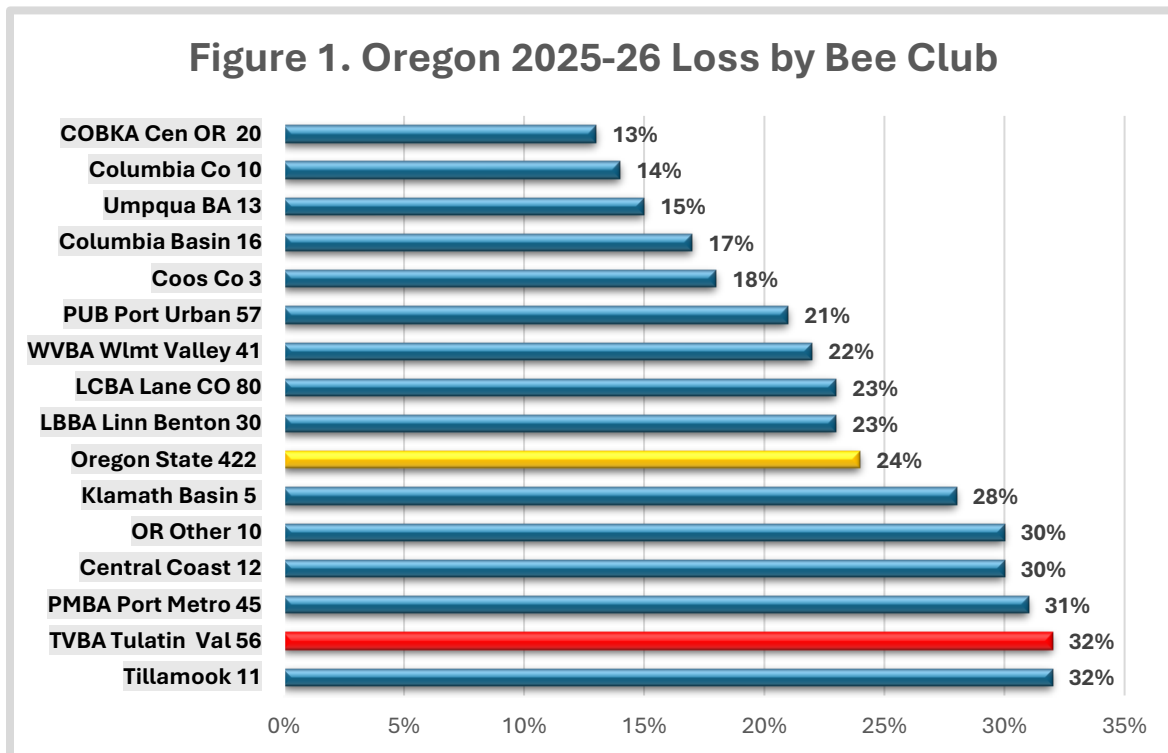


## Winter Bee Losses of TVBA Backyard Beekeepers for 2025-2026

Tualatin Valley 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. I received a record 442 responses from OR backyarders, keeping anywhere from 1 to 49 colonies; TVBA members sent in 45 surveys, 10 more responses than last year. As I reported at the April TVBA meeting, the loss rate for TVBA was higher than statewide. Loss rate was 32% of overwintering colonies, 2 percentage points higher than last year and 8 percentage points higher than statewide. Figure 1 shows the loss rate of a dozen Oregon clubs. The number beside the club's name is number of club respondents.



The 56 TVBA individuals reported a total of 303 colonies (a little over 5 hives per person average, medium number was 4, largest number was 18 hives). Percent losses, determined by hive types, were 28% Langstroth 8-frame hives (23 individuals, 85 fall hives) and 32% for Langstroth 10 frames hives (38 individuals, 188 fall hives). (There were 10 fall IQ hives and all but one died – 10% loss). The loss rates of Langstroth 8- and 10-frame hives statewide over the past 10 years have been consistent; Langstroth 8-frame hives have

nearly a 5-percentage point greater survival compared to the Langstroth 10-frame hives. I have no apparent explanation for this difference.

