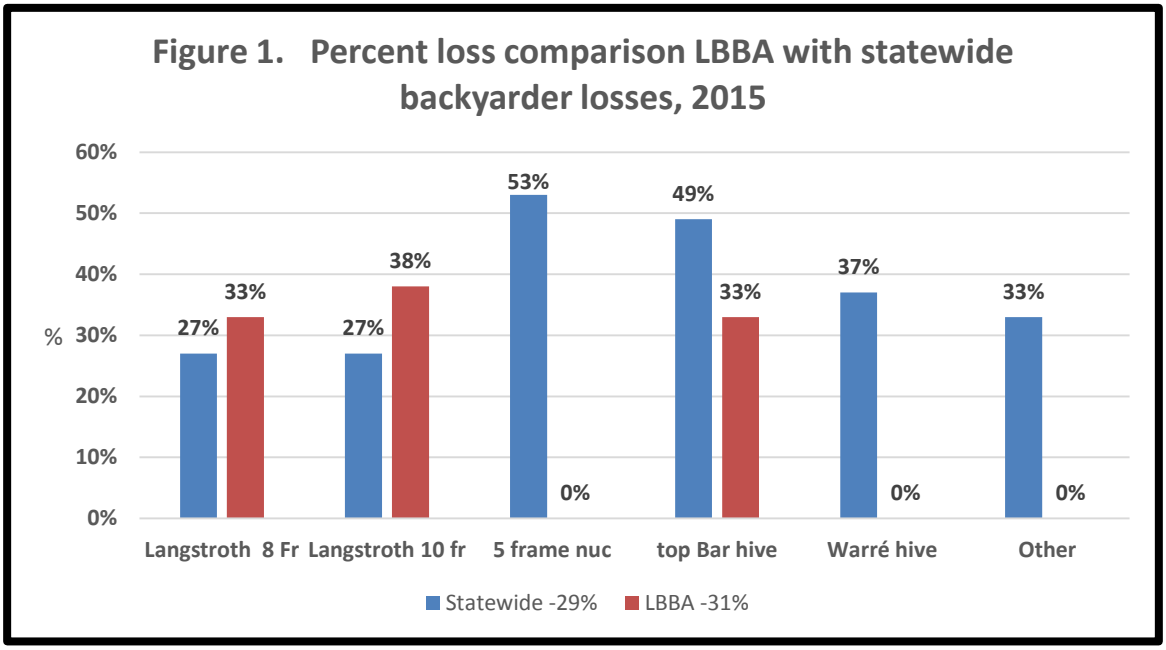
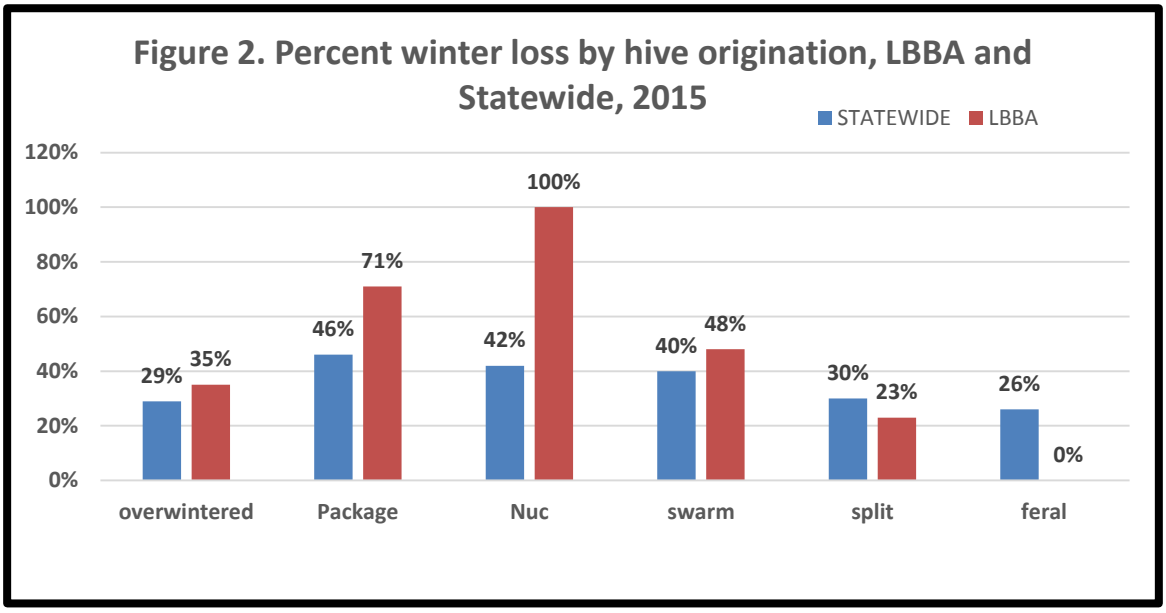
2015 Linn Benton Winter Loss by Dewey M. Caron with statistical assistance of Jenai Fitzpatrick

Paper copies of the 2014-2015 overwintering loss survey we distributed at the April LBBA meeting and members directed to a web-based survey document (posted at www.pnwhoneybeesurvey.com. Such survey activity is a continuing effort to define overwintering success, now the 8th spring survey. I received 230 responses from OR backyarders, plus 20 others from Washington associations, keeping anywhere from 1 to 50 colonies; LBBA members sent in 17 surveys. This report along with a power point details the results of the PNW and LBBA surveys.

