

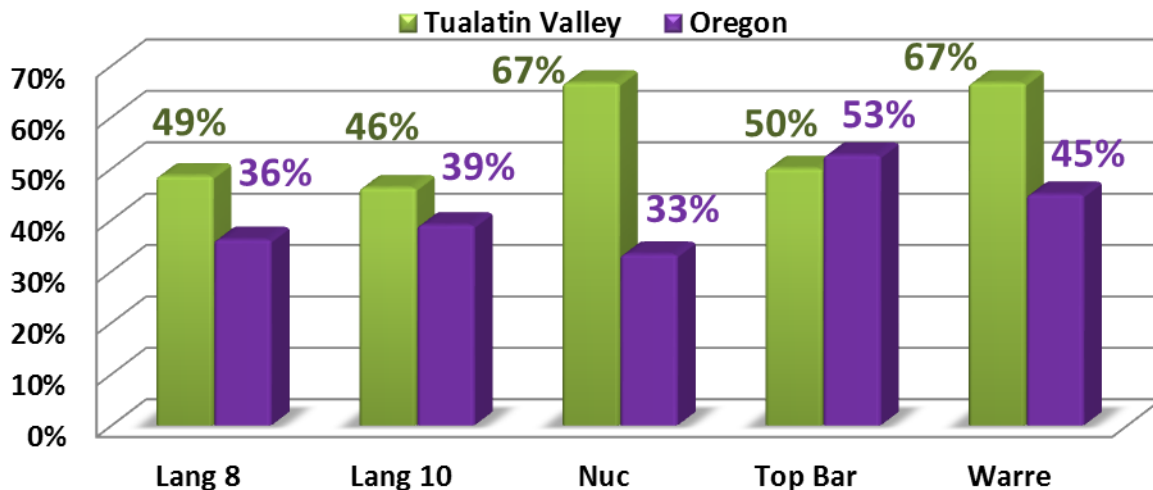
## 2018 Tualatin Valley (TVBA) Winter Loss by Dewey M. Caron

At the March and April TVBA meetings I encouraged TVBA members to participate in the 2017-2018 PNW overwintering loss survey. Members were directed to the online survey at [www.pnwhoneybeesurvey.com](http://www.pnwhoneybeesurvey.com), a continuing effort to define overwintering success of beekeepers in the Pacific Northwest. A statewide OR (and Washington) report, along with individual club reports, are posted on the PNW website [www.pnwhoneybbesurvey.com](http://www.pnwhoneybbesurvey.com) The report this year will be in 2 parts. This Part 1 is reporting survey results related to losses.

I received 303 responses from Oregon (OR) backyarders, and an additional 104 from Washington beekeepers. Tualatin Valley members sent in 49 surveys, providing information on 174 fall colonies. This survey return was 11 more respondents than last year. **Total overwintering losses of the 49 TVBA respondents was 91 colonies = 48% weighted loss rate.** This loss level is ten percentage points higher than the statewide OR beekeeper loss rate and 2<sup>nd</sup> highest of all OR clubs in 2018.

Loss rate was determined by hive type. TVBA members started winter with 134 Langstroth 10-frame hives (71% of total), 35 Langstroth 8-frame hives, 12 5-frame nucs, 4 Top bar colonies, and 3 Warré hives. The accompanying Figure 1 shows percent loss for each hive type compared with statewide Oregon beekeeper data base (303 individuals, 1277 fall colonies). TVBA hive losses were all higher than statewide except for top bar hives, which were not significant with only 4 hives involved.