Of 20 fall nucs (7 members), 6 didn't survive (30% loss). Nuc losses are typically higher than losses of 8- or 10-frame Langstroth hives. Four Top Bar hives all survived (usually 50% do not survive). For six "other" hive types, only 1 survived – the Valkyrie hive; the hive type of the remaining 5 was not specified. Figure 2. Numbers on x-axis in ( ) are number respondents for each type.

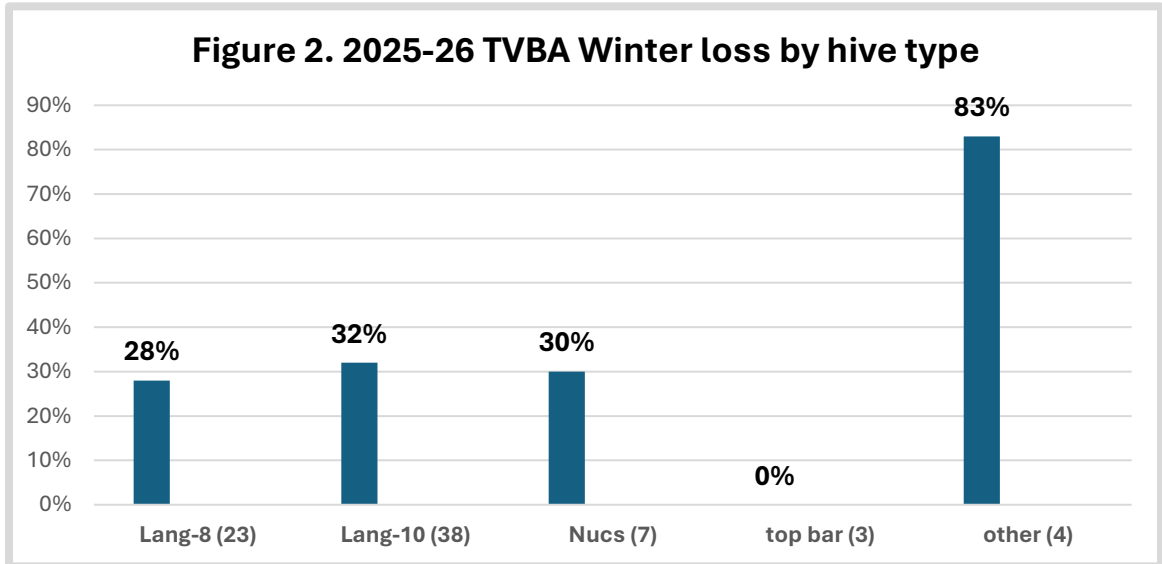
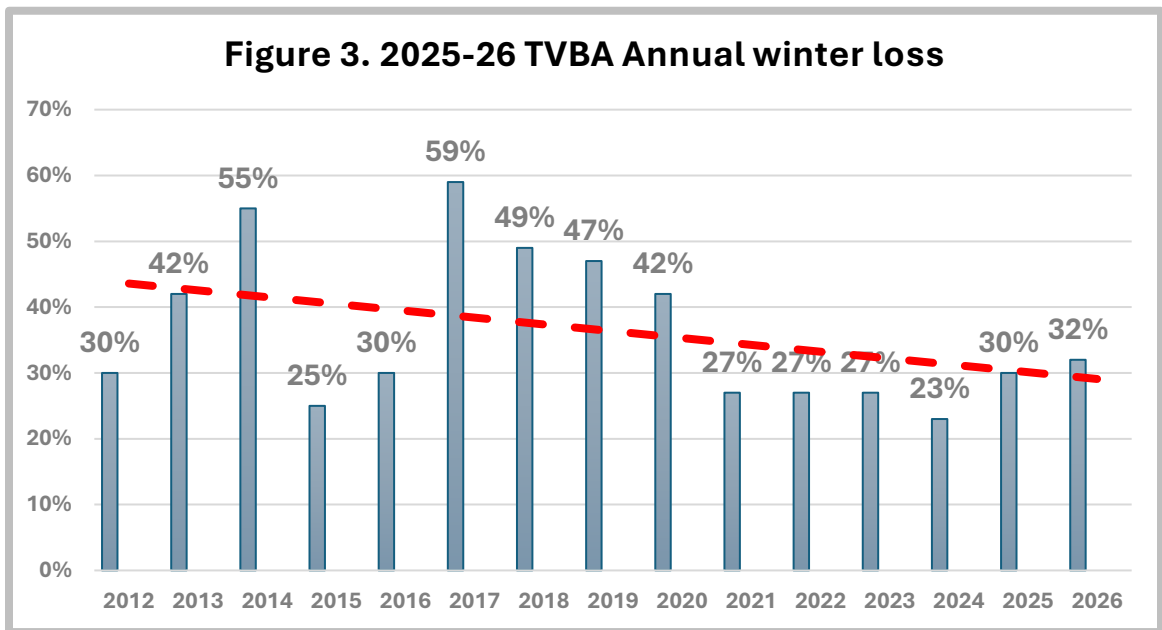
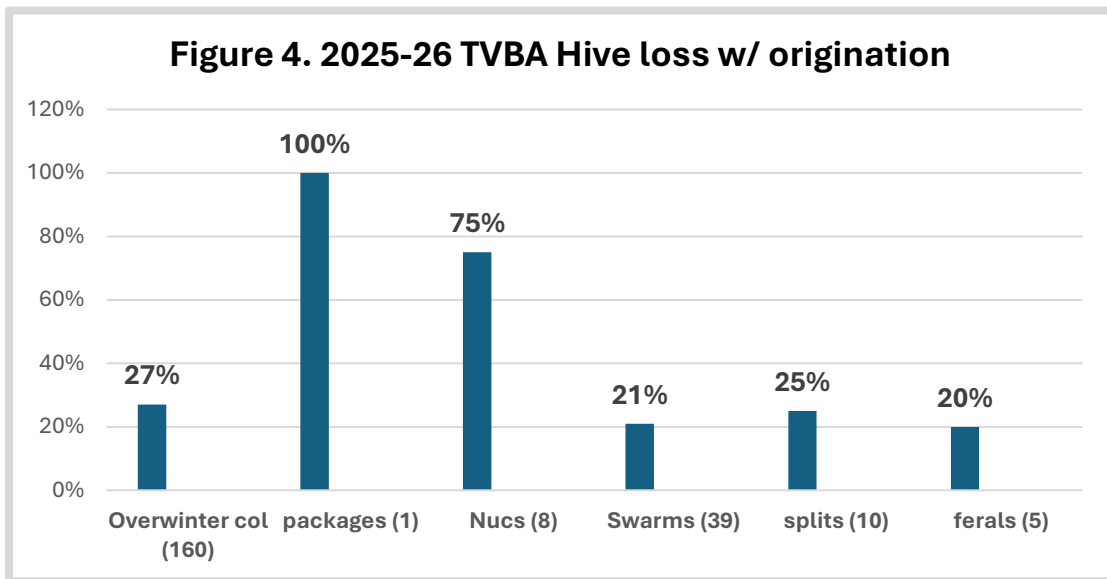