Overwintering losses of LBBA respondents was 24 colonies = 31%, slightly above the statewide loss of 29% (database of 230 OR backyarders.) Percent losses, determined for 6 hive types, is shown in Figure 1 comparing LBBA with the statewide backyarders. LBBA member respondents started winter with 50 Langstroth 10-frame and 19 Langstroth 8-frame hives (90% of total), 5 5-frame nucs, and 3 Top bar hives (no Warré or "other" hive types). Loss of Langstroth 10-frame hives (38%) was higher compared to statewide beekeepers.

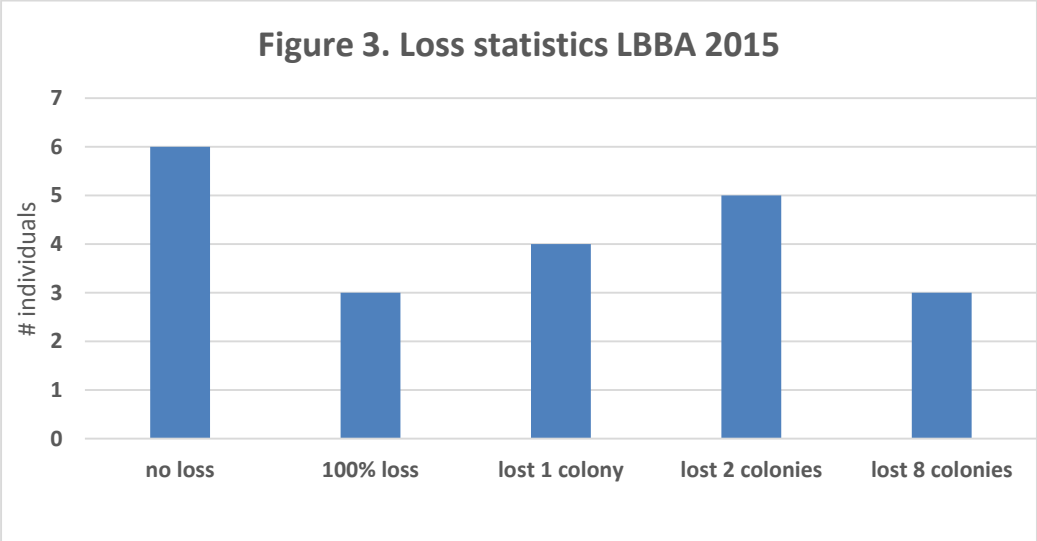


The survey also asked for hive loss by hive origination. Twenty four of 37 overwintered TVBA member colonies were alive in the spring (35% loss rate), slightly higher compared to statewide (29%) overwintering colonies. Respondents reported a higher loss level of newly installed packages (71%), loss of the 2 nucs (100%), slightly higher swarm losses with lower loss rates for splits. No feral colony transfers were reported. See Figure 2.



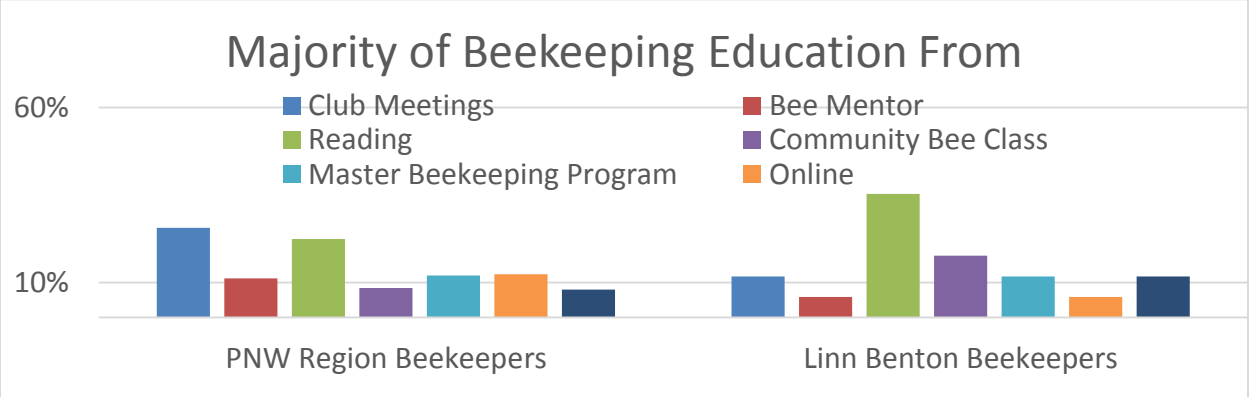
Losses this past winter, based on the 17 survey respondents, were much lower compared to the terribly elevated losses of the previous winter (55%) (see www.pnwhoneybeesurvey.com for last year's report) for LBBA beekeepers and statewide (last year 48% statewide).

Not everyone had loss. Six individuals (35%) reported total winter survival compared to 48% statewide; 3 individuals lost 100% of their colonies. Four individuals lost 1 colony 5 lost 2 colonies and 1 lost 8 colonies, the largest loss. Data shown graphically below in Figure 3. Seventy-two percent indicated acceptable overwinter loss as zero or 5-15%.