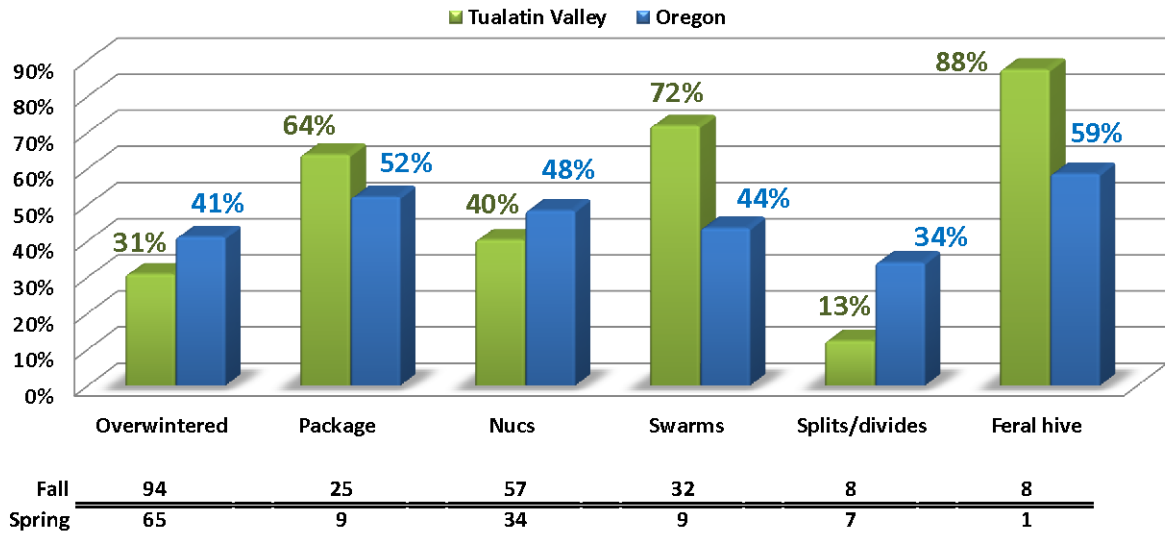
**2017-18 Winter Honeybee Loss % by Hive Type**



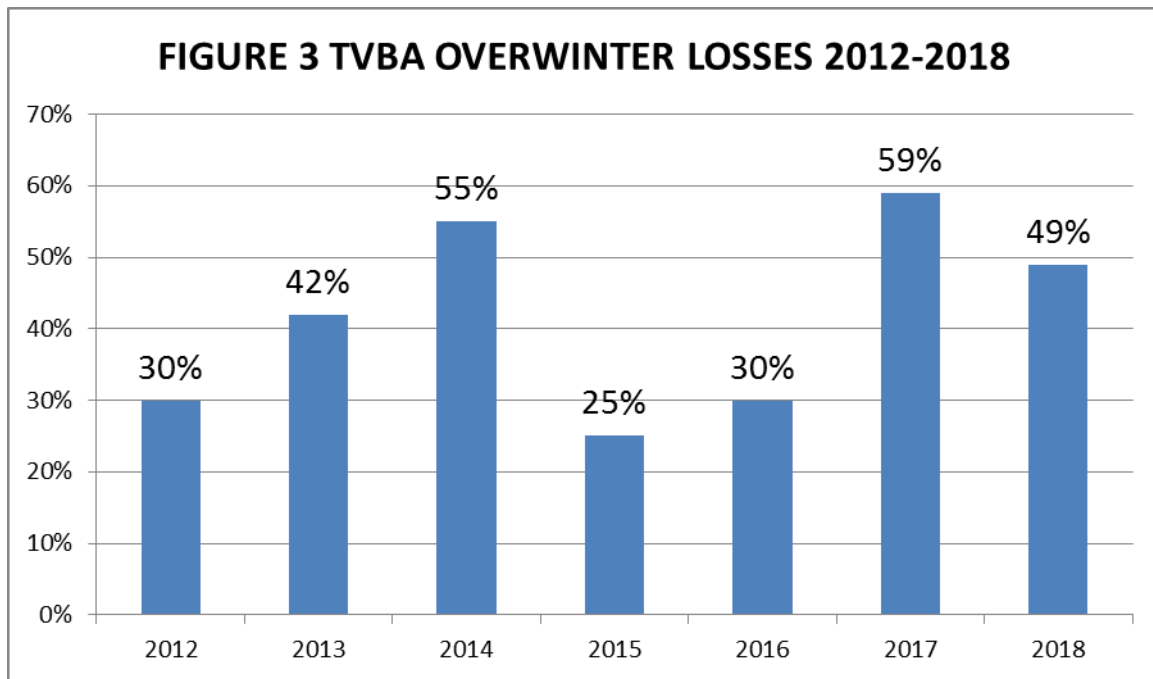
Fall Col #	35	134	12	4	3
Spring Col #	18	72	4	2	1

Losses by hive origination were also tallied. The data for TVBA and state wide are shown in Figure 2. Overwintered, nucs and splits all had lower loss rates than did statewide beekeepers.