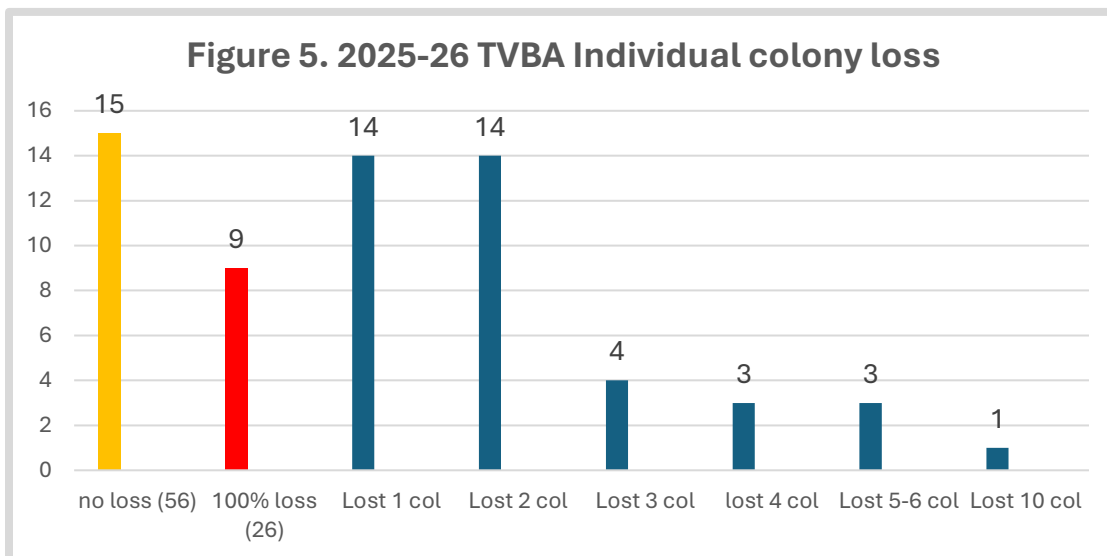
Figure 3 shows TVBA losses for past 15 years. Dashed red line is loss trend – hopefully we are not seeing a return to losses above 30%, as enjoyed the last 5 years.