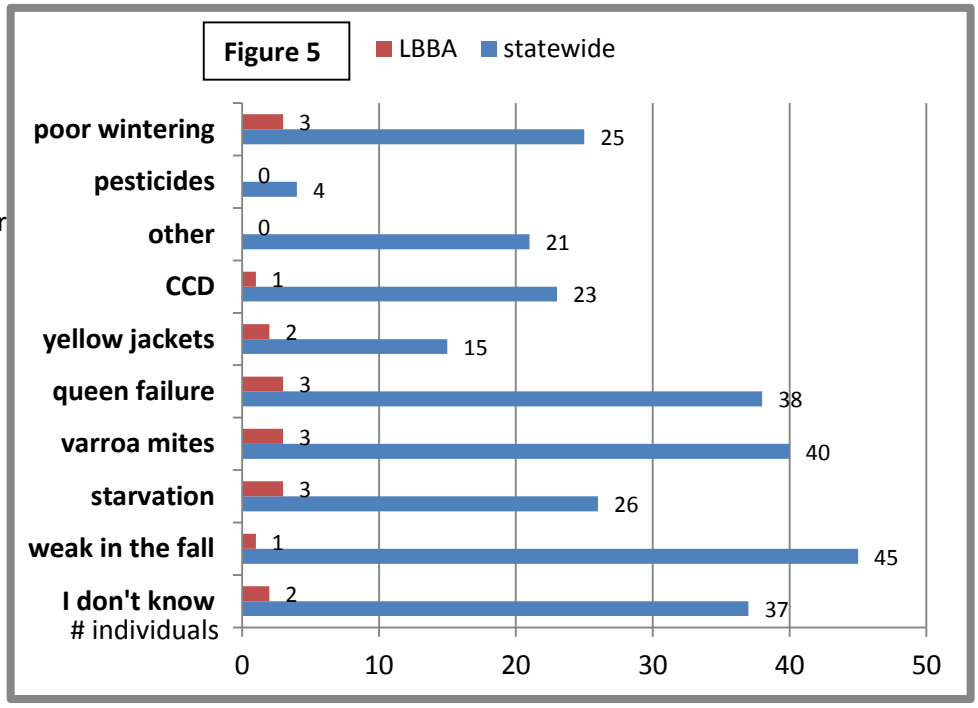
Ten LBBA respondents had 1, 2 or 3 colonies (59%); the largest number was 16. One individual had more than one apiary location. Two of the 17 individuals moved bees during the year, one 100 ft. for better sun and the other 450 miles for better spring forage.

When asked to indicate where the majority of their beekeeping education was received, LBBA respondent numbers varied slightly from statewide, with club meetings listed less frequently and readings and bee class higher. Sixty five (65%) of individuals had a mentor available in their early beekeeping education and bee mentors and the OR MB program were indicated by members



LBBA survey respondents reported a wide range of beekeeping experience. Four individuals (24%) had 5 years or more bee experience, with the highest 23 years; 11 (65%) had 1, 2 or years of experience.

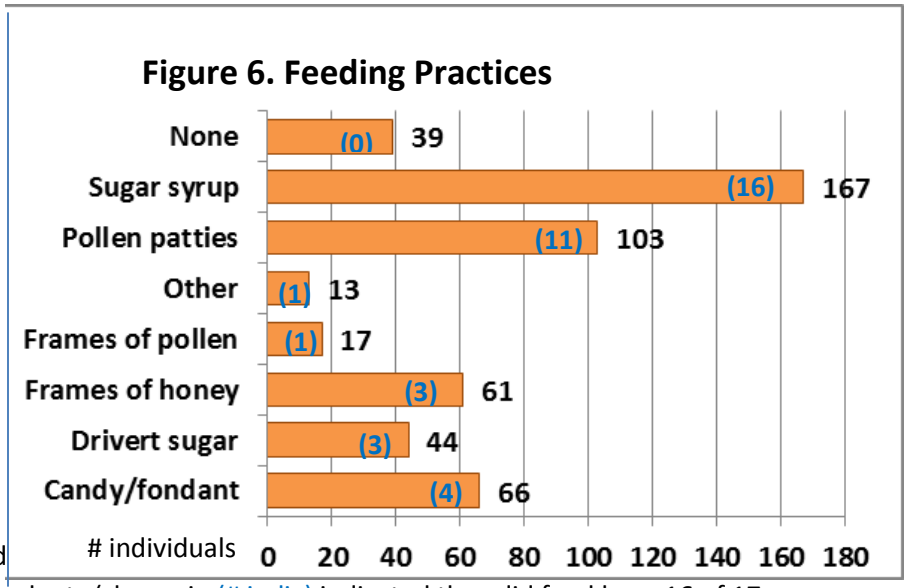
We asked for individuals that had colony loss to estimate what the reason might have been. Multiple responses were permitted. Of 276 statewide responses, 45 chose weak in the fall (16%), 40 selected Varroa mites (15%) and 14% said queen failure. I don't know was also 14% The 19 LBBA responses were similar choices with queen failure, varroa, poor wintering and starvation most commonly chosen. See Figure 5.