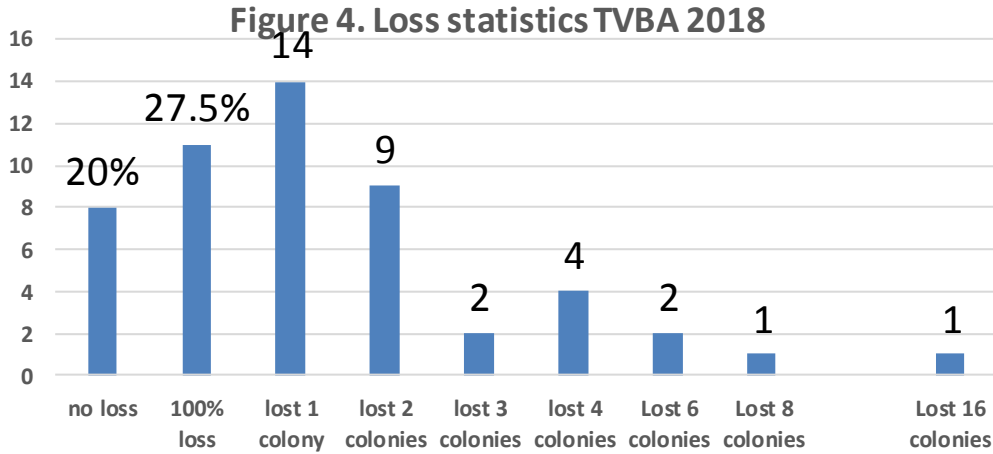
### 2017-18 Winter Honeybee Loss % by Origination



Losses this past winter were 10 percentage points lower than the terribly elevated losses of the 2017 winter but 9 percentage points above the 40% TVBA loss average of the previous 6 seasons. See Figure 3.

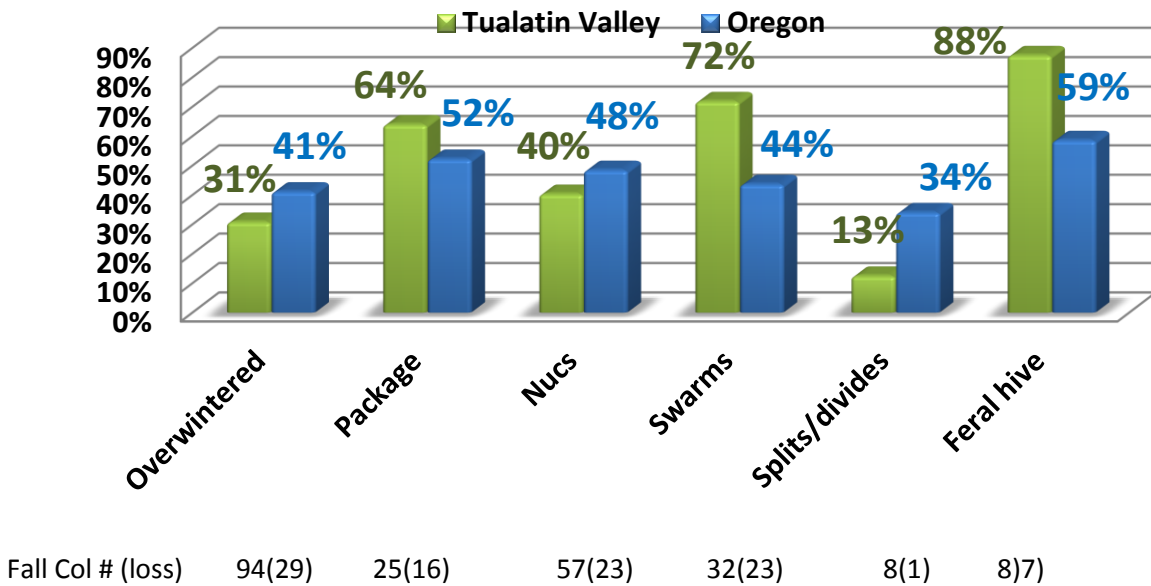


Not everyone had loss. Eight individuals (20%) reported total winter survival. Eleven individuals (27.5%) lost 100% of their colonies. Fourteen individuals lost 1 colony, 9 individuals loss 2, 2 lost 3, 4 lost 4 colonies 2 lost 6 colonies and 1 lost 8 and one 16 colonies, the heaviest loss (individual lost 57% of their colonies.) Five individuals started fall with 10 or more colonies and they had loss rates of 15%, 27%, 40%, 57% and 67%. See Figure 4.



