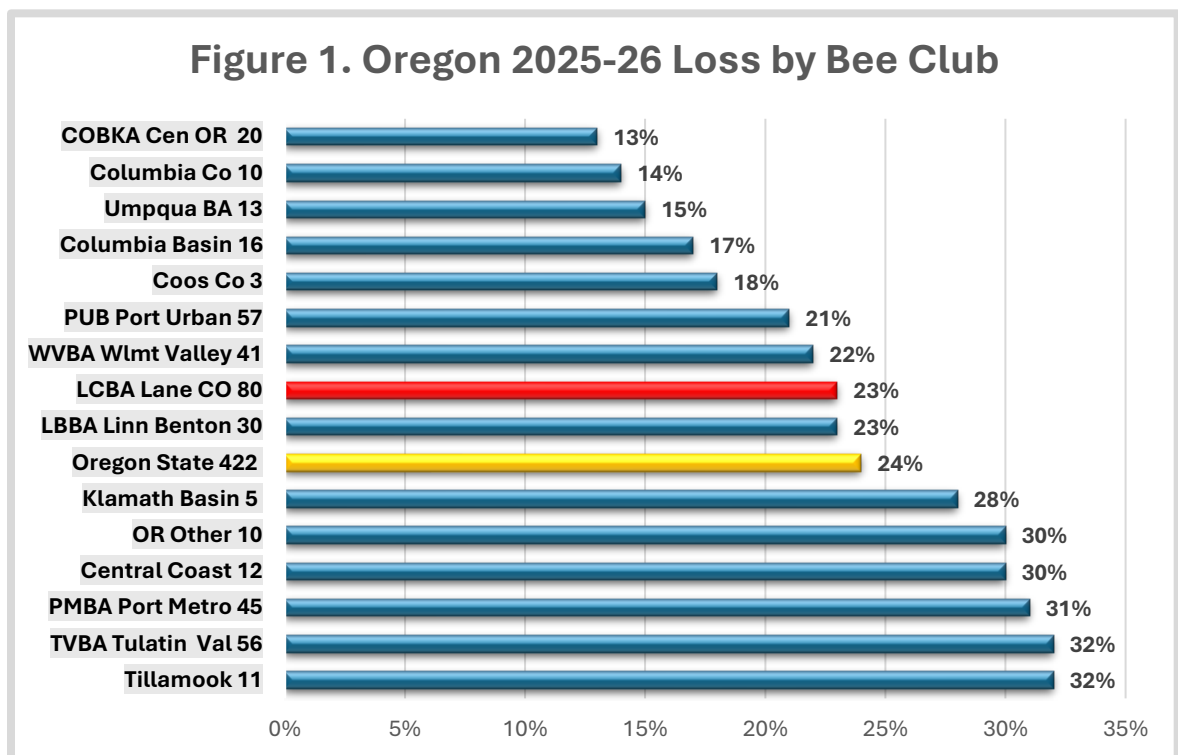


Winter Bee Losses of LCBA -2025-26

Dewey M. Caron

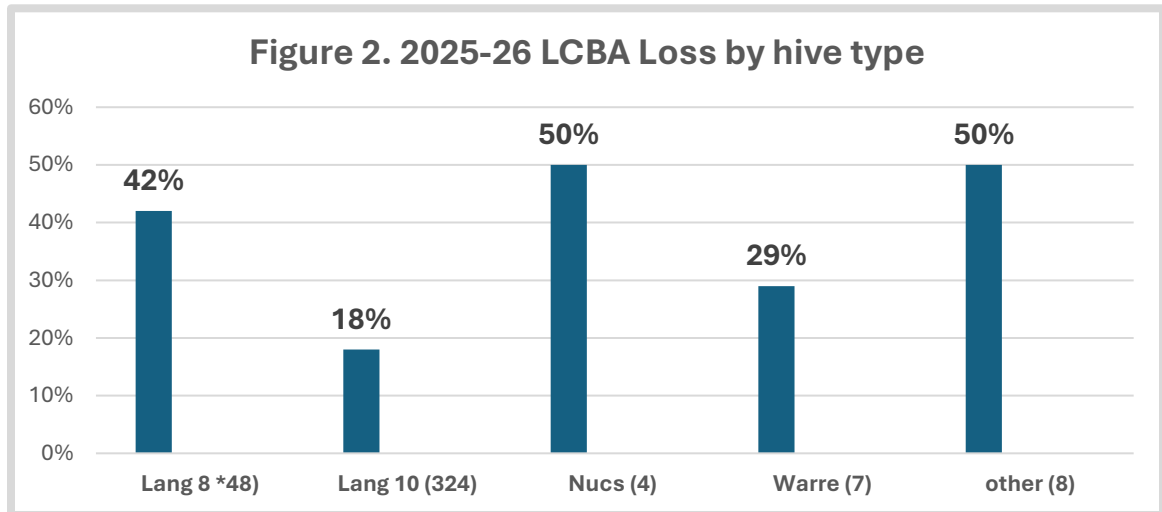
Lane Beekeepers were encouraged to complete a web-based survey document in a continuing effort to define overwintering losses/successes of backyard beekeepers in Oregon and Washington. This was the 17th year of such survey activity. I received 422 responses from OR backyarders, keeping anywhere from 1 to 48 colonies; LCBA members sent in 80 surveys, over double the response rate (34) last year. These 80 individuals had 391 fall colonies. LCBA loss rate was 23%, one percentage point better than the statewide loss level.



