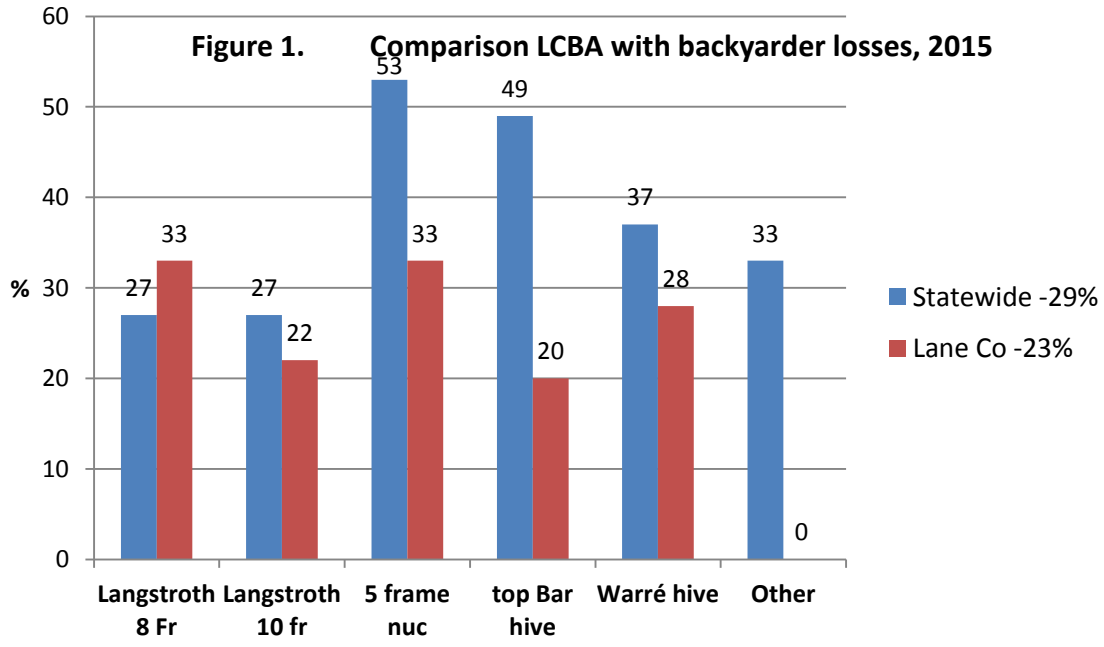
2015 LCBA winter loss by Dewey M. Caron with statistical assistance of Jenai Fitzpatrick

At the April LCBA meeting I distributed paper copies and directed members to a web-based survey document as a continuing effort to define overwintering success. This was the 7th year of such survey activity. I received 230 responses from Oregon backyarders, keeping anywhere from 1 to 50 colonies; Lane County members sent in 46 surveys, a considerably lower number of responses compared to the 71 survey returns last year (see LCBA newsletter of April 2014 for 2014 loss report – the statewide 2015 report is also posted on this pnwhoneybeesurvey website).

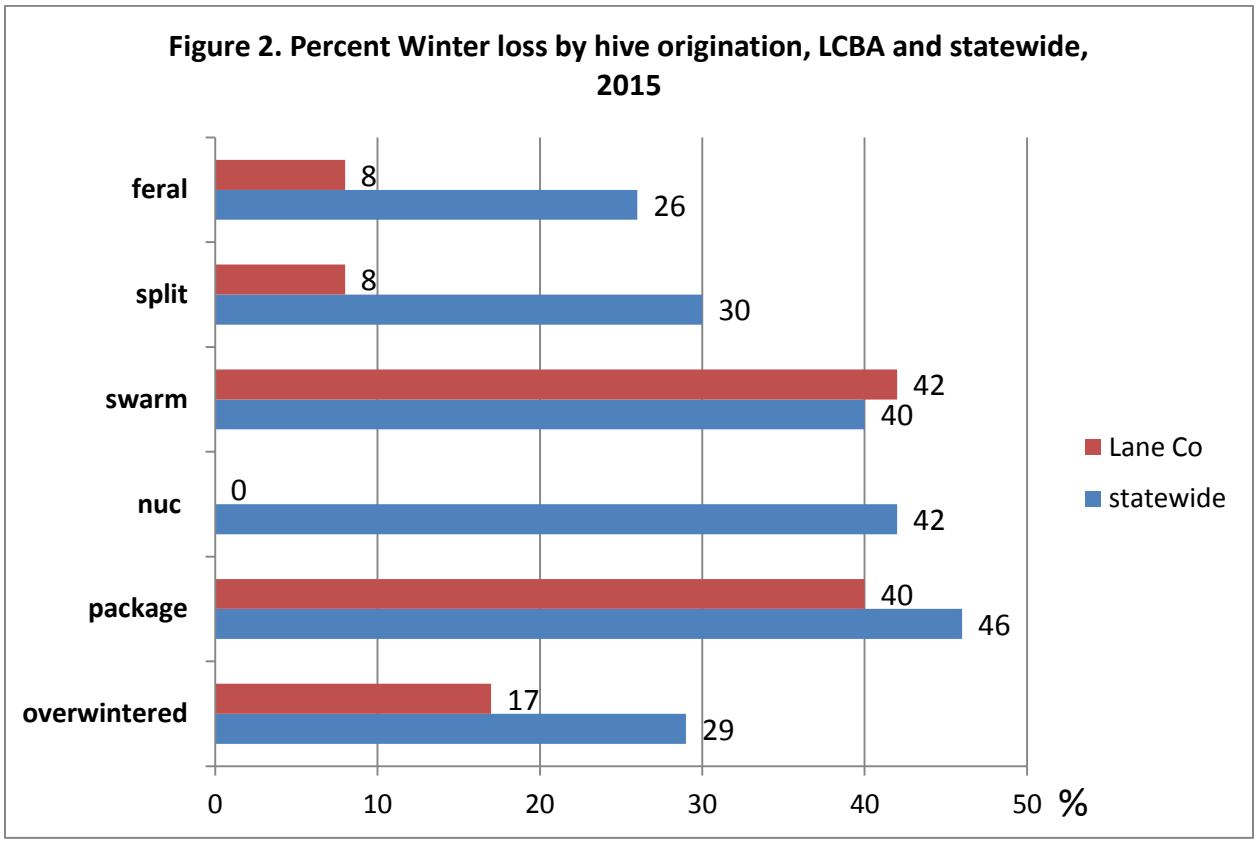
Overwintering losses of LCBA respondents was 23%, 20% lower than the statewide loss of 29% (database of 230 OR backyarders.) Percent losses, determined for 6 hive types, is shown in Figure 1 comparing Lane County with the statewide backyarders. LCBA member respondents started winter with 144 Langstroth 10-frame and 9 Langstroth 8-frame hives (91% of total), 7 Warré, 5 Top bar, 3 5-frame nucs and 1 other (a feral) colony. LCBA members lost lower percentages of 5-frame nucs and top bar hives, although numbers are low (3 and 5 respectively); the single overwintered feral colony did not perish.



