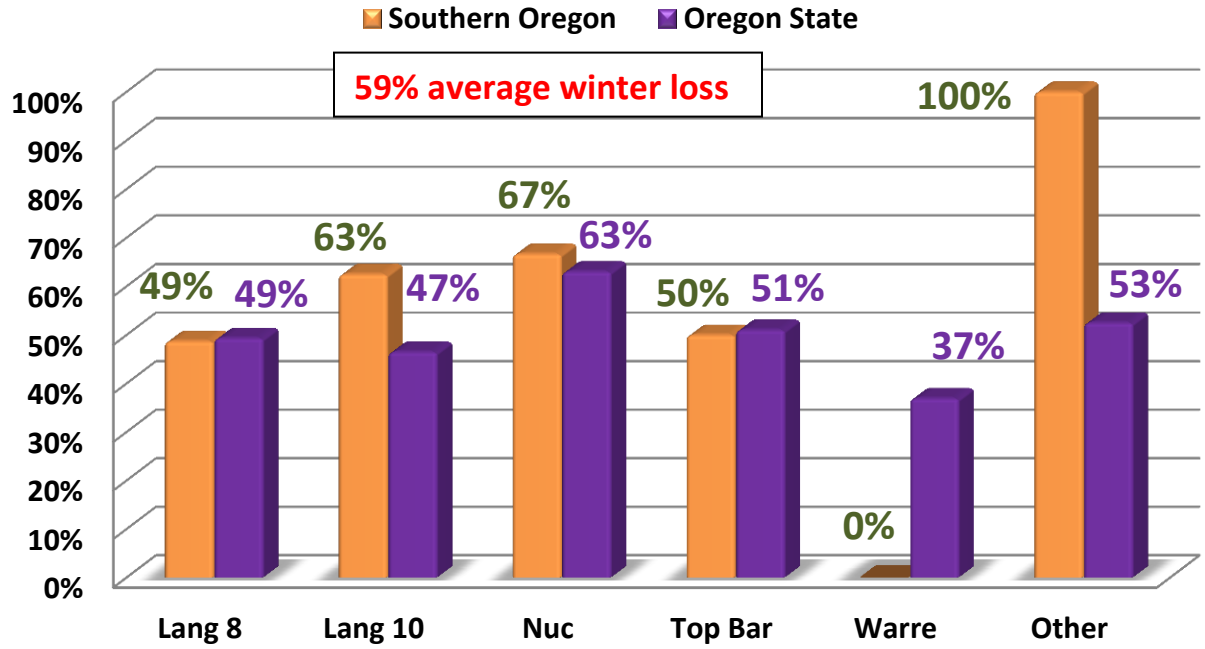
2019 Southern Oregon Winter Loss Part 1 by Dewey M. Caron

I directed SOBA members to a web-based survey document (posted at www.pnwhoneybeesurvey.com) at the April meeting in a continuing effort to define overwintering loss rates and successes, now the 10th spring survey. I received 416 responses from OR backyarders, plus 98 from Washington beekeepers, keeping anywhere from 1 to 38 OR /40 WA colonies. Southern Oregon (SOBA) members returned 37 surveys, almost double the previous year.

Overwintering losses were determined by asking number of fall (October) colonies by hive type and subsequently how many were still alive in the spring (April). SOBA response included 96 Langstroth 10 frame and 39 Langstroth 8 frame hives in the fall. The 8 frame hives had better survival than 10 frame but not statewide. **Total SOBA loss = 59%, 11 percentage points higher than** statewide**.** Figure 1 compares Southern Oregon and state-wide respondents