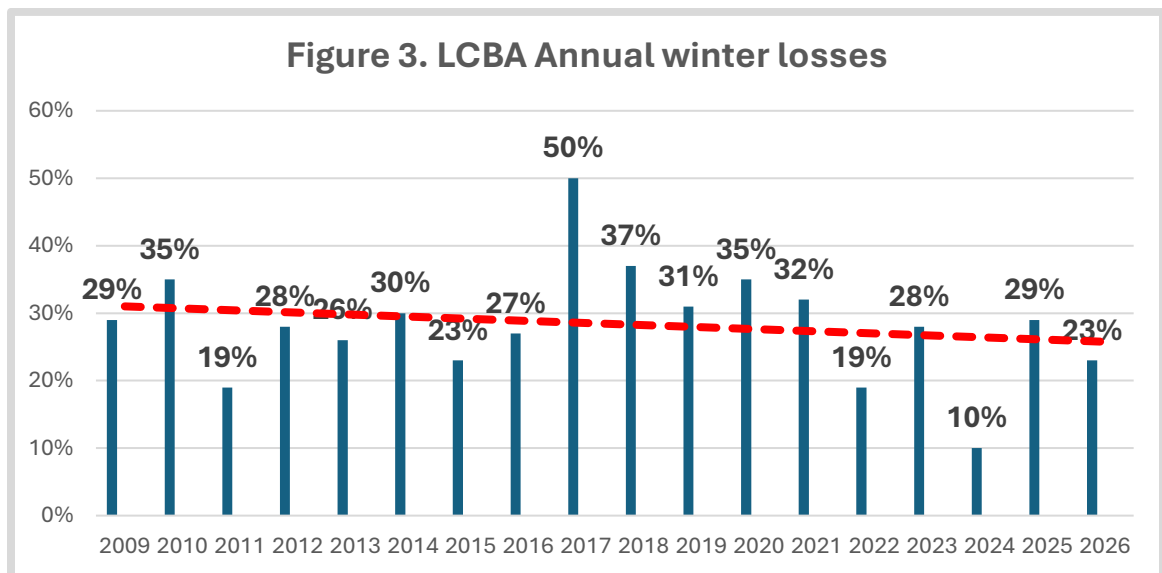
2025-2026 Overwinter Losses by Hive Type

The loss statistic was developed by asking number of fall colonies and surviving number in the spring by hive type. LCBA respondents had 391 fall hives and lost 90 equating to a 23% loss (77% survival rate). This was a 6-percentage point survival improvement compared to the previous winter loss rate and 5.6 percentage points lower than the 16-year LCBA average loss rate of 28.6%. Seventeen individuals overwintered 48 Langstroth 8-frame hives, they lost 20 for 42% loss. Sixty-nine LCBA members overwintered 324 Langstroth 10-frame hives. They had an 18% loss. For most years, the loss rate of 8-