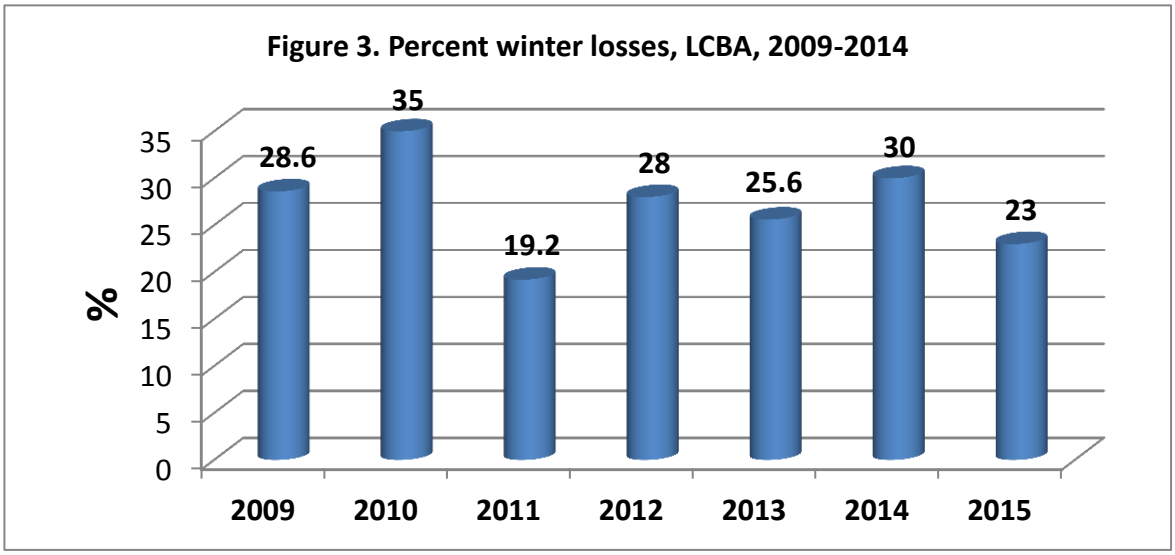
LCBA	**Fall**	**9**	**144**	**3**	**5**	**7**	**1**	**= 169**
	Spring	**6**	**112**	**2**	**4**	**5**	**1**	**= 130= 23%**

The survey also asked for hive loss by hive origination. Seventy-one of 86 overwintered LCBA colonies were alive in the spring (17% loss rate), a lower loss rate than statewide of overwintering colonies (29% statewide). Respondents reported loss of 40% of packages and 42% loss of swarm captures, percentages similar to statewide. LCBA colony divides (splits) and feral colony transfers did considerably better, each with only 8% loss rates, well below statewide loss levels, though numbers involved, 13 and 12

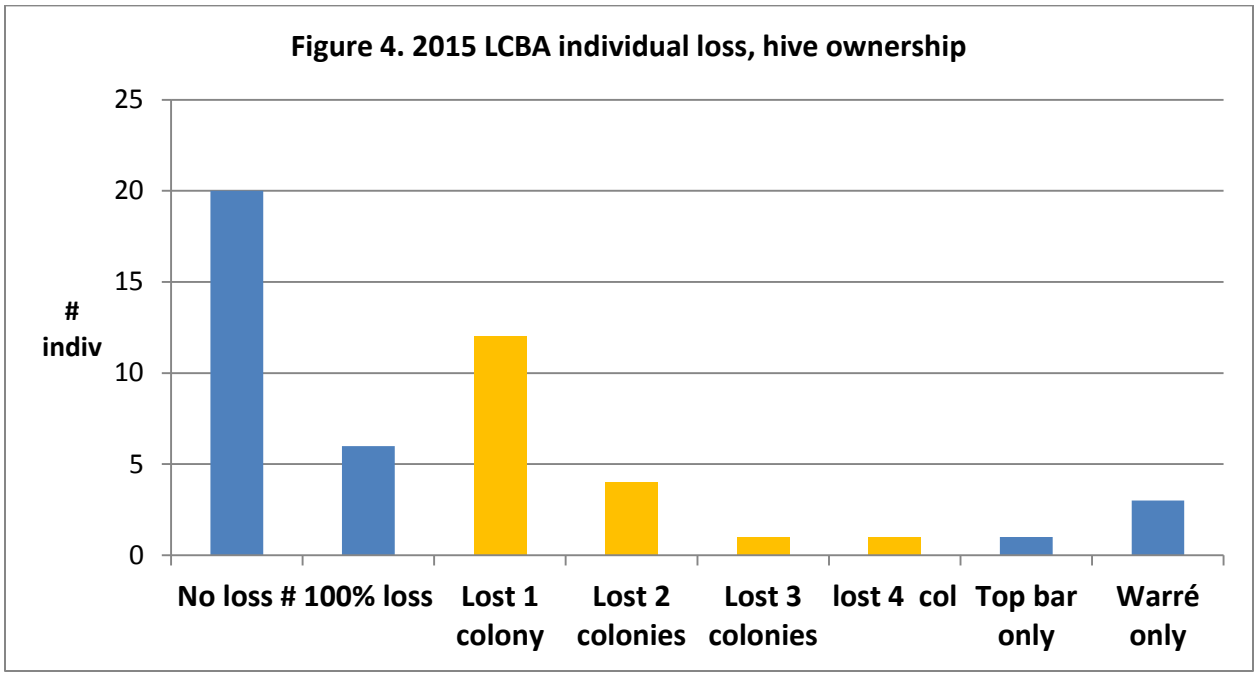
respectively, were ½ those of packages (25) and ¼ of the 60 swarm captures. No nuc originations were indicated. See Figure 2



Lane Co losses were 23% lower than the previous year (30%) and 16% lower than the average of the last 6 years of LCBA losses, as reported in previous member surveys. No year-to-year trend is obvious.