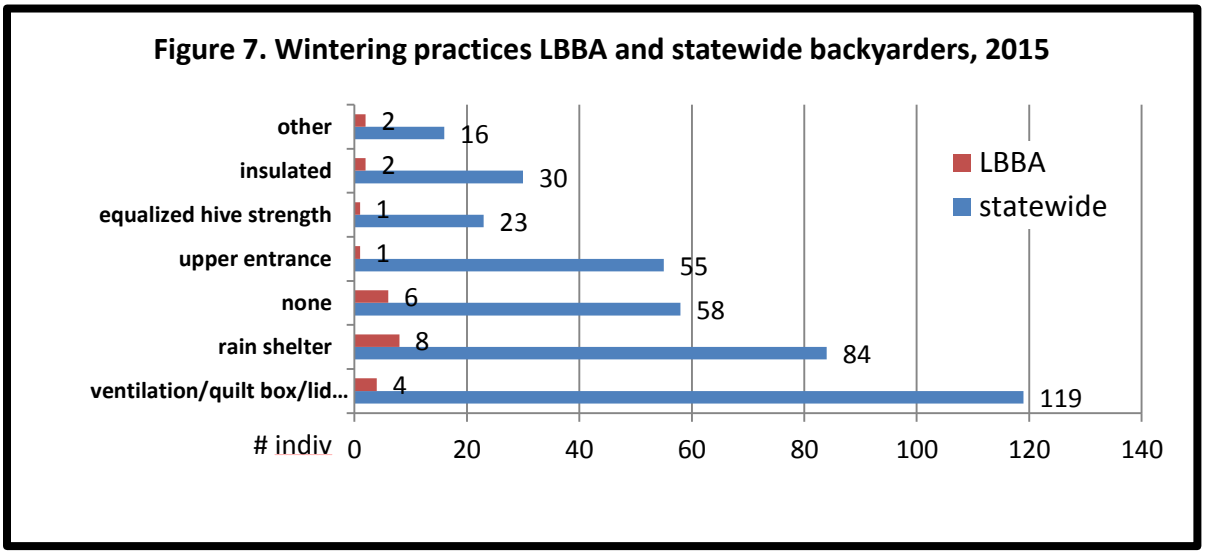
General hive practices

We asked in the survey for information about some managements practiced by respondents. Multiple responses were encouraged.

Feedings: The number of statewide responses (510 total) are shown in bar graph below (Figure 6). Thirty nine individuals (8% of total) did not do any of the options offered. Sugar syrup (33%) and pollen patties (20%) feeding were the most common managements. Feeding fondant/candy (13%) and providing frames of honey (12%) were next most common with drivert and frames of pollen less commonly fed. Under "other," dry sugar or dry pollen or honey as a liquid were statewide responses. LBBA respondents (shown in (# indiv) indicated they did feed bees 16 of 17 fed sugar syrup. Eleven fed pollen patties. Other feeding choices as shown.



WINTERING PRACTICES: We received 385 responses about wintering management practices statewide and 41 from TVBA members (more than one option could be chosen). Fifteen percent (15%) of statewide and 35% of LBBA responses indicated none of the several listed wintering practices was done. The most common wintering management selected was ventilation/use of a quilt box/lid insulation (31% statewide, 16% for TVBA). Use of a rain shelter was next most common statewide (22%) statewide, but most common for (LBBA 32%). Other choices as shown. Other listing for LBBA included adding mouse guard and tilting hive forward. See Figure 8.



Some choices were not mutually exclusive and this question needs to be revised for a subsequent survey season. Additional items listed was use of cedar lumber for box or lid construction or use of lid with moisture trap or special insulated cover. Statewide use of a wintering shed, ting colonies down and providing a winter wind break were also included.

SANITATION PRACTICES: It is critical that we practice some basic sanitation in our bee care. We probably do too little to help insure healthy bees. We received 440 responses for this survey question. Ten percent said they did not practice any of the 8 offered alternatives. Screen bottom board use (38%) was the most common option selected and 15 of 17 LBBA indicated use of them – this was encouraging because bees need to get rid of diseased brood, pests and other potential negatives from within their hive. The screen bottom helps promote a "garbage pit" for getting potentially harmful organisms and materials out of the hive. The next most common selection was minimal hive intervention (15% of responses statewide). Less intervention means less opportunity to compromise sanitation of a hive; needless inspections/manipulations can only interfere with what the bees are doing to stay healthy. As caring bee stewards we should believe we can do our inspections without necessarily compromising bee colony health. Apiary site selection (8%) was slightly more common as a choice compared with small