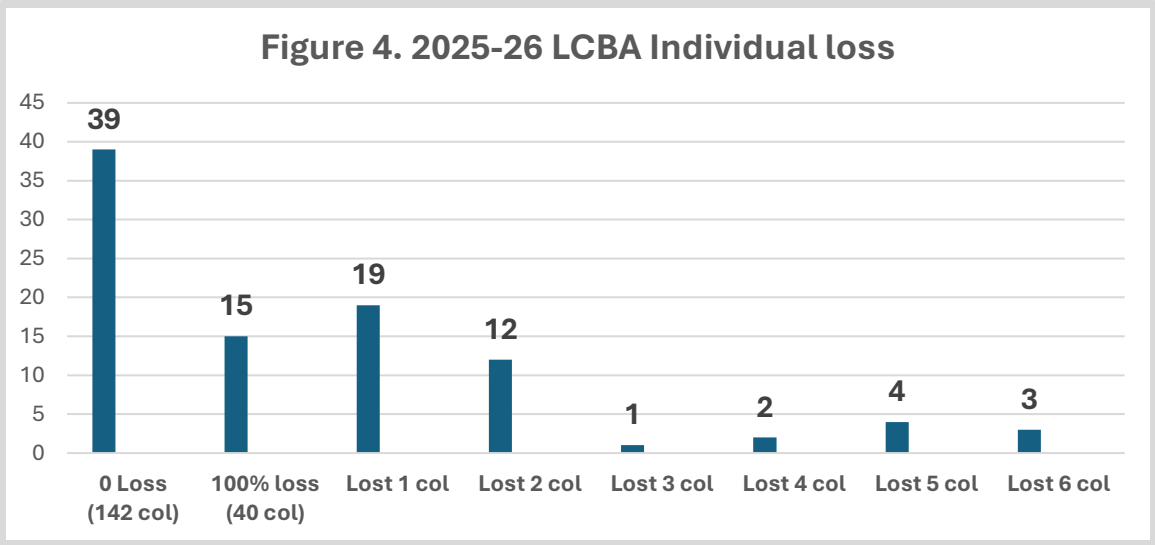
frame Langstroth hives has been lower than for 10-frame Langstroth hives. Nuc loss is usually highest of all hive types, as it was this year (50% for LCBA members). For the eight “other” hive types, one was a long hive (it did not survive); the remaining seven were not identified by type. Figure 2 illustrates loss by hive type. Number in () is number of fall hives.



The good news, although losses remain higher than we would like, is the trend line for LCBA losses is downward. The last five years losses have been below 30%. Figure 3 shows the annual losses since survey began in 2009.



Not everyone had losses. Thirty-nine individuals (142 fall colonies) had zero loss (range 1 to 18 colonies). Fifteen individuals lost 100% (40 colonies, range 1 to 6 colonies). Nineteen individuals lost one colony, 12 lost two colonies. Highest loss was 6 colonies, suffered by 3 individuals.



The members mostly managed small colony numbers and had relatively fewer years of beekeeping experience. Over 50%, a total of 42 individuals had 1 to 3 colonies (total 80 colonies), they lost 32.5%, 27 individuals had 4 to 6 colonies, with a 26.5% loss (total of 139 colonies), three individual had 8 colonies, loss of 8% and eight individuals had 10+ colonies (158 fall colonies) with loss rate of 16%. As with statewide, increased colony number resulted in lower percentage of loss.

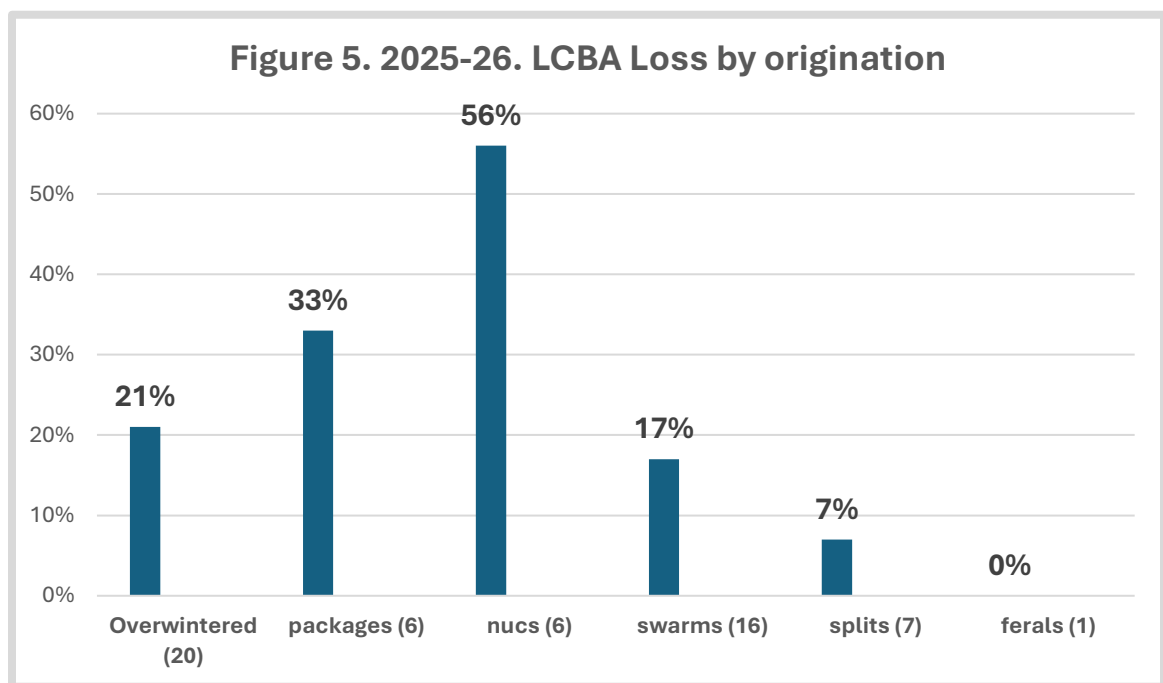
As years of beekeeping experience increased, the relative number of bee colony lost decreased (although weakly for statewide). Eighteen individuals (23% of individuals had