Figure 1 **2018-19 Winter Honeybee Loss % by Hive Type**



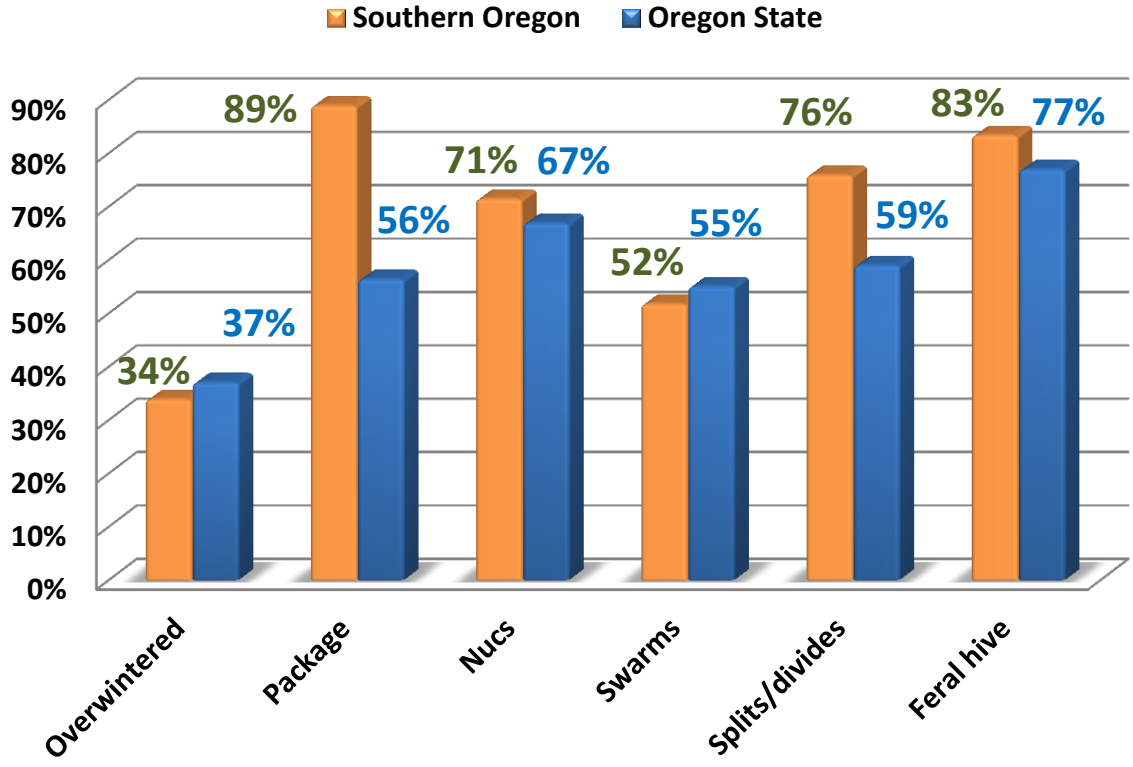
1.

Fall	**39**	**96**	**6**	**2**	**0**	**2**

Spring	**20**	**36**	**2**	**1**	**0**	**0**

Survey also asked about colony losses by hive origination. Forty three of 65 overwintered colonies (34% loss) survived. Except for heavy loss of package bees, losses of hives was similar to statewide. **COBA compared with statewide in** Figure 2.

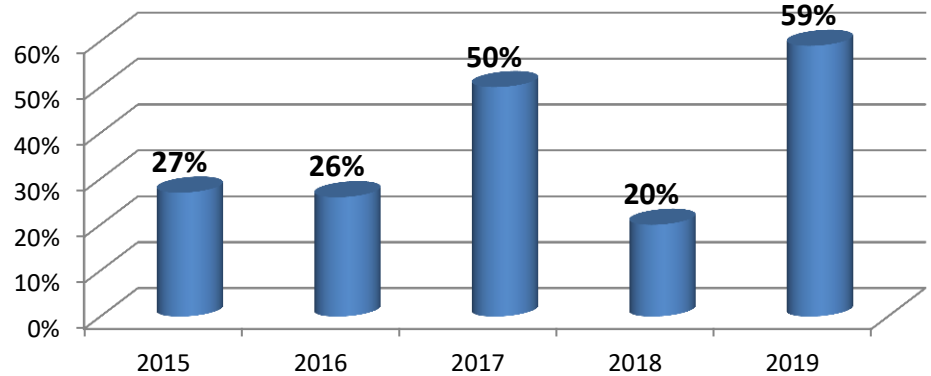
Figure 2 2018-19 Winter Honeybee Loss % by Origination



Fall	**65**	**9**	**21**	**29**	**29**	**6**
Spring	**43**	**1**	**6**	**14**	**7**	**1**