The survey also asked for hive loss by hive origination. Thirty TVBA members (more than half =54%) used FAST TRACK and did not supply numbers. They had a 28% loss. Of those 26 who did respond, 25 said their previously overwintered colonies, 160 total, had a 26.5% loss, 1 individual said their single package did not survive and 6 individuals had 8 nuc originated colonies overwintering but only 2 survived (75% loss). There were 16 TVBA individuals who overwintered 39 swarm originated colonies – 8 did not survive = 20.5% loss and six individuals overwintered 10 splits, they lost 2 = 25% loss. Of five feral transfers one did not survive = 20% loss. Figure 4 shows these losses by origination, numbers in ( ) are colony numbers.



Not everyone had loss. Fifteen individuals (56 fall colonies), 27% of TVBA respondents had no loss; unfortunately, 9 individuals, 16% of TVBA, respondents with 26



fall colonies, had total loss. As colony numbers increased, loss percentage decreased- from loss of 44.5% for individuals with 1-3 colonies (21 members) to 24% loss level for the 7 individuals with 10+ colonies. Heaviest losses were 1 and 2 colonies (14 individuals each), greatest loss was 10 colonies.

### Who are the survey respondents?

The TVBA respondents to the electronic survey managed one to 18 fall colonies. Twenty-one individuals (37.5% of TVBA respondents) had 1 to 3 colonies – they had a 45.5% loss, 17 individuals had 4 to 6 colonies, they had a 36% loss, 11 individuals had 7-9 colonies with a 27% loss level and the seven individuals (12.5% of member respondents) with 1-18 colonies had a 24% loss. Statewide and for TVBA individuals with increasing numbers of colonies, the percentage of loss decreases.

Seven individuals (12.5% of respondents) had 1, 2 or 3 years of experience (loss level 33%), 15 individuals had 4 to 6 years’ experience (32.5% loss level), nine individuals had 7-9 years’ experience (46% loss), the 25 individuals with 10 to 50 years’ experience (44.5% of respondents) had a 25.5% loss. There is an apparent correlation that with increasing experience, the percentage of colony losses decreases, although weakly so for statewide respondents.