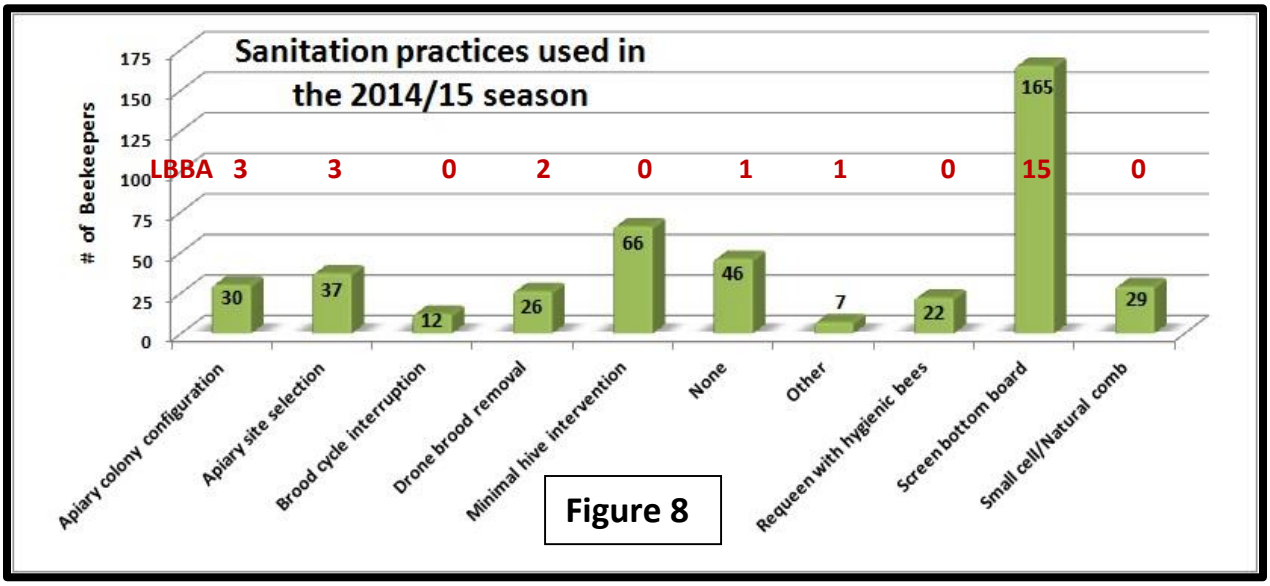


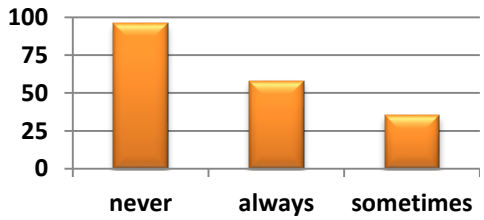
Figure 8

cell/natural brood, apiary colony configuration, drone brood removal and requeening with hygienic bees (7% to 5%). LBBA sanitation selections are shown in red line at 100 beekeepers. Figure 9 above.

Other sanitation measures listed were cleaning of hive tool between inspections, planting medicinal plants in apiary and replacing/cleaning moldy boxes/frames. What we intend to do is compare individuals who had heavier winter losses with those who did not have losses and their responses to these three categories of feeding, wintering and sanitation.

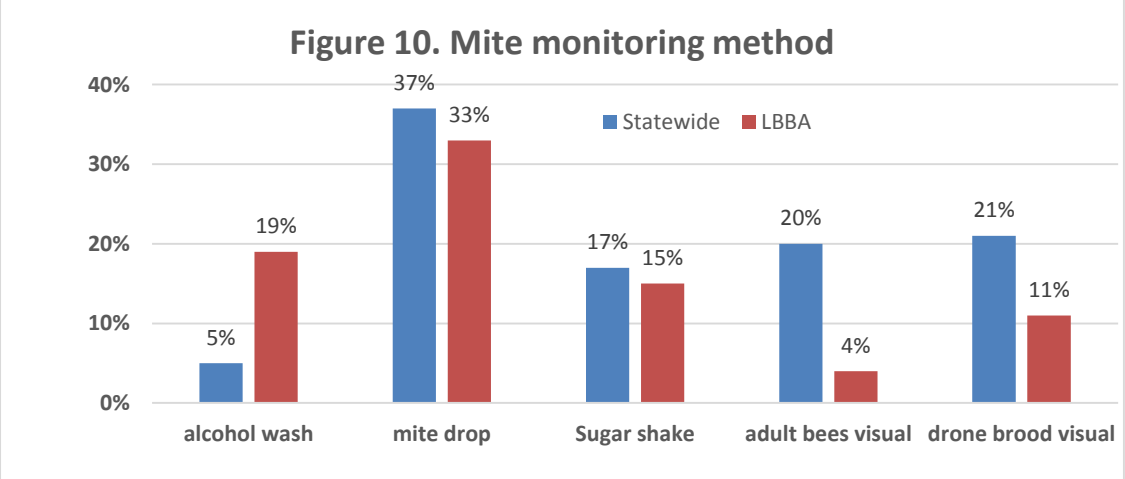
Screen bottom boards: In our national BIP surveys, fully 95% of respondents indicate they have modified colony bottom boards and now use a screen bottom board. We asked what percentage of hives had screen bottom boards and whether they were blocked during the winter. Statewide 21% said

they did not use screened bottoms; for LBBA members only 1 of 17 individuals said they did not use them. Statewide 66% used them on all their hives while 87% of LBBA beekeepers using Screen bottom boards used on all their hives. The majority statewide (51%) and in LBBA (59%) left them open over the winter period (never response). 18% statewide and 13% in TVBA sometimes blocked them and 31% statewide and 29% LBBA beekeepers closed them during the winter