Losses of the 37 SOBA members was 59%, the second highest loss level of the OR

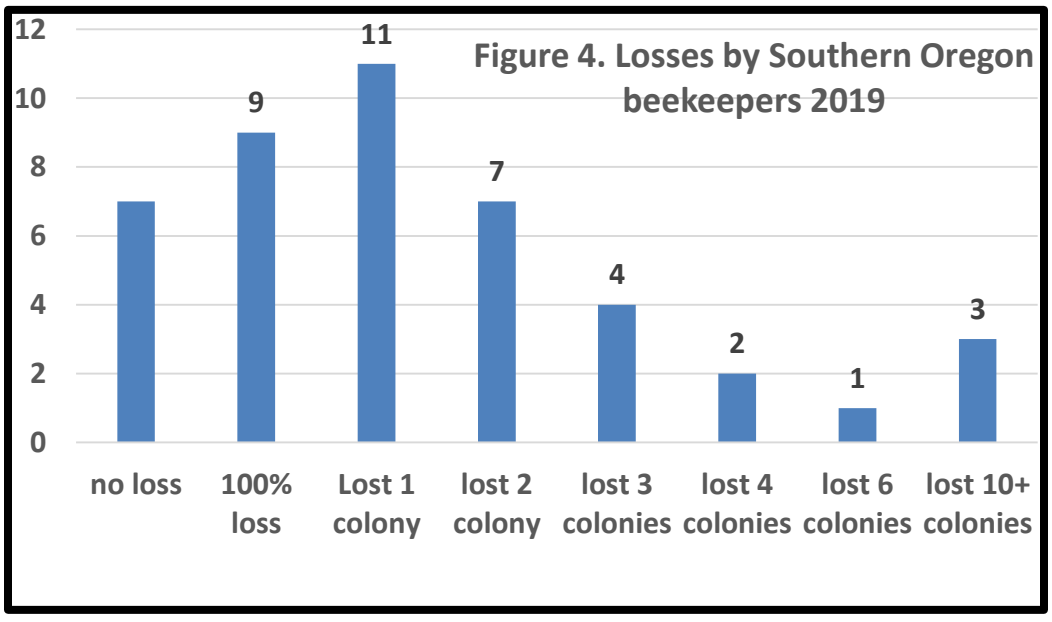
Figure 3. SOBA Winter Losses 5 years



Assoiations. It represents a return to the heavy losses of 2017 when SPBA losses were also higher than statewide average. The remaining three years of tracking SOBA losses were all among the lowest of the OR associatins. I do no know how to make sense of this variation.

The SOBA association respondents can be characterized, as are the state respondents, by small numbers of colonies and a wide range of years of experience. Five individuals had 1 fall colony, 11 had two (the most common number) and 6 had three (62% had 1, 2 or 3 colonies). Seven individuals had 4 or 5 colonies, 3 had 7-9 colonies and 3 had 10+ colonies; highest number was 15. In years experience 15 individuals each had 1, 2 or 3 years experience (44% of total) 13 individuals (38%), 2 had 7 and 9 years experience and there were 5 with 10+ years, including one with 20 another with 30 and the highest was 42.

Not everyone had loss. Seven SOBA individuals (xx%) reported total winter survival and 9 SOBA members (19x%) had total loss. 11 individuals lost 1 colony, 7 lost 2 and 4 lost 3. Heaviest losses were 10, 11 and 12 colonies, the heaviest loss.



Reasons for Colony Loss/Acceptable loss

We asked individuals that had colony loss to estimate what the reason might have been for their loss (multiple responses were permitted). There were 29 total listings for COBA,

1.6/individual. Four Southern Oregon individuals listed weak in fall and Poor wintering with queen failure and varroa listed by 3 individuals each. 1 individual checked Don't know. Table compares SOBA with % statewide selections.

	Varroa mites	Poor wintering conditions	Weak in fall	Queen failure	Star-vation	CCD	Yellow jackets	Other
SOBA (#) (%)	3 (25%)	4 (33%)	4 (33%)	3 (25%)	2 (17%)	1 (8%)	(25%)	2 (17%)
Statewide %	40%	23%	29%	27%	18%	4%	14.5%	15%

Survey individuals are asked to indicate what might be an acceptable loss level. The median (middle) selection was 20%. One individual said didn't know. 4 said none (the heaviest choice), 7 elected 15% or less (39%) and 2 individuals chose 20, 33 and 50%. Three individuals listed 25%.

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 on website www.pnwhoneybeesurvey.com

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. Southern Oregon individual choices varied from zero to 50%, with medium of 20%. 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, but by no means the only reason, colonies are not as healthy as they should be.

Part 2: Management selections and losses

The survey inquired about feeding practices, wintering preparations, sanitation measures utilized, screen bottom board usage, queens, mite monitoring and both mite control 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 COBA and OR beekeepers most often do not do just one thing/management to their colony (ies) to control mites toward improving overwintering success.

I will complete an analysis of these managements relative to loss levels for the statewide data base and SOBA member respondents. This will be posted to the same website, when completed.

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