#### Comparison TVBA with Statewide

|           | 1-3 colonies            | 10+ colonies           |
|-----------|-------------------------|------------------------|
| TVBA      | 46% loss<br>(21 indiv)  | 24% Loss<br>(7 indiv)  |
| Statewide | 34% loss<br>(199 Indiv) | 20% loss<br>(70 indiv) |

|           | 1-3 years’ experience  | 10+ years’ experience   |
|-----------|------------------------|-------------------------|
| TVBA      | 33% loss<br>(7 indiv)  | 26% loss<br>(25 indiv)  |
| Statewide | 23% loss<br>(95 indiv) | 22% loss<br>(104 indiv) |

### Some other numbers

Forty-eight of 56 TVBA respondents (86%) said they had a mentor available as they were learning beekeeping; 76.5% statewide said they had a mentor.

Six individuals had 2 apiary sites. Survival levels were the same at one, better at 3 and worse at 2 of the 2<sup>nd</sup> apiary sites. Two had a 3<sup>rd</sup> apiary site; colonies did the same at both. Four individuals moved a total of eight hives during the fall season; one moved 2 hives a few feet, one moved two hives for better location, one lost apiary site and had to move the two hives a ½ mile away and the last two were moved 80 miles.

### Reasons for loss/acceptable loss percent

We asked the 41 individuals that had colony loss to estimate what the reason might have been for their loss (multiple responses were permitted). Six individuals didn't know (they had loss of 50%). For the remaining responses there were 55 total listings for TVBA, 1.6/individual. Most common listing was queen failure (14 respondents, 32.5% loss), Varroa (12 respondents, 51.5% loss) and weak in the fall (9 respondents, 33% loss).

**Acceptable loss:** Survey respondents were asked reason for loss. Recall that 15 individuals, 27% of TVBA respondents had no loss. Ten individuals indicated zero loss as acceptable, 2 indicated 5% was acceptable, and 5 said 10% was acceptable. The medium response was 20%, same as statewide. Seven individuals said 50% or larger loss was acceptable. See table below.

| <b>Reasons – 35 individuals</b> | <b>Acceptable loss - 56 individuals</b> |
|---------------------------------|---|
| • <b>Don't know 6</b>           | <b>None 11</b>                          |
| • <b>Varroa 12</b>              | <b>5% 2</b>                             |
| • <b>Queen issues 14</b>        | <b>10% 5</b>                            |
| • <b>Weak in the fall 9</b>     | <b>15% 6</b>                            |
| • <b>Moisture 2</b>             | <b>20% 11 Medium</b>                    |
| • <b>Starvation 7</b>           | <b>25% 9</b>                            |
| • <b>Pesticides 1</b>           | <b>33% 3</b>                            |
| • <b>CCD 1</b>                  | <b>50% 2</b>                            |
| • <b>Yellow jackets 6</b>       | <b>75% 2</b>                            |
| • <b>Poor in fall 1</b>         | <b>100% 3</b>                           |
| • <b>Absconding</b>             |   |

### Why 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 greater than actual average loss was indicated by seven TVBA 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 second major selection of TVBA members.

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 the environment. TVBA losses were the highest of bee clubs this past year. 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 varroa, both non-chemical and chemical control, as well as questions on queen rearing.

Anywhere up to 18 TVBA respondents elected to skip answering and with the one to several whose reason was none (5 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, eighteen of the 56 TVBA respondents FAST TRACKED, they had 93 colonies and lost 37.5%, 5.5 percentage points above the club average. This summary is therefore of 38 individuals with 210 colonies. Smaller numbers can sometimes skew the results.