Comparison LCBA with Statewide

	1-3 colonies	10+ colonies
LCBA	32.5% loss (42 indiv)	16% Loss (8 indiv)
Statewide	34% loss (199 Indiv)	20% loss (70 indiv)
	1-3 years' experience	10+ years' experience
LCBA	32% loss (18 indiv)	21% loss (34 indiv)
Statewide	23% loss (95 indiv)	22% loss (104 indiv)

32% loss level (50 fall colonies), 22 individuals with 4-6 yrs experience had 27% loss, the six individuals with 8 or 9 years experience had an 11% loss and the 34 individuals with 10+ years' experience (43% of LCBA respondents) had a 21% loss level (207 fall colonies). Greatest experience was 60 years.

The survey asks for loss by hive origination. Individuals could FAST TRACK and not respond to this (and other portions of the survey). Fifty-one individuals (63%) elected to not respond so information is provided for the 29 individuals who submitted a response. As can be seen, the 20 individuals who overwintered previously overwintered colonies had better wintering success than package-originated or nuc-originated colonies. See Figure 5. Number in () are number of individuals.



The survey also asked about presumed reasons for losses. Recall that 39 individuals had no loss. The remaining 41 individuals could make multiple selections. A total of 72 selections were made, including 7 that said they didn't know = 1.8/individual. The most popular selection was loss due to varroa mites made by 15 individuals.

Acceptable loss: Survey respondents were asked reason for loss. Seventeen individuals indicated 0 loss as acceptable, 3 indicated 5% was acceptable, and 9 said 10% was acceptable. The medium response was 20%. Nine individuals said 50% loss was acceptable and 2 said a 100% loss was acceptable.

• Reasons – 41 individuals	Acceptable loss - 76 individuals
• Don't know 7	None 17
• Varroa 15	5% 3
• Queen issues 9	10% 9
• Weak in the fall 13	15% 4
• Moisture 6	20% 14 Medium
• Starvation 2	25% 12
• Pesticides 1	33% 5
• CCD 5	50% 9
• Yellow jackets 6	100% 2
• Poor wintering 2	
• Small hive beetle 1	
• Absconding 1	
• Mite treatment 2	
• Bears 1	

Why do colonies die?

There is no easy way to verify reason(s) for colony loss. Colonies in the same apiary may die for several 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. A dead colony necropsy can be of use. Opinions vary 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. Interestingly, acceptable level was greater than actual average loss for sixteen LCBA association individuals.

Major factors in colony loss are thought to be varroa mites and their enhancement of viruses especially DWV (deformed wing virus), VDV (Varroa destructor Virus (also termed DWV B) and Israeli and chronic paralysis virus. Varroa was the major selection of LCBA members, followed by weak in the fall and queen issues.

Declining nutritional adequacy/forage and diseases, especially at certain apiary sites, are additional factors resulting in poor bee health. 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

them, 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 our honey bees face in their environment. It was encouraging to see from survey responses that losses this past year of 23% for responding LCBA members were still at a low level. More attention to colony strength and possibility of mitigating winter starvation will help reduce some of the losses. Effectively controlling varroa mites will help reduce losses.

Colony Managements

Respondents to the 2025-26 survey could FAST TRACK and not need to respond to the management questions. There were questions on seasonal managements of feeding/winterizing/sanitation + questions on screen board use + questions on monitoring + questions on both non-chemical and chemical varroa control, as well as questions on queen rearing.