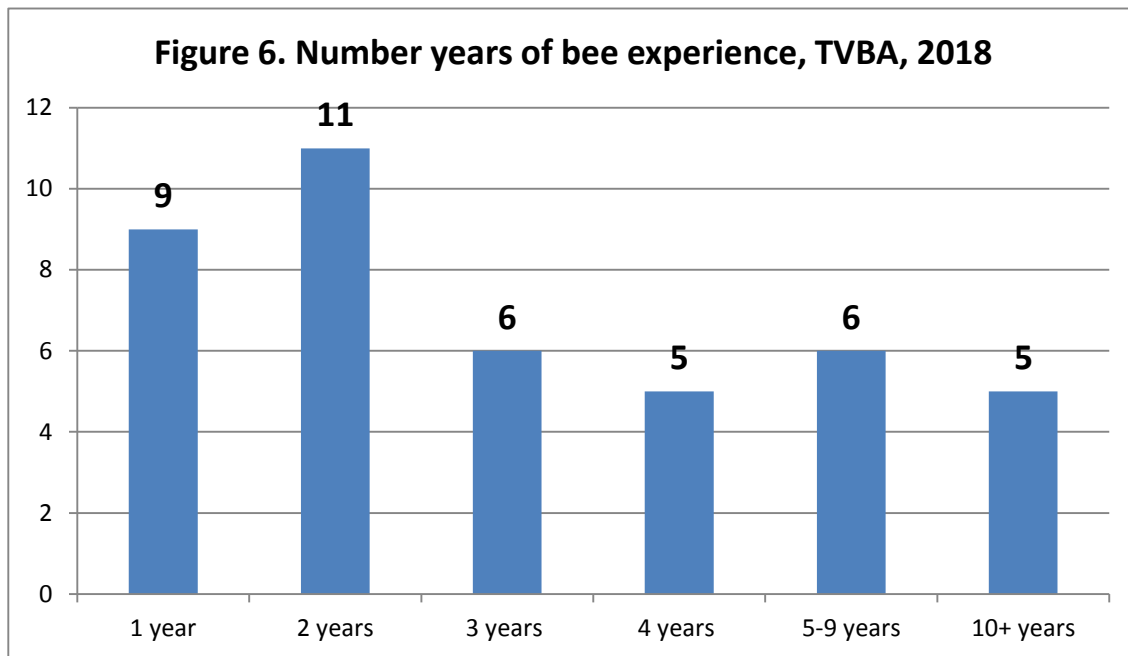
The survey also asked for hive loss by hive origination. Forty six of 85 overwintered TVBA member colonies were alive in the spring (46% loss rate), 6 percentage points higher loss than statewide survival of overwintering colonies. Respondents reported a higher loss level of newly installed packages, nucs, swarms and feral colonies; colonies starting as splits were only category with lower loss rate compared to stateside beekeepers. See Figure 5.

**Figure 5 2017-18 Winter Honeybee Loss % by Origination**



Two individuals had 2 apiaries and 1 had 3. Survival at 2<sup>nd</sup> and 3<sup>rd</sup> apiary sites (60%) was better than the home apiary (46%). Four TVBA individuals moved bees during the year, two for better forage, one to avoid pesticides and the 4<sup>th</sup> was a move within the apiary.

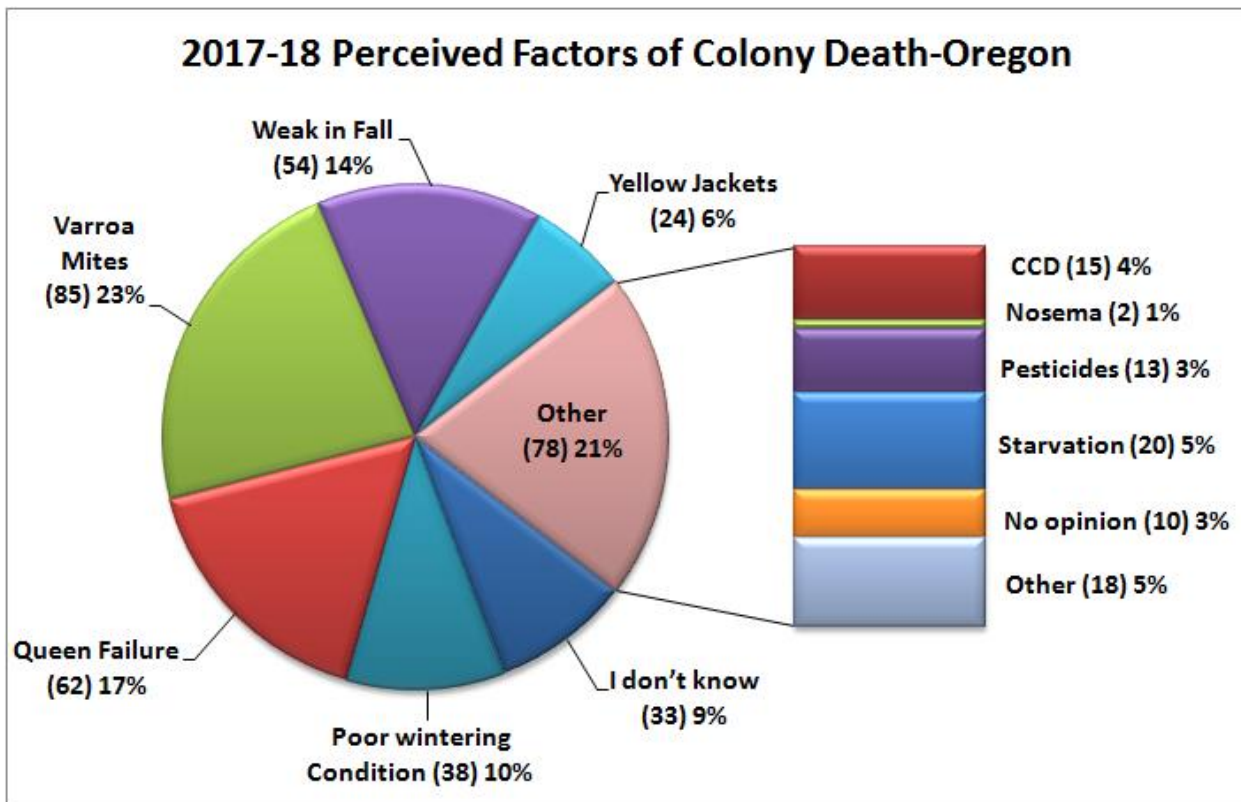
TVBA survey respondents reported a wide range of beekeeping experience. Seven individuals (18%) had 10 years or more of bee experience, with the highest 50 years; 21 individuals (54%) had 1, 2 or 3 years of experience. Twenty-six individuals (53%) said they had a mentor available when they started keeping bees compared to 69% statewide.