Not everyone had loss. In fact 20 individuals (46%) reported total winter survival; 6 (13%) unfortunately lost 100% of their colonies. Twelve individuals lost 1 colony, 4 lost 2, 5 lost 3 and heaviest loss was 4 colonies. Three individuals kept Warré hives exclusively, one had only top bar hives and one individual had both Top bar and Warré hives but no Langstroth. Seventy-two percent indicated acceptable overwinter loss as zero or 5-15%. Data shown graphic below in Figure 4.

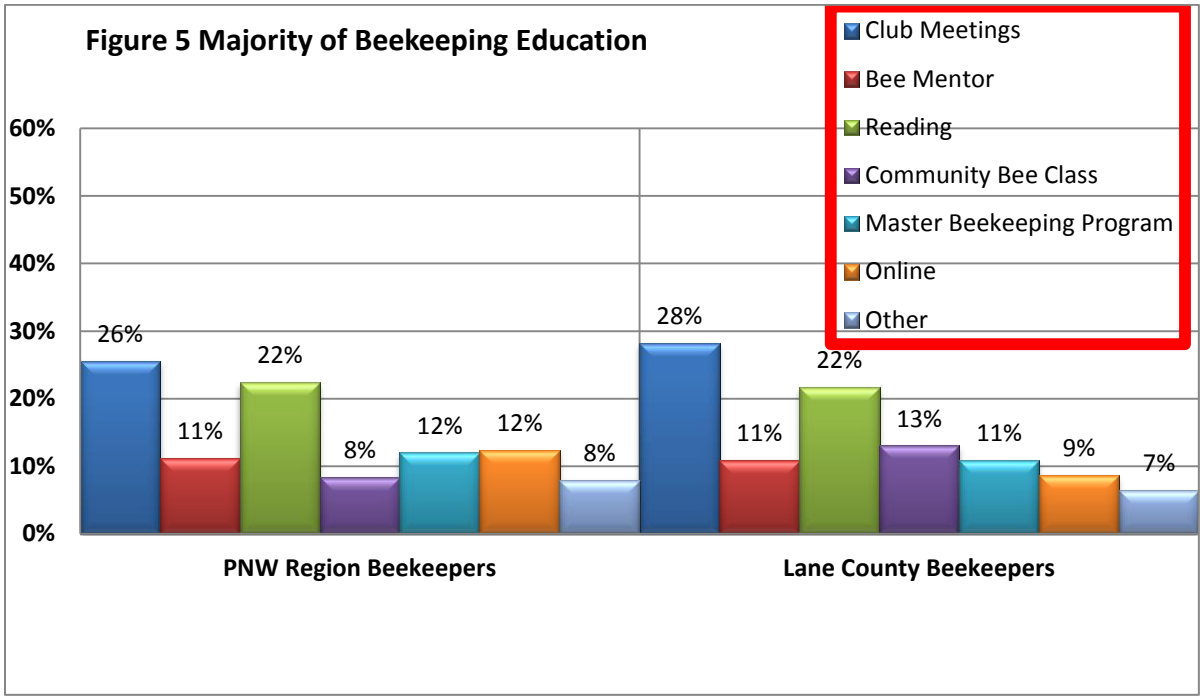


Lane County respondents mostly keep 1,2 or 3 colonies (62%); the largest number was 24. Seven individuals (15%) have more than one apiary location and 5 (11%) moved bees during the year (one to pollinate, 1 due to bear attack, 1 for neighbor issue and 2 to have colonies more accessible).

When asked to indicate where the majority of their beekeeping education was received, LCBA respondent numbers were similar to statewide except the bee school (community bee class) was a more important source and online was less so. Information graphically in Figure 5.

Seventy percent of LCBA respondents said they had a mentor available as they were learning beekeeping; statewide 69% said they had a mentor.