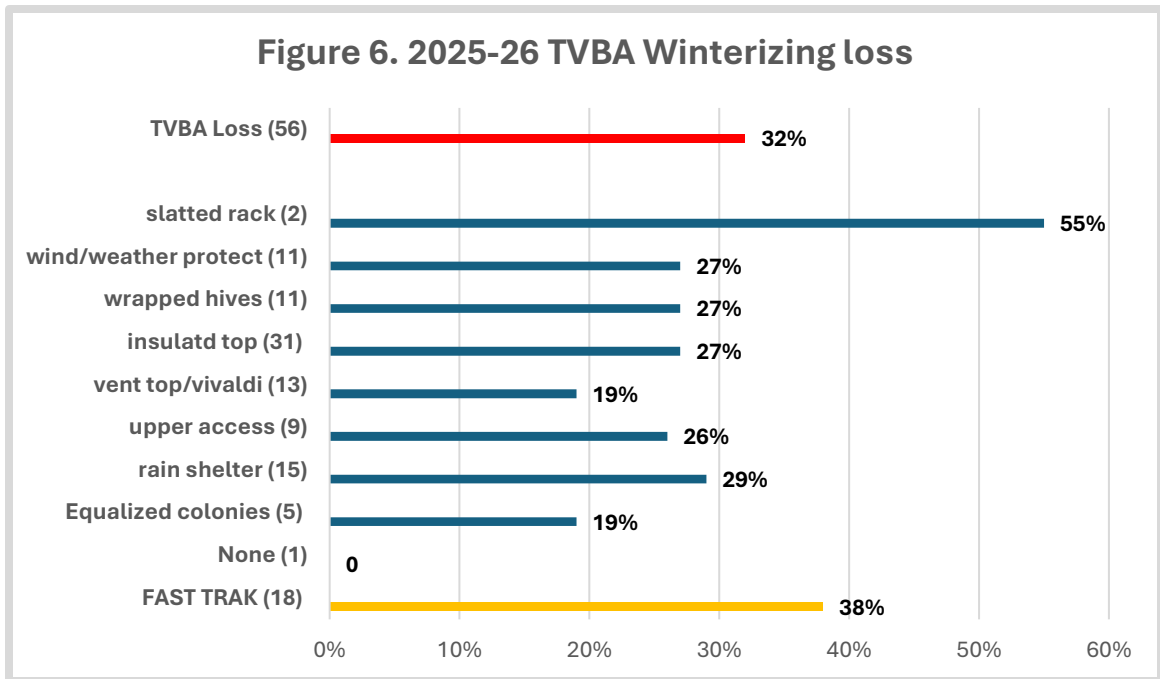
Statewide, and for TVBA members, the feeding managements found most useful in reducing losses were dry sugar (except for drivert) and pollen feeding. For TVBA, 15 of the 38 individuals fed protein. Pollen patty feeders (15 individuals) had a 25% loss. One also fed pollen dry with pollen patties and lost 1 of 3 colonies =33% loss. For TVBA members feeding protein as pollen patties helped reduce average loss by 7-percentage points below club level.

The other feeding management statewide that improved success was dry sugar feeding. Neither feeding honey nor sugar syrup improved survivorship according to the statewide survey result. Twelve candy feeders (51 colonies) had a 21.5% loss rate. Eight fondant feeders (one of which also fed candy, maybe used instead of sucrose sugar), lost 17 colonies (of 57 fall colonies) = 30% loss). The 13 dry sugar feeders, 1 of which also fed pollen patties, had 84 fall colonies, lost 18 = 26%. There were no drivert feeders.

There were 27 sugar syrup feeders among the 37 TVBA respondents, they had a five-percentage point better loss level of 27% compared to the club loss level. Individual feeding frames of honey (12), two of whom also fed liquid honey did not do as well – they had loss of 41.5% of overwintered colonies.

The several winterizing managements improve success. Statewide, equalizing colonies, using rain shelters and insulated tops were all useful to reduce loss levels in the last few survey seasons. The 18 TVBA respondents who FAST TRACKED had 93 colonies in the fall and had 37.5% loss; one individual said they did none and didn't lose their single colony. The remaining, 37 individuals (209 colonies, 28.5% loss), had 110 selections, 3/individual; statewide it was 2.6/individual.

Five individuals, (38 total fall colonies) equalized colony strength and had an 18.5% loss. Fifteen individuals (91 colonies) said they used a rain shelter – they had a 28.5% loss. The individuals insulating the colony top, the most frequent selection, 31 individuals, 182 colonies lost 19%, a 13-percentage point improvement over TVBA club loss level. See Figure 6 for this information for TVBA to compare it to statewide losses.