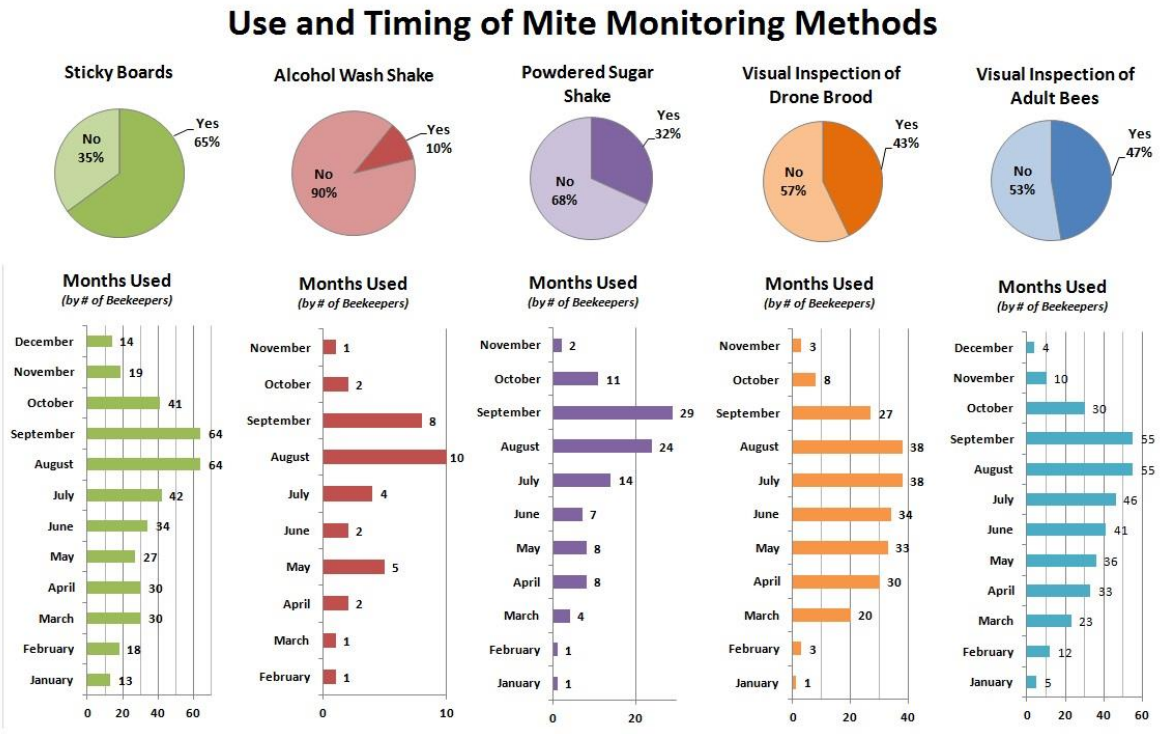
Mite monitoring/sampling and control management

We asked percentage of hives monitored for mites during the 2014 year and/or overwinter, whether sampling was pre- or post-treatment or for both pre and post-treatment and by which of the 5 possible



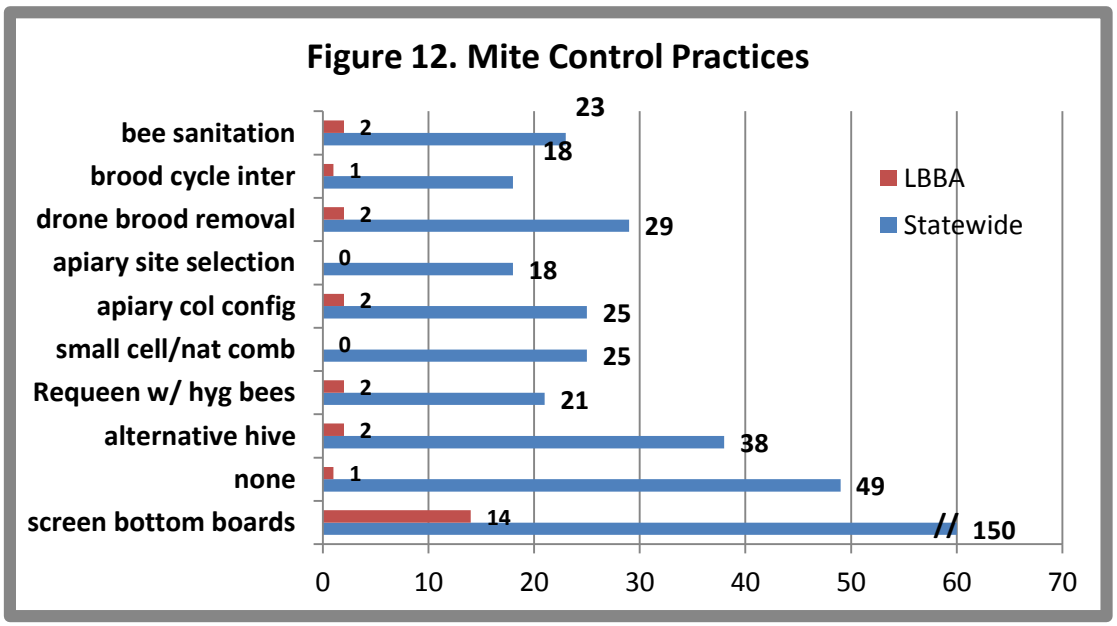
sampling methods was that tool used. In order of popularity of use, statewide sticky boards was used by 37% (for LBBA 33%), with sugar hake, visual inspection of adults and drone brood about the same statewide. Twenty-nine percent of LBBA members said they did not monitor. Nine of 12 used mite drop with 2/3rds combining it with other mite sampling methods. Figure 10. Most sampling was done in July, August, September and October as might be expected (Figure 11).