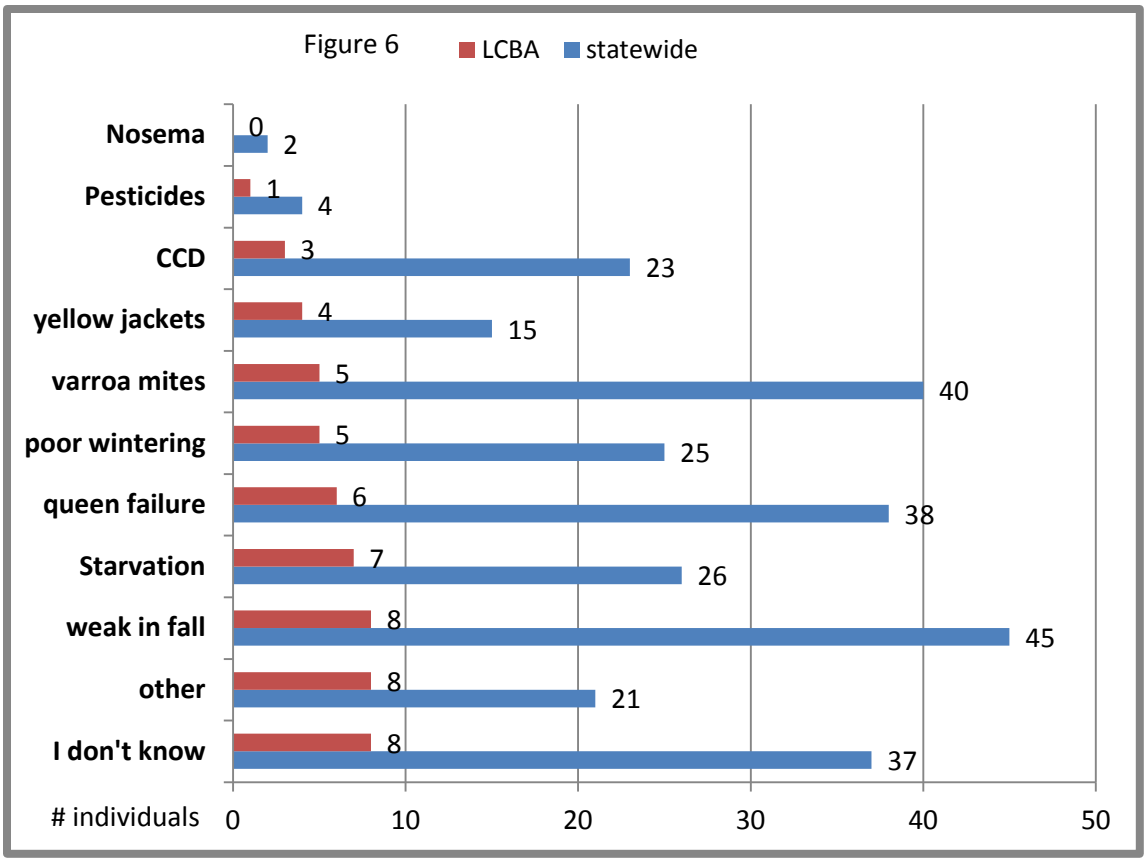
Graph below Figure 5



Lane County survey respondents reported a wide range of beekeeping experience. Ten individuals (22%) had 10 years or more of bee experience, with the highest 60 years, while 19 (41%) had 1, 2 or 3 years experiences.

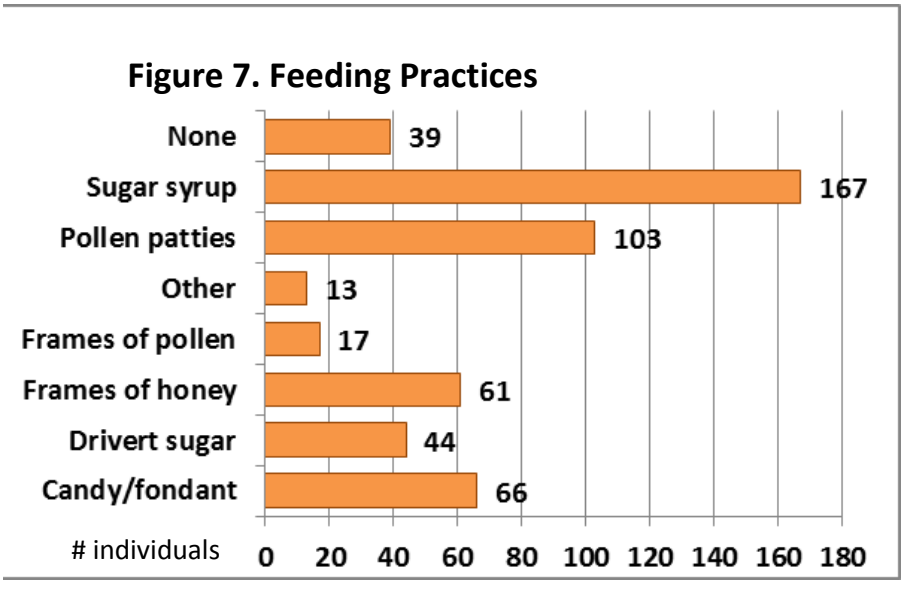
Individuals with loss were asked to what they attributed their loss. Statewide, weak in the fall, queen failure and varroa mites were the major factors selected (each 16-19% - more than one response could be indicated), as was don't know. Ranking from least to greatest response number is shown in Figure 6 below. Starvation and poor wintering were about equally chosen by about 10%, CCD (6%) and yellow jackets (4%) were selected more frequently than pesticides (4%) or Nosema (2%); Small Hive beetle was not indicated as suspected reasons for loss. For LCBA respondents,

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 38 said queen failure (14%). I don't know was also 14%. Of 32 responses by Lane County beekeepers, these same choices were 4 of the top 6 responses with starvation and other. Poor wintering conditions and yellow jackets were each listed; one individual said pesticides and none Nosema. Under other Lane County responses included bears, skunks, late swarm, moisture issues, poor honey flow, poor ventilation and beekeeper mistake.



General hive practices

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

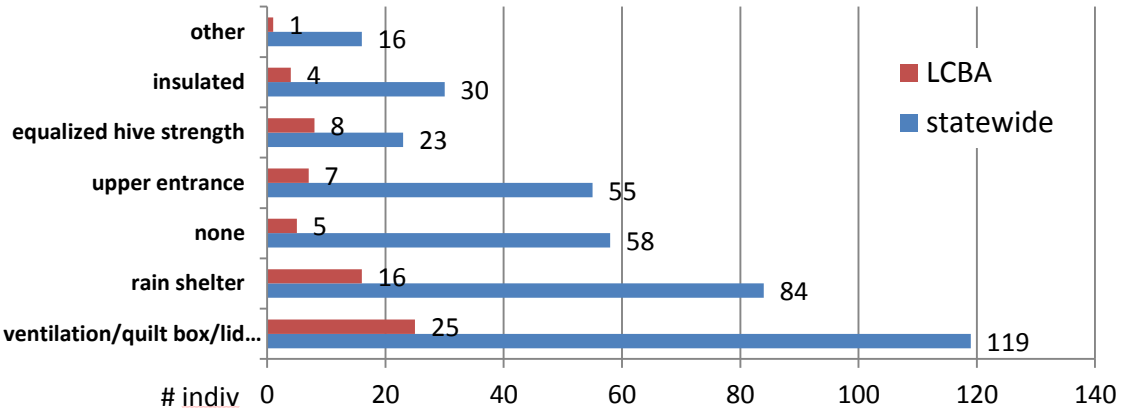


Feedings: The number of statewide responses (510 total) are shown in bar graph below (Figure 7). Thirty nine individuals (8% of total) did not do any of the options offered. Sugar syrup (33%) and pollen patties (20%) feeding were the most common managements. Feeding fondant/candy (13%) and providing 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 indicated. LCBA responses mirrored the statewide responses.