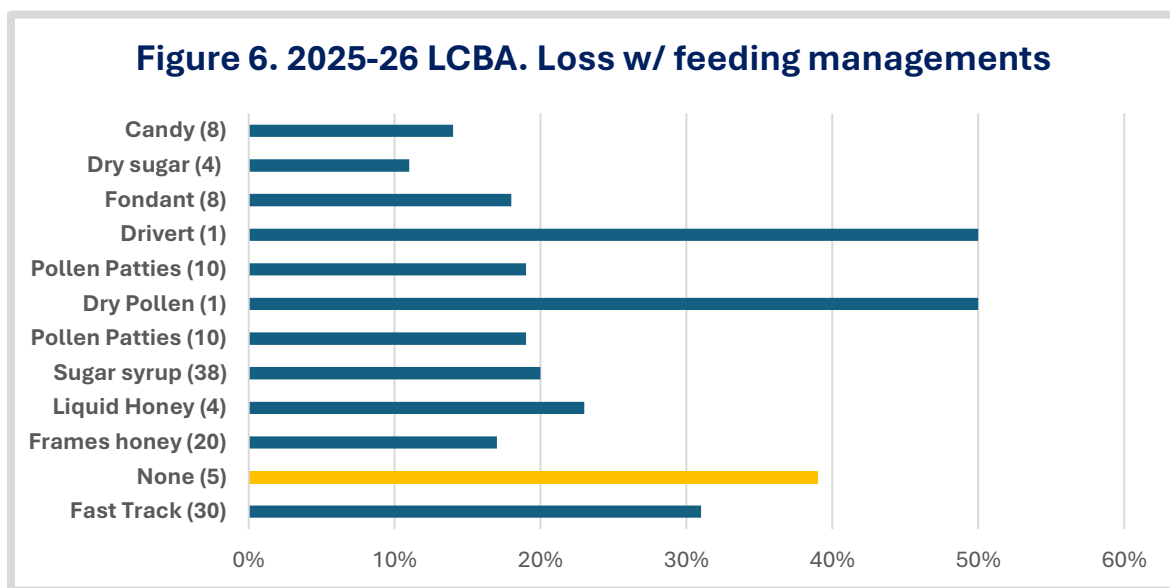
Anywhere from 21 to 30 LCBA respondents elected to skip responding and with the one to several whose reason was none (12 for example selected none for the non-chemical options offered i.e., they reported doing zero non-chemical mite controls) numbers begin to become small - meaning the data is not very robust. I therefore recommend that you examine the larger data base of the statewide respondents and compare your results with those numbers.

For feeding management, 30 LCBA respondents FAST TRACKED, they had 125 colonies and lost 39 for 31% loss. The 50 individuals who responded had 276, lost 51 colonies for 19% loss level. Since numbers are nearly the same, the responses can be considered representative of overall club losses. Smaller numbers can sometimes skew the results.

There were five individuals who said they did no feeding managements – they had a loss rate of 39%. This summary is therefore of 45 individuals with 248 colonies. Smaller numbers can sometimes skew the results. Statewide, the feeding managements found most useful in reducing losses were dry sugar (except for drivert) and pollen feeding. For LCBA, 11 individuals fed protein. Pollen patty feeders (10 individuals) had an 18.5% loss. The single dry pollen feeder lost 2 of 4 colonies. Two members also fed frames of pollen, with no loss of 23 fall colonies. For LCBA members, feeding protein helped reduce average loss below club level.

Neither feeding honey nor sugar syrup improved survivorship according to the statewide survey result; LCBA members did better. LCBA syrup feeders (38 of the 45 respondents) had 20% loss while those that fed frames of honey (20 individuals) did even better – 16.5% loss.