Figure 11

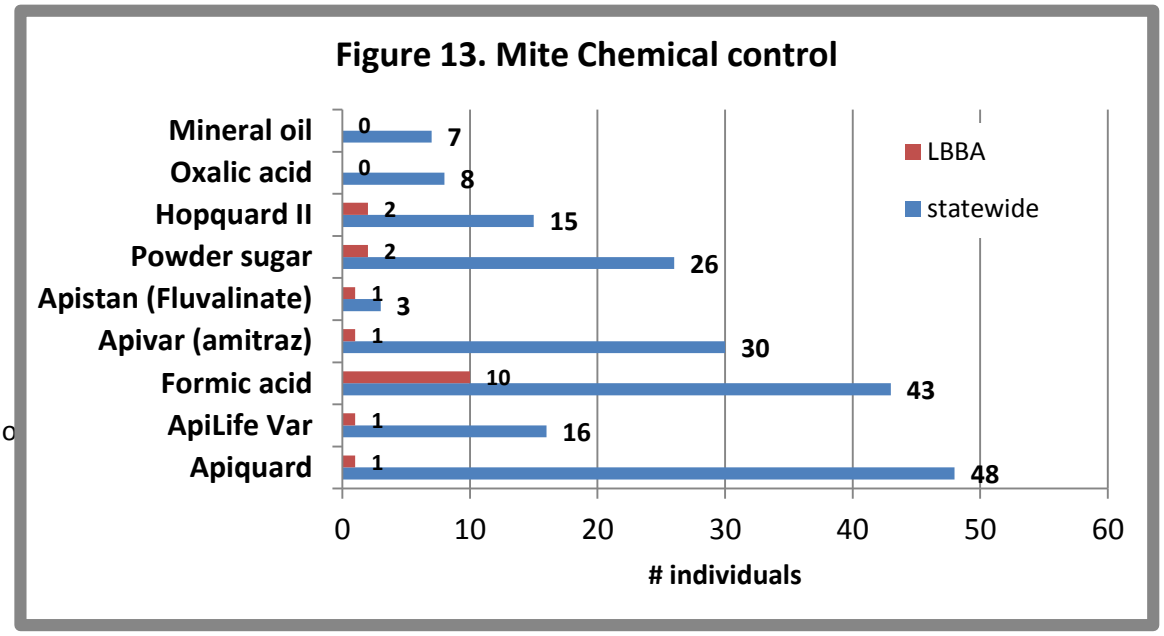


Use of medications and control treatments

Non-Chemical control: We asked about general mite treatments and also about use of chemicals for mite control. Under general controls, 12% (49 individuals) said none of the 9 alternatives was used; 4 individuals said same in LBBA. For the respondents statewide who checked at least one (more than one selection was permitted), use of screened bottom board was listed by 150 individuals (42% of respondents) who did indicate use of at least one of the techniques. The next most common selection was use of an alternate hive (11%). The remaining 7 selections were indicated by fewer than 30 individuals each. The responses for LBBA individuals closely mirrored those of the statewide respondents as shown in graph below. Fifty percent of LBBA respondents had more than one choice.



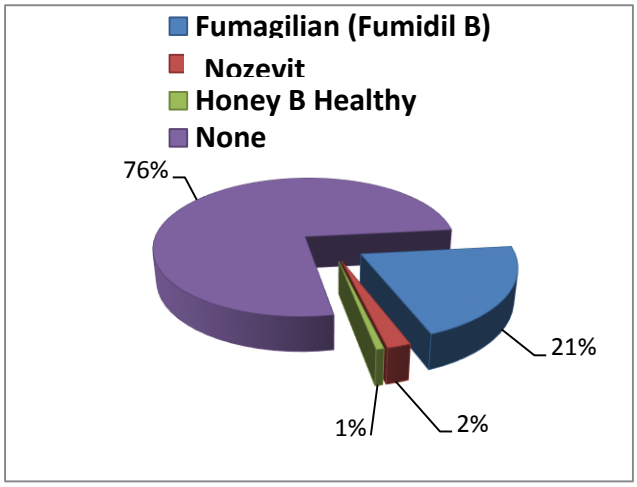
Chemical control: For chemical control there were 215 statewide responses, 19 by LBBA members. Apivar (26%) followed by Apiguard (21%), then MAQS, formic acid strips and Hopguard, both utilized by seven individuals (41%) did not indicate use of any materials. Formic acid MAQS was a more common choice by LBBA members compared to Apiguard. One individual used Apivar and another used Apistan Others as shown in Figure 13.



No

Six individuals of 144 that responded statewide (4%) indicated they treated with terramycin for foulbrood disease, none were in LBBA. Thirty individuals (21%) indicated use of Fumigillin for Nosema disease control, 2 in LBBA. Three individuals in state indicated use of Nozevit and another indicated use of Honey Bee Healthy. See Figure 14

Figure 14



We are not satisfied with our questions about queens on this year's survey. We asked what percentage of colonies lost died because of queen problems. The largest response statewide was I don't know (39%) followed by 10-30% at 23%. See Figure 16. LBBA responses were similar.