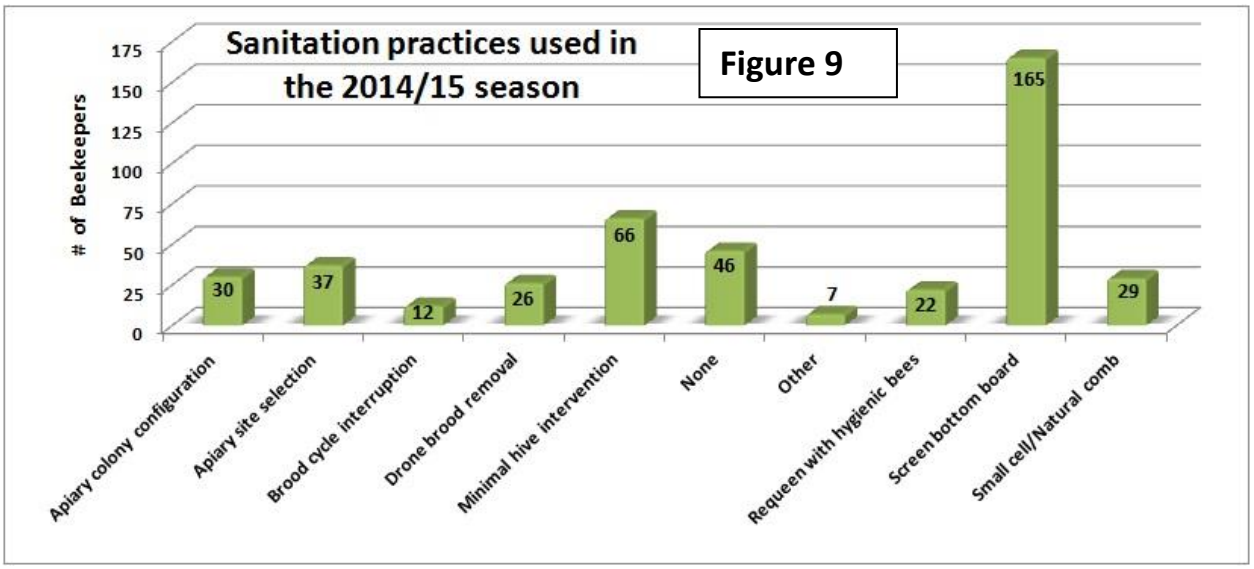
WINTERING PRACTICES: We received 385 responses about wintering management practices statewide and 65 from LCBA members (more than one option could be chosen). Fifteen percent of the responses indicated none of the several listed wintering practices was done statewide but ½ that (8%) for Lane County beekeepers. The most common wintering management selected was ventilation/use of a quilt box/lid insulation (31% statewide, 39% for LCBA). Use of a rain shelter was next most common (22% statewide, 19% LCBA. Equalizing hive strength and providing upper entrance access for bees was equally performed by LCBA with ½ that number listing insulating their hives as a winter preparation. Nearly ½ of LCBA individual listed more than one practice. See Figure 8 below.

Some choices were not mutually exclusive and this question needs to be revised for a subsequent survey season. Additional items listed statewide included using thicker lumber for box or lid construction or use of lid with moisture trap or special insulated cover. One individual indicated use of a wintering shed, another specified colonies were tilted forward and 3 individuals each said they added a mouse guard or provided a winter wind break.

Figure 8. Wintering practices LCBA and statewide backyarders, 2015

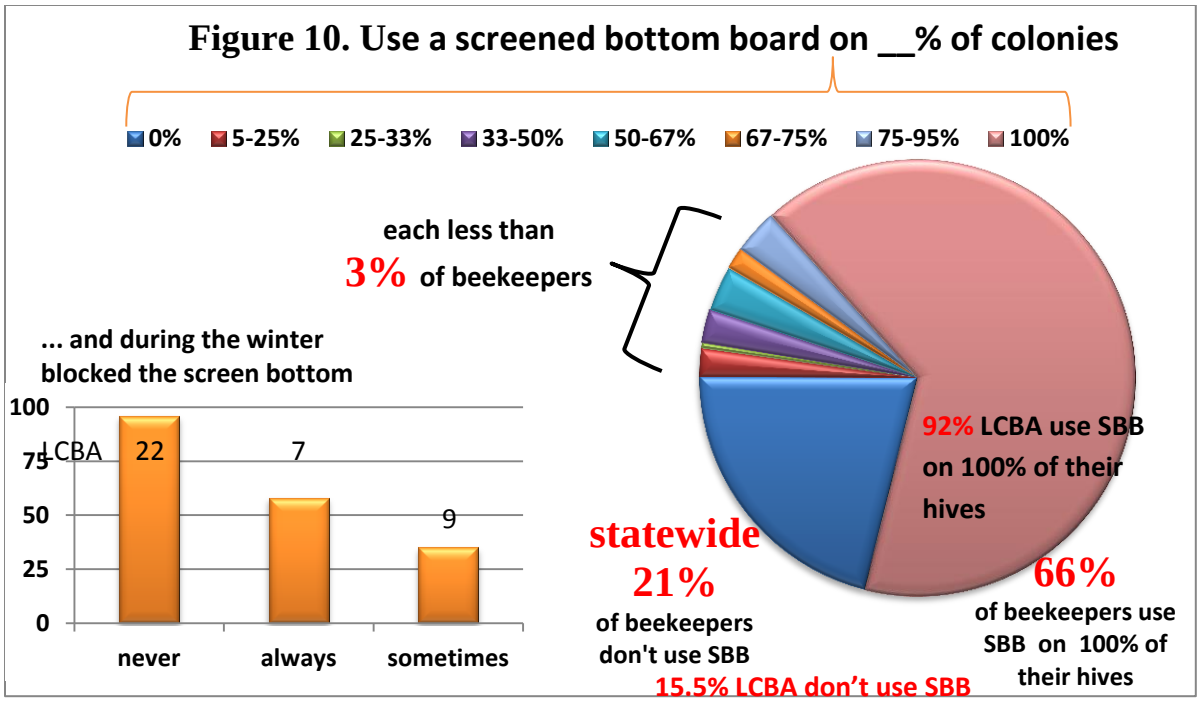


SANITATION PRACTICES: It is critical that we practice some basic sanitation in our bee care. We probably do too little to help insure healthy bees. We received 440 responses for this survey question. Ten percent said they did not practice any of the 8 offered alternatives. Screen bottom board use (38%) was the most common option selected – 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). 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 cell/natural brood comb, apiary colony configuration, drone brood removal and requeening with hygienic bees (7% to 5%). LCBA sanitation was similar.