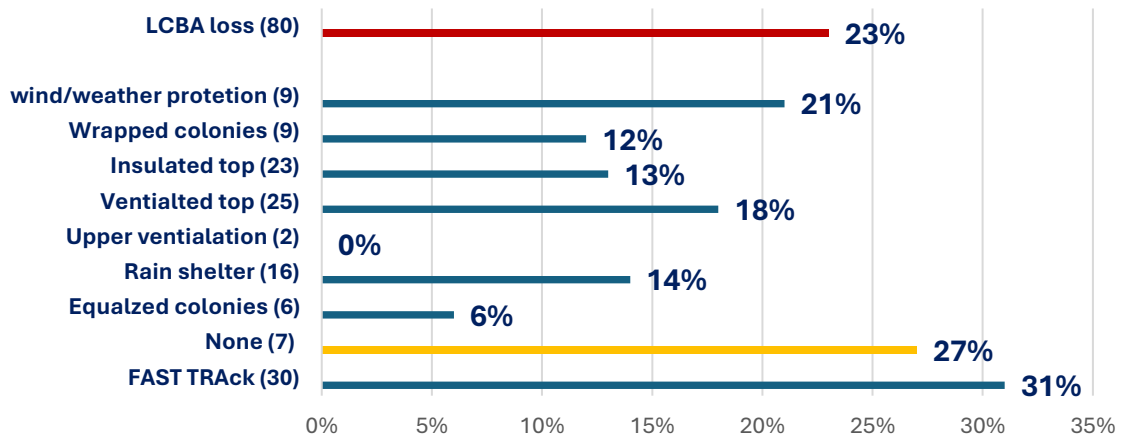
Dry sugar feeding management statewide improved success as it did for LCBA members. Eight candy feeders (35 colonies) had a 14% loss rate and eight fondant feeders (22 colonies) lost 18%. The 4 dry sugar feeders, 19 fall colonies, lost 10.5%. The single drivert feeder lost two of four colonies. See Figure 6; number in () is number individuals.



The several winterizing managements improve success. Equalizing colonies, using rain shelters and insulated colony tops were all useful to reduce loss levels the last few survey seasons. The 30 who FAST TRACKED had 31% loss; seven individuals said they did none (26 colonies) had a 27% loss. The remainder, 43 individuals (250 colonies), had 103 selections, 2.4/individual; statewide it was 2.6/individual.

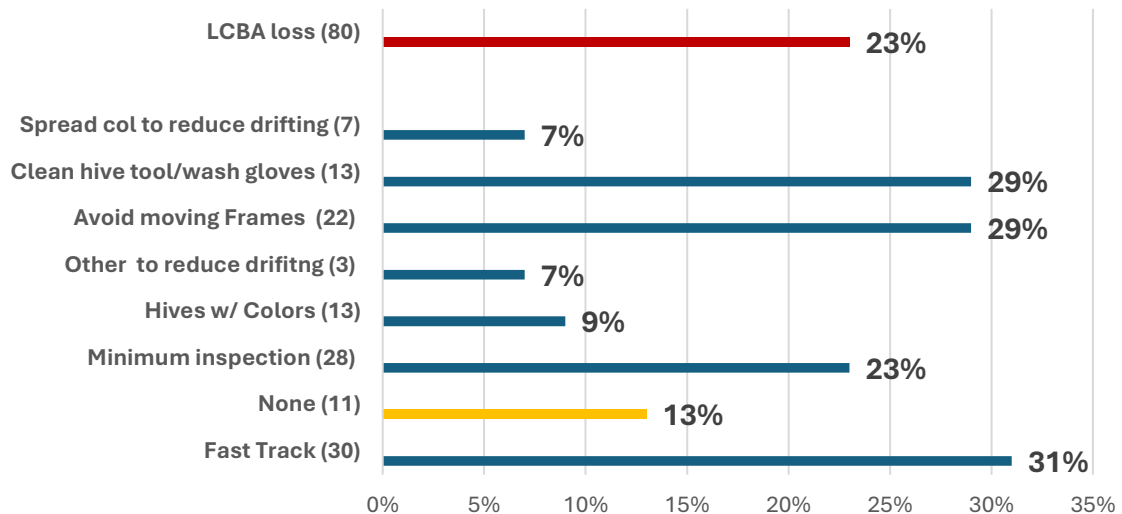
Six LCBA individuals said they equalized colony strength, four of them with 10+ colonies had a 6% loss. The 23 individuals who insulated the colony top (154 colonies) had a 12.5% loss. Sixteen individuals said they used a rain shelter – they had a 13.5% loss. The nine who wrapped had a 12% loss. Figure 7 shows the results for LCBA members doing some winterizing. Numbers in () indicate number of individuals.

Figure 7. 2025-26 LCBA Loss w/ winterizing management



Sanitation is important but it doesn't necessarily translate into better winter success. The 30 who FAST TRACKED had 31% loss. Eleven respondents said they did no sanitation options and had only a 13% loss. The 39 who made a selection had 2.3/individual. The managements that helped reduce losses statewide and for LCBA respondents, were using hive colors, reducing drifting by spreading colonies and performing other measures to reduce drifting.