### Reasons for/acceptable loss level

We asked for individuals that had colony loss to estimate what the reason(s) for loss might have been. Multiple responses were permitted. Twelve TVBA beekeepers listed poor wintering conditions, 11 listed weak in the fall and 10 listed varroa mites. Queen failure and don't know was listed by 8 individuals each, 6 said yellow jackets, 3 listed CCD and 3 also indicated pesticides. Skunks, wax moth and too much moisture were other listings. When asked for an acceptable loss level 8 individuals said zero, 16 additional said up to 15%, the medium. Seven listed both 20% and 25% while 4 listed 33% and 3 listed 50%. Statewide medium was 15%, same as for TVBA members.

Graphic below shows overall statewide response to question on reasons for loss. Varroa mites and Queen failure were listed by more individuals than poor wintering and weak in the fall.



**Why do colonies die?** There is no easy way to verify reason(s) for colony loss, nor a consensus of an acceptable level. Colonies in the same apiary might die for different reasons. Major factors in colony loss are thought to be mites, pesticides, declining nutritional adequacy/forage and diseases, especially viruses and Nosema. **Doing a dead hive examination (necropsy) is the first step in seeking to solve a heavy loss problem. See report of workshop mid-April at Zenger Farm apiary on dead colony examinations posted on the PNW website. More attention to colony strength and possibility of winter starvation will help reduce some of the losses. Control of varroa mites will also help toward loss reduction.**

As beekeepers we are dealing with living animals which are constantly exposed to many different challenges, both in the natural environment and the beekeeper's apiary. Management, especially learning proper bee care in the first years of beekeeping, remains a factor in losses. What effects our changing environment of things 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.

Langstroth a hundred and sixty years ago 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 winter weather 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. Larger-scale beekeepers have issues with replacing losses about 15% while smaller-scale backyard beekeepers either replace their losses or simply give up after losing their colony (ies).

Honey production fluctuates each year but once again seems to be declining on average. Stress of movement of colonies to pollination rentals and finding suitable “clean” forage sites for both larger and smaller scale beekeepers is a challenge. Numbers of U.S. bee colonies have declined since the 1940s, returning to numbers of 100 years ago, while worldwide numbers of bee colonies are steadily increasing.

**There is no simple explanation 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 virus they transmit are considered a major factor, but by no means the only reason, colonies are not as healthy as they should be.**

## **Management selections and losses**

The survey inquired about feeding practices, wintering preparations, sanitation measures utilized, screen bottom board usage, queens, mite monitoring and both techniques (such as screen bottom board use, drone brood removal efforts, etc.) and chemical mite controls used. Individuals could check none or more than one response; most TVBA and OR beekeepers most often do not do just one thing/management to their colony (ies) to control mites toward improving overwintering success.

Analysis of such managements related to winter losses will follow and be posted on the PNW website as soon as it is 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 2018