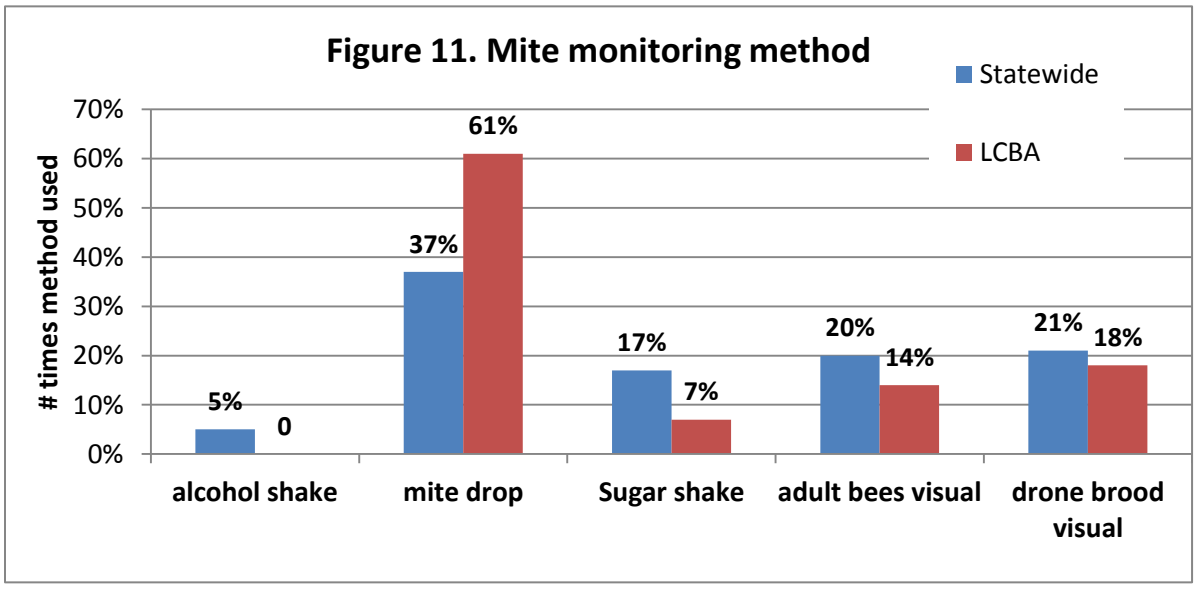
Other sanitation measures listed were cleaning of hive tool between inspections, planting medicinal plants in apiary and replacing/cleaning moldy boxes/frames. What we intend to do is compare individuals who had heavier winter losses with those who did not have losses and their responses to these three 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; in Lane county, 15.5% said they did not use them. Statewide 66% used them on all their hives while 92% of those using Screen bottom boards in Lane County used on all their hives. The majority statewide (51%) and in Lane county (58%) left them open over the winter period (never response). 18% statewide and 24% in Lane County sometimes blocked them and 31% statewide and 18% in Lane County said they closed them (always response) during the winter .

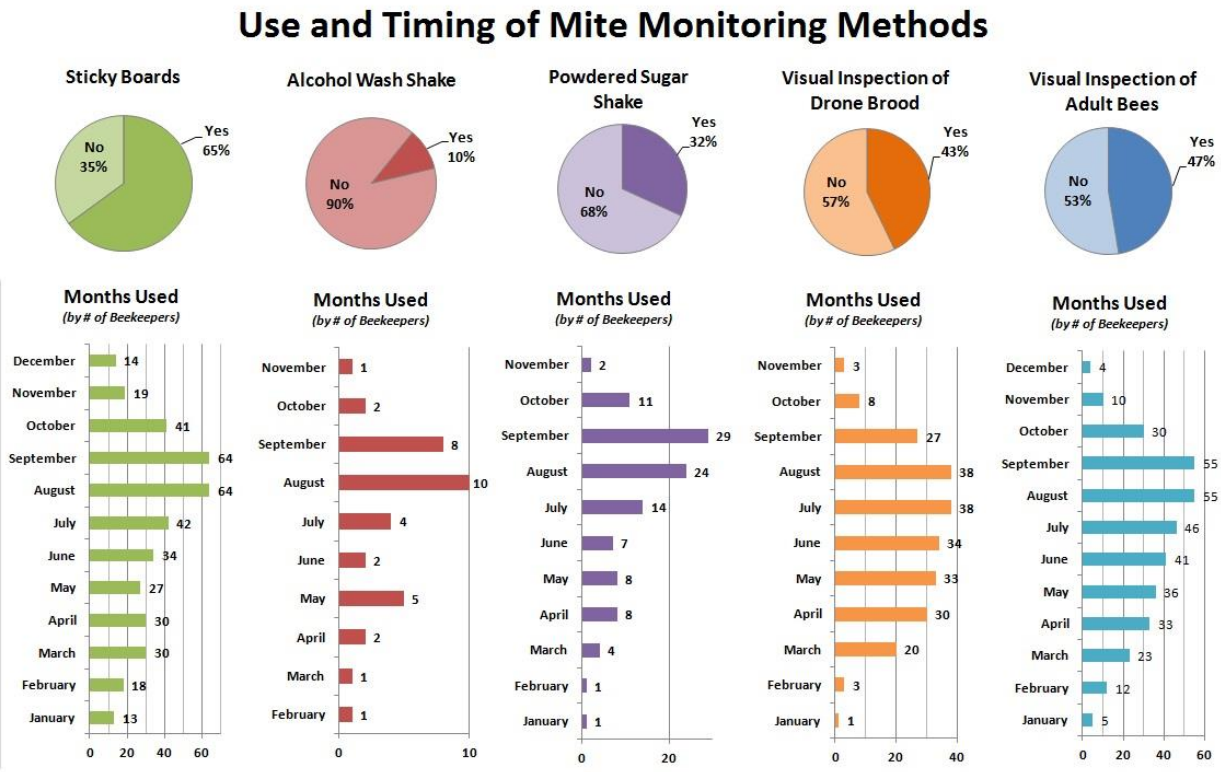


Mite monitoring/sampling and control management

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%, with visual inspection of adults and drone brood about the same (20%). Washing adults with powdered sugar was indicated three times as frequently as use of alcohol wash (17 vs 5%). Most sampling was done in August September and Oct as might be expected.