Sanitation is important but it doesn't necessarily translate into better winter success. Four respondents said they did not take sanitation measures offered as selection. They had 21 colonies and lost 14 for 67% loss. There were 87 total selections, 2.3/individual. The 38 who made a selection had a 29% loss and the 18 who FAST TRACKED lost 37%. Fifteen individuals provided distinctive colors for their hives – they had a 18% loss. Six of those also spread colonies out to reduce drifting and lost 5 of 29 total colonies. The 11 individuals doing the spacing management had a 20% loss level.

Sanitation measures and screen bottom boards provide little help for wintering success; individuals that close the bottom during winter do a bit better.

### **Monitoring and mite control**

Sixteen individuals FAST TRACKED the section on monitoring. They had 63 colonies and lost 43%. An additional five individuals said they did no monitoring and had loss of 32%, both above the TVBA average loss. Seventeen TVBA members said they used sticky boards to monitor, 18 used alcohol wash, 5 used powdered sugar, 14 looked for mites in drone brood and 9 looked at adult bees as a monitoring tool (but some of them could have been referring to the washing of adult bees with alcohol).

Fourteen respondents to the survey section on non-chemical/chemical varroa control used FAST TRACK and didn't respond. They had 55 colonies, lost 23 for a 42% loss level. Five individuals said they did no non-chemical control management – they lost 41% of 39 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 TVBA members painting their hives assorted colors did not measurably improve losses but small cell/natural comb, although only indicated by three individuals, did = 8% loss. Minimal inspection (11 individuals) had a 17% loss level and those doing drone brood removal (6) individuals had 23% loss level.