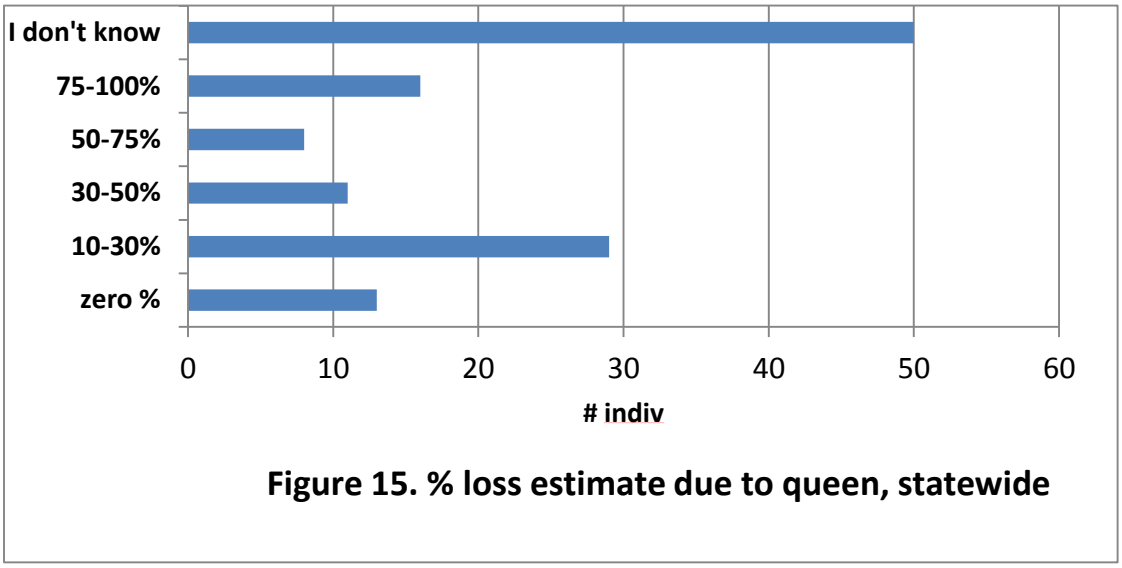
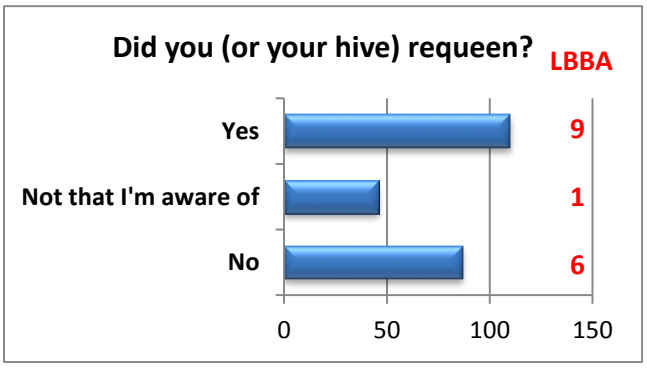
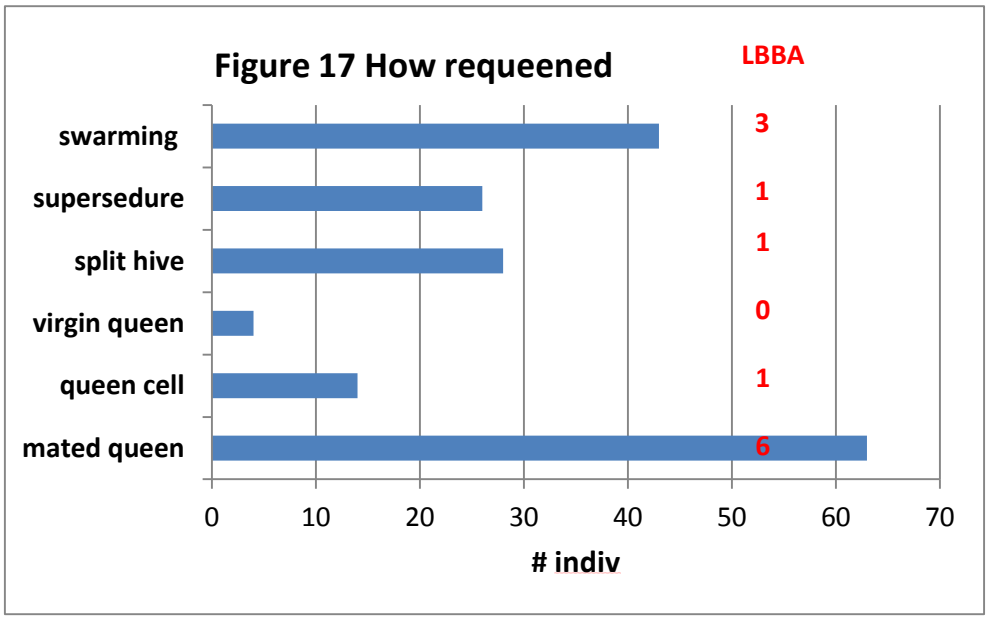


Figure 15. % loss estimate due to queen, statewide

Our subsequent questions asked "Did you, or did your hive requeen, in any form during the year". Of 243 responses, 87 (36%) said no, 46 said 'Not that they were aware of' (19%) and 110 (45%) responded yes. LBBA responses shown in red.



One hundred seventy seven individuals responded to the question" If you did requeen, how did you do it." The largest response was mated queen introduced (34.5%) followed by colony swarmed (24%). TVBA responses are shown in red. We are not sure how to interpret the responses to these three questions. They will be modified in a subsequent survey instrument.



Summary

As indicated we will further analyze the loss by managements (feeding/wintering practices/sanitation) as well as losses relative to use of control techniques/chemicals utilized. Some of this information is available on the BeeInformed website (beeinformed.org) and individuals are encouraged to examine that data base as well.

We intend to refine this instrument for another season and hope you will join in response next April. We have a blog on the pnwhoneybeesurvey.com and will respond to any questions/concerns you might have.

Thank You to all LBBA Members who participated – if you find any of this information of value please consider adding your voice to the survey in a subsequent season.