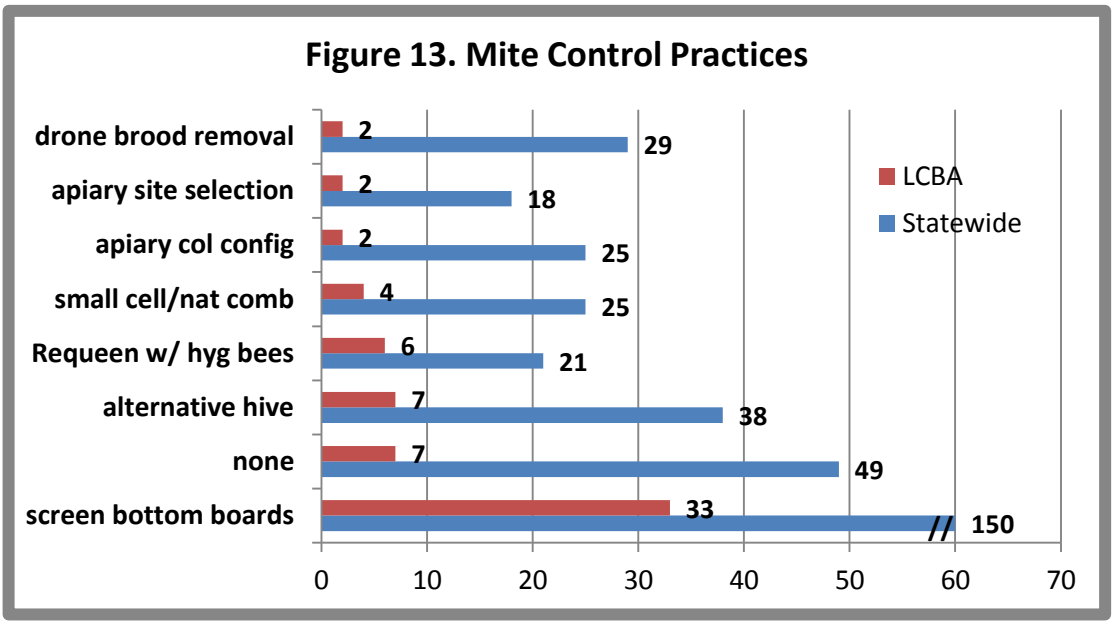
For Lane County respondents, sticky boards were utilized by 61% of those who indicted they sampled, followed by visual inspection of drone brood (18%) and adult bees (14%). Seven percent said they did sugar shake but none did alcohol washing. Statewide and Lane Co responses are compared in graphic below. Second graphic shows when sampling was used by individuals statewide. See figure 11 above.



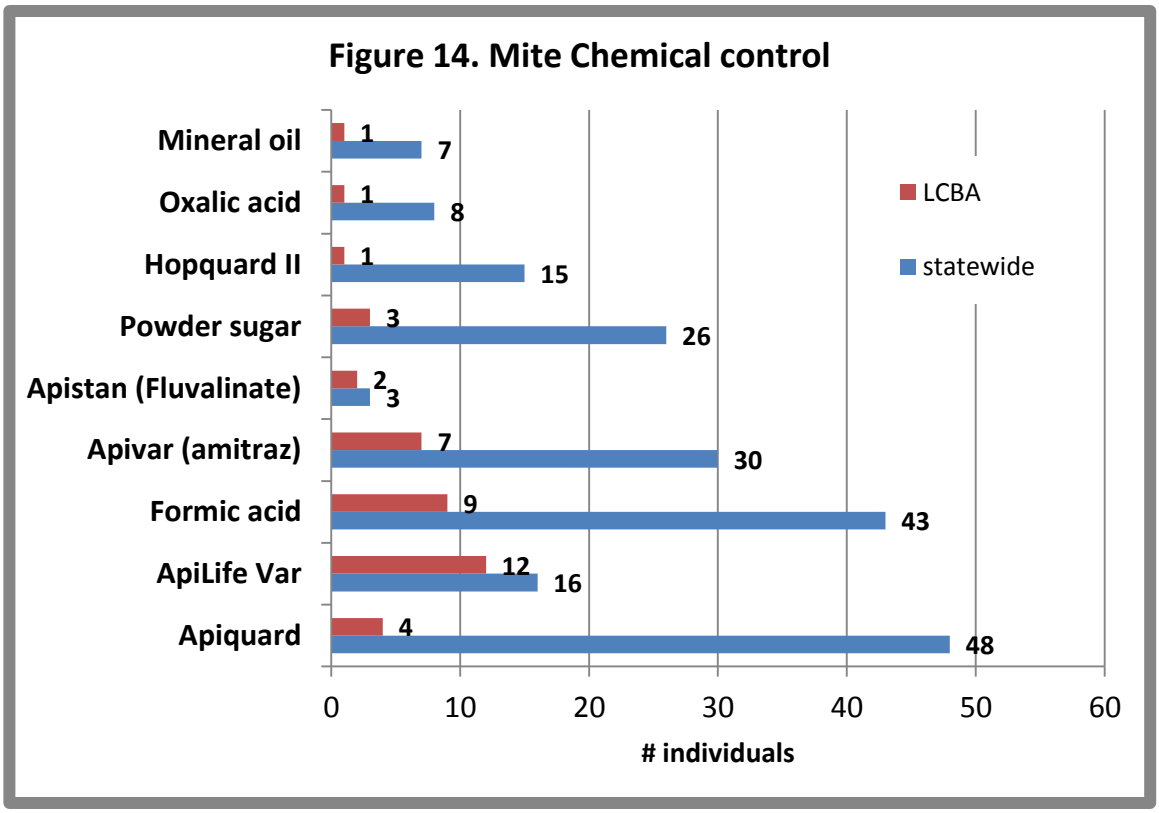
Use of medications and control treatments

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. 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 Lane County individuals closely mirrored those of the statewide respondents as shown in red in graph below. Thirty-six percent of Lane county respondents used more than one of these practices.

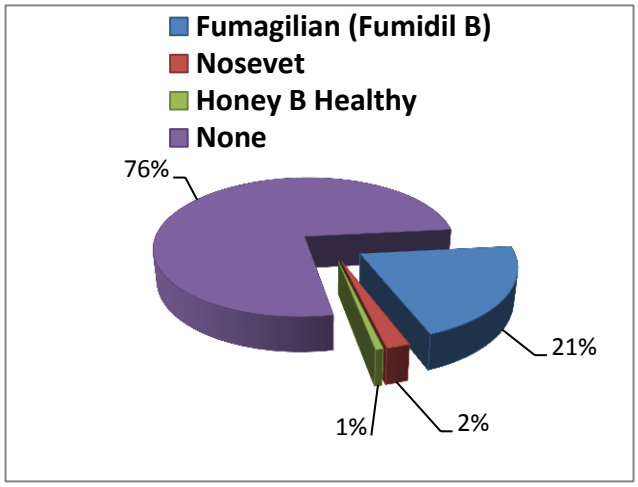
See information in Figure 13.