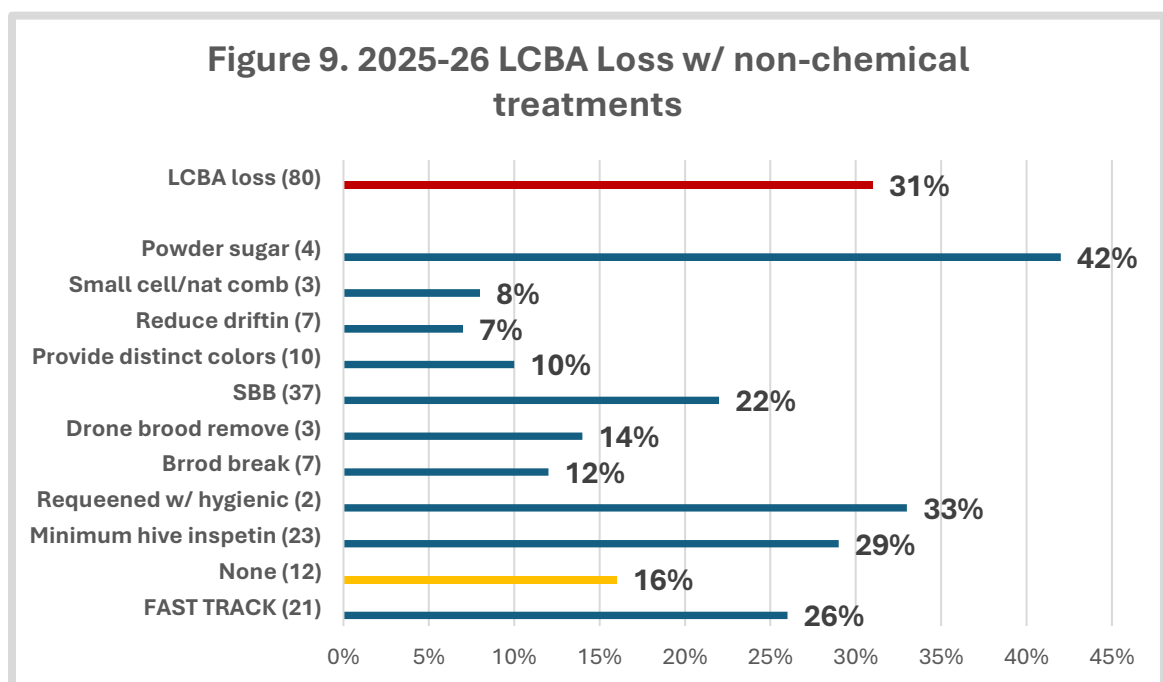
Figure 8. 2025-26 LCBA Loss w/ sanitation management

