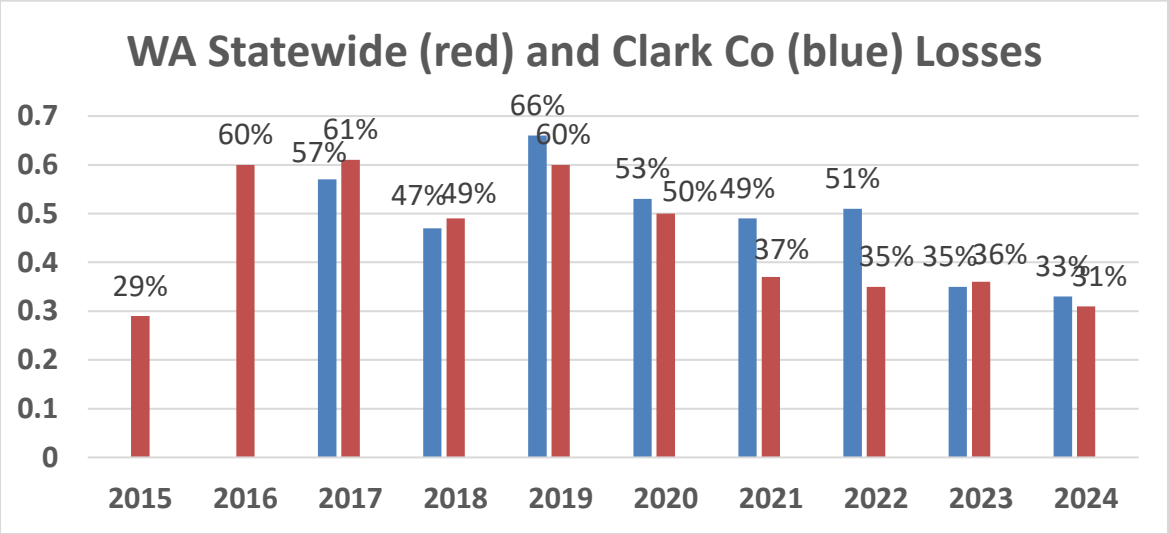
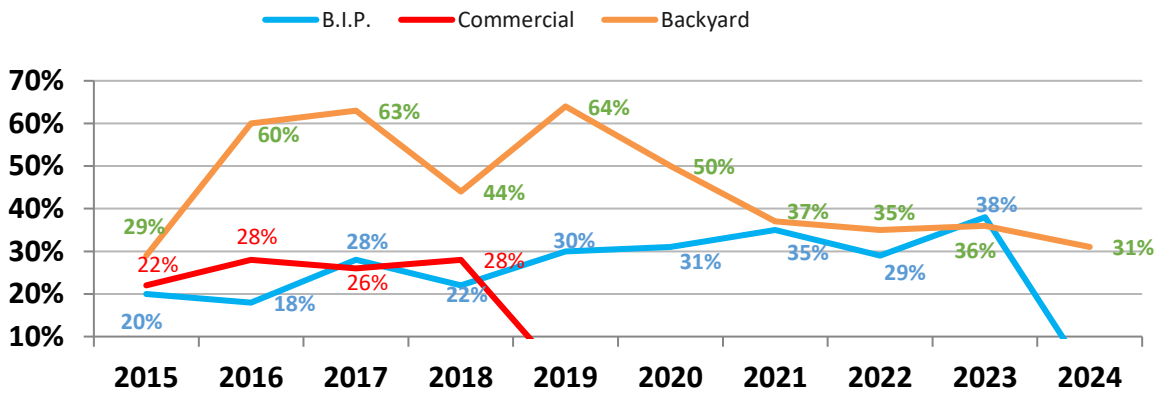


Figure 5. 10 Year WA colony Loss



YEAR	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
#Comm hives	~40,000	33,200	16,604	29,015	-					
#backyarders	31	52	101	104	98	133	163	80	120	121
BIP (# hives)	113,237	32,184	83,000	52,500	48.600	48,000	33,300	72,700	50,145	-