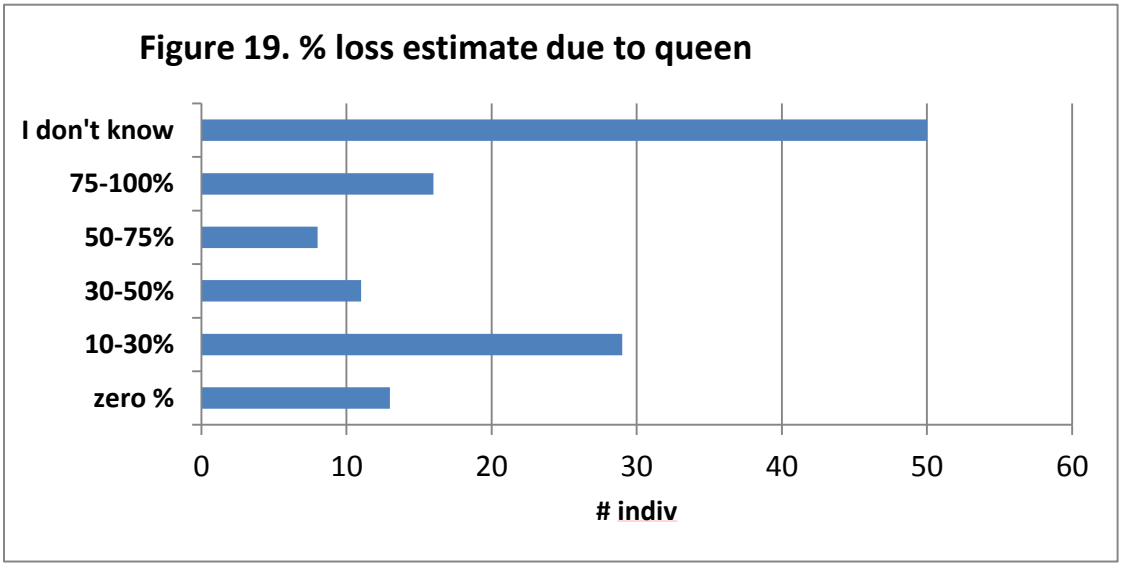
For chemical control 215 responses were indicated by respondents. Apiguard (22%), followed by formic acid (20%) were the most commonly checked alternatives . Apivar was the third most common, used by 30 individuals (14%) followed by powdered sugar (12%). Others as shown were used by 16 or fewer respondents. See figure 14.



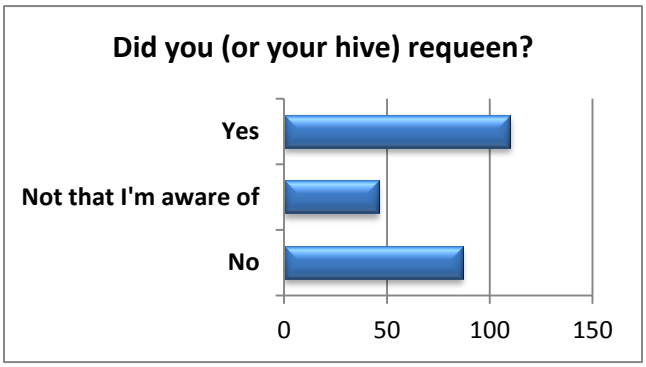
Six individuals of 144 that responded statewide (4%) indicated they treated with terramycin for foulbrood disease, none in Lane County. One used Hopguard. Thirty individuals (21%) indicated use of Fumigillin for Nosema disease control, 6 in Lane County. Three used Nosevet and one Honey Bee Healthy.



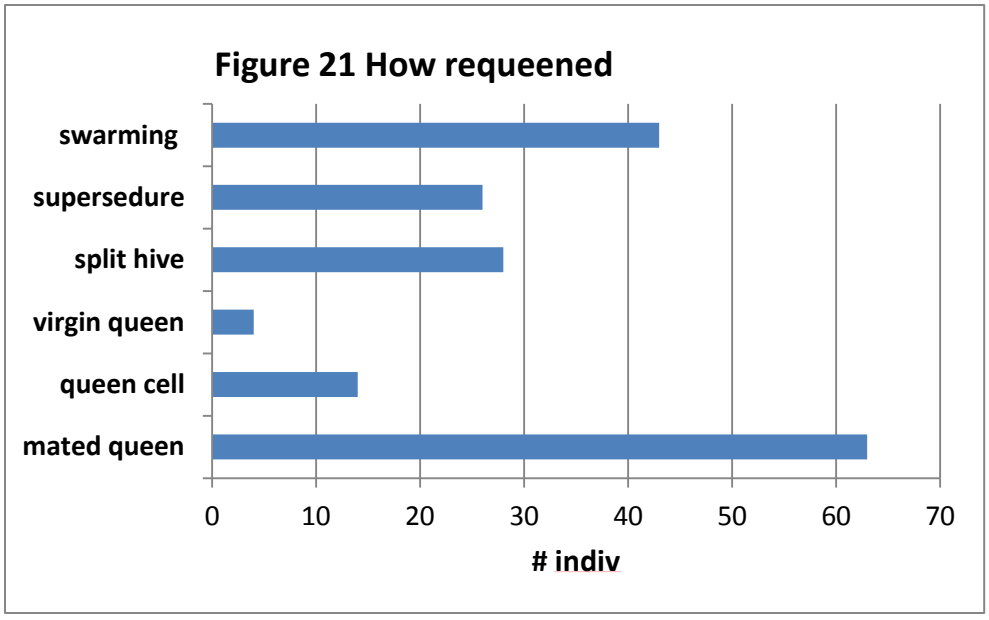
We are not satisfied with our questions about queens on this year's survey. We asked what percentage of your colonies lost do you feel died because of queen problems. The largest resonse was I don't know (39%) followed by 10-30% at 23%. See Figure 19.



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.



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%). 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 LCBA Members who participated – if you find any of this information of value please consider adding your voice to the survey in a subsequent season.