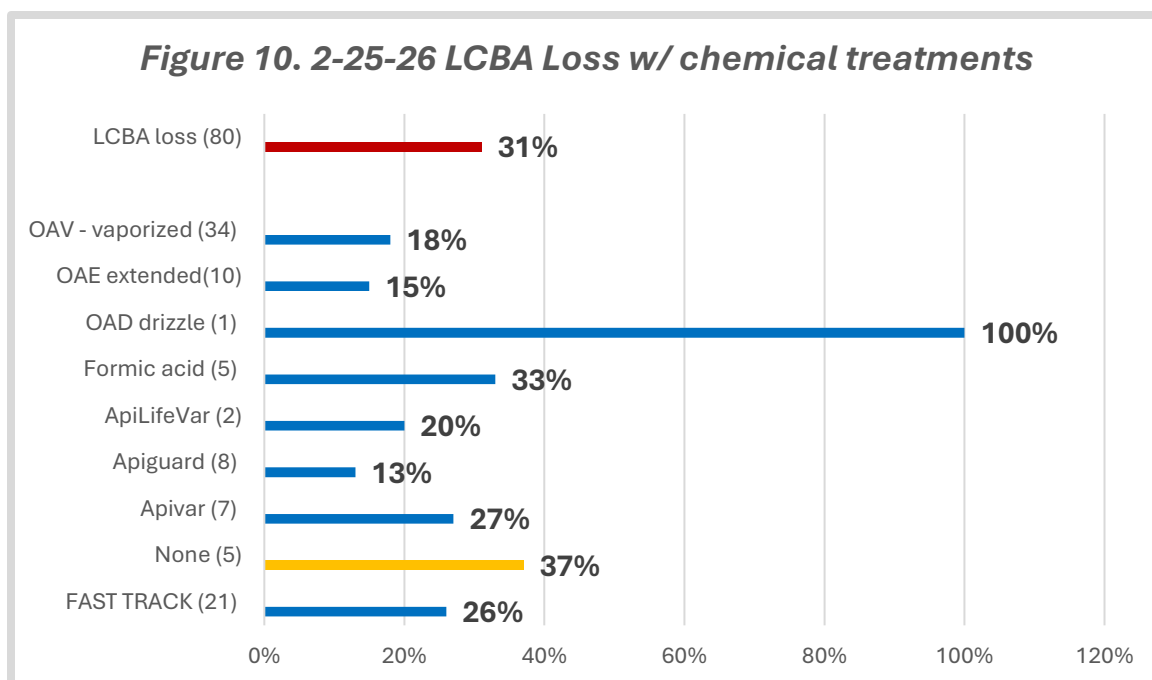


Only seven LCBA members said they did not use screened bottom boards. Results statewide show they are not very effective in improving losses. Thirty individuals FAST

TRACKED the section on monitoring. They had 132 colonies and lost 26%. An additional ten individuals said they did no monitoring and lost 23.5%. The 40 individuals who did monitor listed 76 selections. Thirty-two used sticky boards, 10 used alcohol wash, seven used powdered sugar, eight looked for mites in drone brood and nineteen looked at adult bees as a monitoring tool (but some of them could have been referring to the washing of adult bees with alcohol).

Twenty-one respondents to the survey section on non-chemical/chemical varroa control used FAST TRACK and didn't respond. They had 68 fall colonies, with a 36% loss level. Twelve individuals said they did no non-chemical control management – they lost 16% of fall colonies. Statewide, painting hives distinctive colors provided a five-percentage point improvement and drone brood removal and brood break both provided a four-percentage point difference. For LCBA members, painting hives assorted colors, 10 individuals with 89 fall colonies, lost only nine colonies for an 10% loss level. Seven individuals said they used brood break. They had 82 fall colonies and lost 10 for 12% loss. Three individuals used drone brood removal and of 14 total colonies, only 2 were lost for 14% loss level.





Most chemical controls helped lower the loss level below LCBA average of 31%. Oxalic acid, excepting the one individual who drizzled oxalic had about half the average LCBA loss level. Formic acid, 5 individuals did not do as well. The Api compounds all improved loss level.

Consistently, over the last 9 years, four different chemicals have helped beekeepers improve survival. These were the synthetic Apivar, essential oils Apiguard and ApiLifeVar and Oxalic acid vaporization. This season, ApiLifeVar did not provide adequate control for the 6 individuals using it although it did help the 2 LCBA members. The average loss level has been 35.7% in the last 8 years. Formic acid too has done better than average in the last 9 years, but the product has changed from MAGS to Formic Pro so I cannot be sure what Formic acid product was used by the 27 respondents who reported using it. Oxalic acid drizzle did not do as well this year, including for the single LCBA member (24% loss level statewide), but OAE did very well in promoting better than average survival (17% statewide) and the substantial number of users of OAV (181 individuals statewide, 34 LCBA users) had very favorable result at 19.5% loss level. For most chemicals used more than once, the results are not illustrative of what number of times is most useful, but numbers are small for most.

Queens

We hear lots of issues related to queen “problems”. Queen events can be a significant factor contributing to a colony not performing as expected. One hundred ninety-nine elected to FAST TRACK statewide and did not respond to this final set of questions.

They had loss level of 27%. The 243 who responded had same as average loss level of 24%. One hundred respondents said they had marked queens; they lost 21%; no responders had a 26% loss level. The related question then was 'were your hives requeened in any form?', to which 164 individuals) said yes (22%loss). When asked how colonies were requeened (multiple answers were possible) 76 said their colonies swarmed and 48 said their colonies superseded. Twenty-seven said they split colonies, and they raised an emergency queen presumably. A total of 77 said they introduced a mated queen (19% loss), 10 introduced a virgin queen and 33 said they introduced a queen cell; they had an 18% loss.

Closing comments

I intend to continue to refine this instrument each season and hope you will join in response next march/April. If you would like a reminder when survey is open, please email us at info@pnwhoneybeesurvey.com with "REMINDER" in the subject line. I have a blog on the pnwhoneybeesurvey.com and will respond to any questions or concerns you might have. Email me directly for quicker response: dmcaron@udel.edu

I whole heartedly thank Jenai Fitzpatrick, who has been an invaluable assistant through the years with the data and to Bill Cauterall who has been our webmaster for PUB and who has graciously continued with the loss survey. For different reasons, neither individual now keeps honey bees, so for both this is a labor of love. Both say it is payback to those years they had bees and the wonderful friendships developed among the beekeepers.

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 2026

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