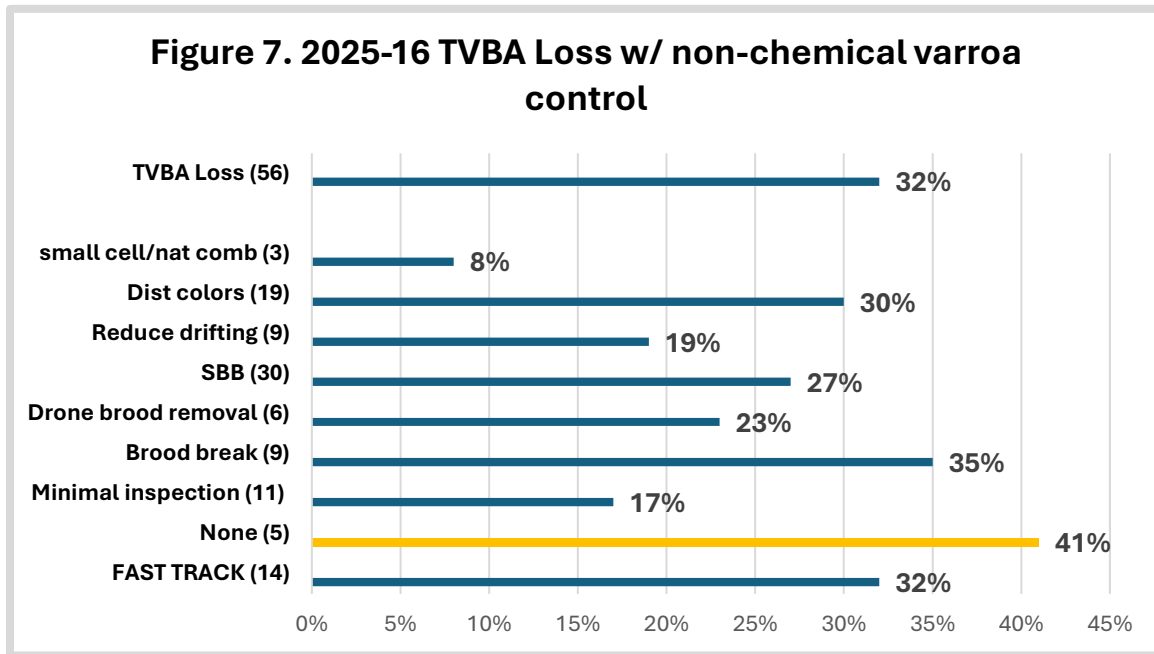
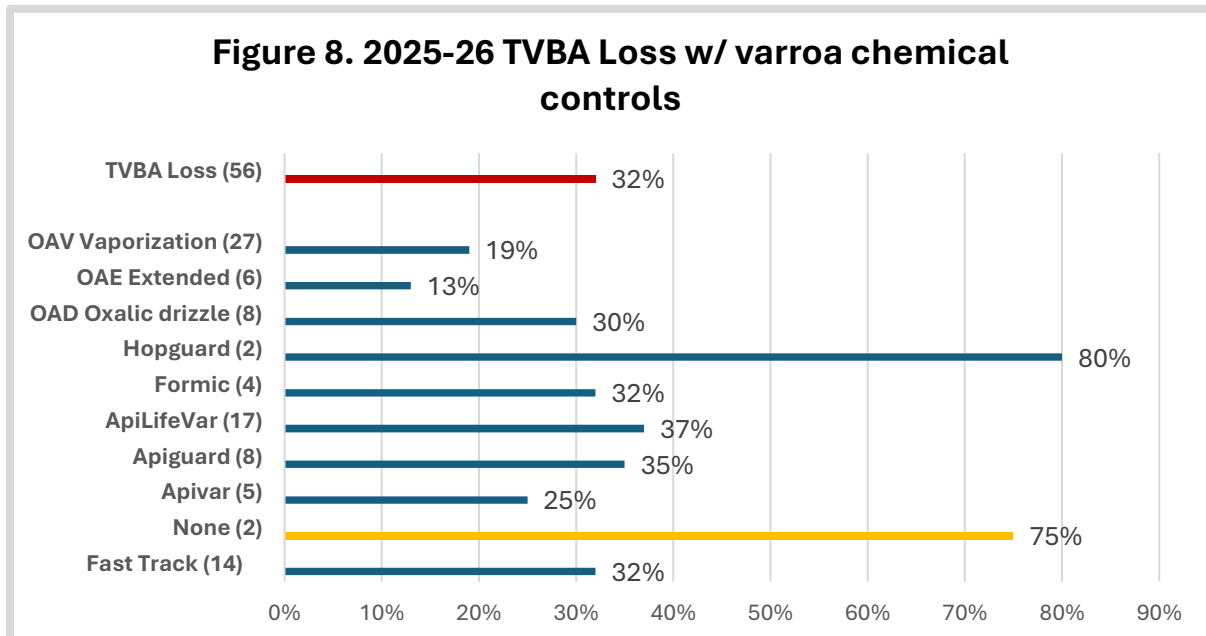


Figure 8 illustrates chemical control options for TVBA members. Numbers in ( ) are number of individuals and bar length shows the loss level for each material. For specific



chemicals individual recorded their number of times used. For Apivar (5 individuals, 25% loss), two used it twice and the remaining three used it once, For Apiguard, three individuals used it twice. In case of APiLifeVar, TVBA club members were the most common users. – five individuals used it twice and the reminding 13 used it once. Oxalic acid was used as many as 6+ to once. Overall, all Oxalic acid users had a 22% loss. Except for the disappointing performance of ApiLifeVar (and Apiguard), plus Hopguard failing to be helpful, chemical alternatives are very helpful for reducing losses.

## 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 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](mailto:info@pnwhoneybeesurvey.com) with “REMINDER” in the subject line. I have a blog on the [pnwhoneybeesurvey.com](http://pnwhoneybeesurvey.com) and will respond to any questions or concerns you might have. Email me directly for quicker response: [dmcaron@udel.edu](mailto: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