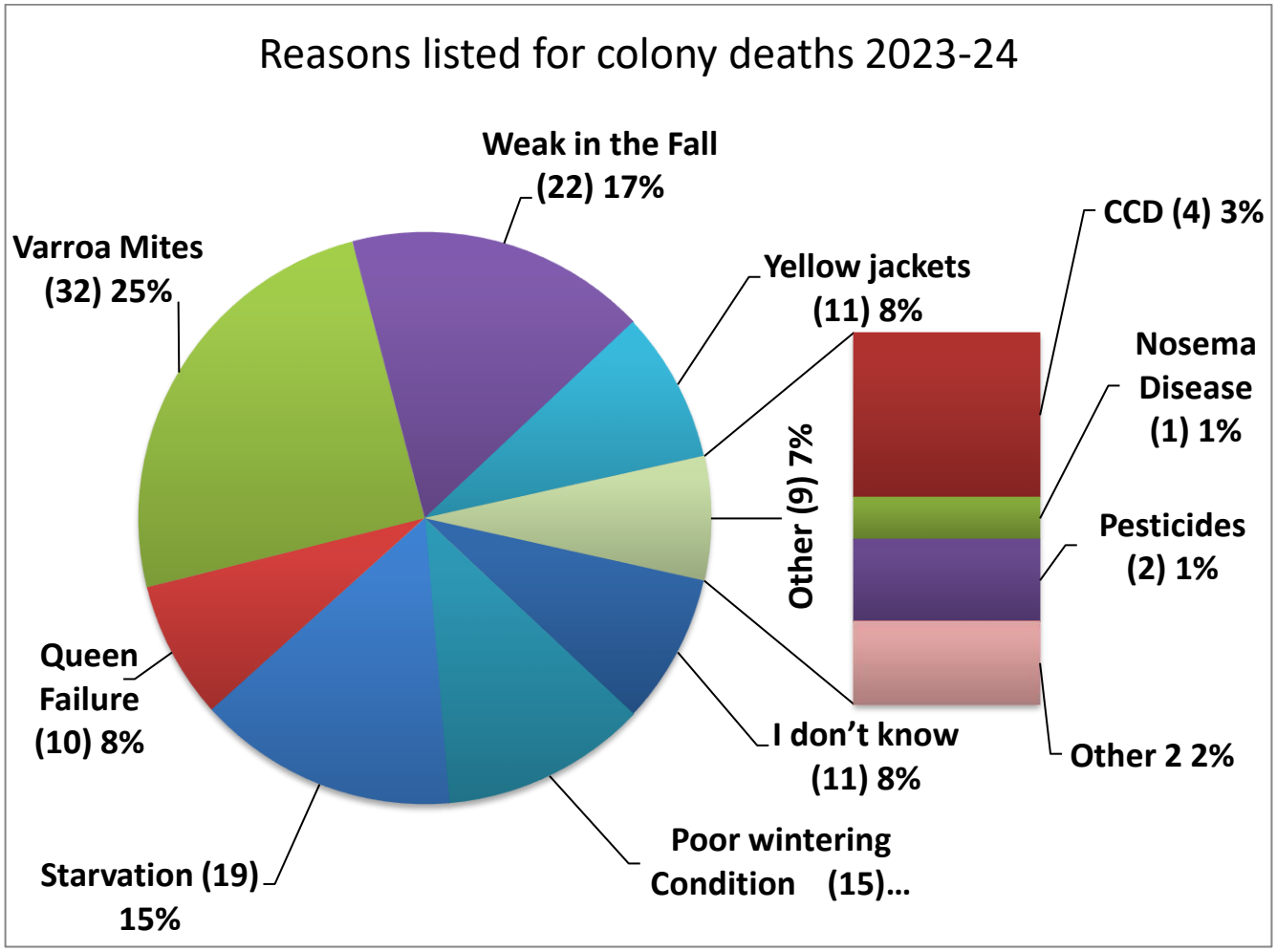
Figure 5 graph above shows the Washington backyarder (under 50 colonies) losses and the losses of WA commercial beekeepers (>50 colonies). The numbers below the graph are numbers of individual backyarders and number of hives in my commercial sampling and that of BIP. The red losses of the first 4 years are from a separate PNW loss survey of commercial beekeepers from Oregon State University survey and the blue loss levels are from the BeeInformed loss survey

(www.beeinformed.org). This survey was not continued in 2024 (so value is not zero). Commercial loss levels are now similar to my survey loss levels for backyarders.

Colony death perceived reason and acceptable loss level

We asked survey takers who had winter losses for the "reason" for their losses. More than one selection could be chosen. In all statewide there were 115 WA selections (1.85/individual) provided. Varroa mites (32 individuals, 25% of total selections) was the most common choices. Weak in the fall, starvation and poor wintering were next most common followed by yellow jackets and don't know. Ten individuals only listed queen issues. The two "other" listings were absconding and too small a winter cluster. Figure below shows the number and percent of factor selections. Clark County had eight selections (by four individuals which had loss. Two each selected poor wintering, starvation and queen issues and varroa and weak in fall were additional choices.

Acceptable loss: Survey respondents were asked reason for loss. Seventeen (15%) indicated zero (no loss). Thirty-three percent of individuals indicated 10% or less. Twenty percent was medium choice. Nineteen percent said 50% was an acceptable loss level. See table below. For the 5 Clark respondents one said 5%, 2 indicated 15% (median)and one said 20% and the other said 50%.



Why do colonies die? There is no straightforward way to verify reason(s) for colony loss. Colonies in the same apiary may die for several reasons. 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. More attention to colony strength and checking stores to help avoid winter starvation will help reduce some of the losses. **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.**

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.

Most Washington beekeepers do not perform just one management to their colony (ies) toward improving colony health and overwintering success. This analysis however compares a single factor equated with loss level. Such analysis is correlative and doing a similar management as fellow beekeepers does not necessarily mean you too will improve success. Refer to managements statewide – too few Clark Co returns to perform any meaningful analysis.