BEE LOSSES & the NEW YEAR

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Washington Beekeeper losses 2016–17

Figure 1. Washington beekeeper 2016/17 losses

- WSBA [20] 56%
- Washington 63%
- Lewis [13] 57%
- Olympia (54) 67.5%
Particulars

- Of a total of 465 fall WA colonies, 172 survived to spring (63% loss rate)
- 53.5% of those returning a survey (both the electronic survey from pnwhoneybeesurvey and the Olympia association survey) had 1, or 2 or 3 fall colonies; 35.5% had 4 to 9 colonies, 11% had 10 or more colonies with 27 the largest number
- Do such numbers truly represent Lewis/WA?
The Losses in Bees!

Epidemic of Bee Losses!

Unprecedented levels of bee losses

Bees are going extinct
Estimated bee numbers

North America: Number of Managed Beehives

CCD identified in 2006

U.S. vs Canada

Beehives worldwide. U.N. Food and Agriculture Organization

M = Million, k = Thousand
Loss Lewis Co by hive type

Figure 2. Comparison of OR, WA & Lewis Co Beekeeper overwinter losses by hive type, 2016-2017

<table>
<thead>
<tr>
<th>Hive Type</th>
<th>WA (%)</th>
<th>Lewis Co (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Langstroth 8 fr</td>
<td>46</td>
<td>40</td>
</tr>
<tr>
<td>Langstroth 10 fr</td>
<td>58</td>
<td>55</td>
</tr>
<tr>
<td>5 frame nuc</td>
<td>88</td>
<td>100</td>
</tr>
<tr>
<td>Top Bar</td>
<td>47</td>
<td>100</td>
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<tr>
<td>Warre</td>
<td>50</td>
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<table>
<thead>
<tr>
<th>All Colonies</th>
<th>WA</th>
<th>Lewis Co</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>132 48</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 2</td>
<td></td>
<td></td>
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<tr>
<td>14 2</td>
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<tr>
<td>4</td>
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<table>
<thead>
<tr>
<th>Spring Colonies</th>
<th>WA</th>
<th>Lewis Co</th>
</tr>
</thead>
<tbody>
<tr>
<td>19 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>56 20</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 0</td>
<td></td>
<td></td>
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<tr>
<td>8 0</td>
<td></td>
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<tr>
<td>2</td>
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</tbody>
</table>
Loss by hive origination

Figure. 4. Percent winter loss by hive origination, WA & Lewis Co 2017
Figure 5. Loss Comparisons WA Commercials/semi-commercials and backyarders 2015–2017

- comm–semi commercials
- backyarders
Figure 6. Perceived Factors of Colony Death, WA

- CCD/no bees left in hive (8) 10%
- I Don’t Know (81) 10%
- Pesticides (2) 3%
- Starvation (7) 10%
- Queen Failure (8) 10%
- Poor Wintering Condition (14) 18%
- Weak in Fall (13) 16%
- Yellow Jackets (8) 10%
- Varroa Mites (10) 13%
- Sidebar 6%
- Other (2) 3%
Acceptable loss

Figure 7. Acceptable loss

- zero: 9
- 10%: 1
- 25%: 1
- 33%: 4
- 50%: 5
- 75%: 8
- 100%: 19
10 Things to do – to reduce losses

1. Know mite numbers – control if risk high
Risk of mites

2015-2016 Overwintering Research Presentation

>7 mites/100 bees

70.6% DEAD

<7 mites/100 bees

4% DEAD

Nurse Samples
Non-chemical controls

Figure 19. WA Alternative mite controls

- encourage swarming (1) 33%
- fogged w/ mineral oil (1) 40%
- Requeen w hygienic queen (3) 40%
- Screen bottom boards (34) 50%
- small cell/natural comb (6) 53%
- WA average 55%
- Minimum hive intervention (24) 51%
- Painted Hives/ID measures (6) 55%
- Drone brood removal (4) 68.5%
- no control (4) 87.5%
- Powder sugared (10) 91%
Lewis Co

Figure 20. Lewis Co Alternative mite controls

- Screen bottom boards (9): 60.50%
- Minimum hive intervention (7): 59%
- Painted Hives/ID measures (7): 57.5%
- Requeen (3): 54.5%
- Lewis Co average: 57%
- 6 choices: 70.5%
- Powder sugared (1): 91%
Chemical control

Figure 22. WA Chemical mite controls

- Oxalic acid drizzle (2): 0%
- MAQS (formic acid) (6): 50%
- Hopguard II (5): 52%
- WA average loss: 55%
- Oxalic acid vaporization (10): 58%
- Apiguard (4): 66%
- Mineral oil fogging (1): 88%
LEWIS CO: Seven Lewis Co respondents (58%) used a chemical control. Numbers are too small to have meaning to list individually by loss. There were 11 chemicals used (1.6/individual); one individual used 3 chemicals (had 87.5% loss) and two used 2 materials (55.5% loss). Five individuals used Oxalic acid vaporization with an 80% loss. Other materials used included mineral oil, ApiLife Var, Powdered sugar and Hopguard II, all by a single individual (and all in combination with another material.)
Figure 23. OR Lost rate using chemical mite treatments ( ) = number of individuals

- Apilife Var (16) 24%
- Apivar (47) 27%
- Oxalic acid vaporization (38) 34%
- Apiguard (48) 38%
- Formic acid (MAQS) (110) 40%
- Other herbal (11) 40%
- Oxalic Acid drizzle (27) 41%
- Powdered sugar (20) 51%
- OR average 48%
- Hopguard (10) 61%
- None (83) 66%
10 Things to do – to reduce losses

2. Sample for nosema – treat?
10 Things to do – to reduce losses

3. Check amount and position of honey stores
4. Feed syrup if light
   - Emergency feed
5. Make Candy Boards
   - Feed pollen?
Fall = “FAT” Bees

- “Fat” bees
- “Fat” colonies
Feeding Colonies – I

Sugar Syrup – Fall
  - Types of feeders
    - Boardman entrance feeders
    - Frame feeders
    - Containers above brood chamber
    - Miller feeders
  - Fall sugar syrup: two parts sugar to one part water by volume (heat water to dissolve sugar)
  - Feeding syrup is always a pain in the neck
The survey says......

Figure 8. Feeding bees (number); % loss rate, WA

- dry pollen (2) 33%
- frames pollen (2) 33%
- pollen patties (25) 53%
- fondant (1) 53%
- hard candy sugar (17) 40%
- dry sugar (11) 56%
- sugar syrup (39) 54%
- overall loss rate (50) 55%
- honey (21) 57%
Lewis Beekeeper feeding

Figure 9. Feeding Lewis Co

- fondant (1) 100%
- Hard candy (8) 61%
- dry sugar (2) 43%
- pollen patties (9) 57%
- frames pollen (1) 88%
- frames honey (4) 50%
- sugar syrup (9) 46%
- overall losses (13) 57%
The survey says……

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- dry pollen (2): 33%
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Feeding Colonies – II

- Dry and Fondant Sugar – Winter
  - Fondant
  - Dry sugar – Drivert or crystals
  - Hard candy
    - Pain in the neck to make

See newsletter
Kevin & Jeanne demo
The survey says......

Figure 8. Feeding bees (number); % loss rate, WA

- dry pollen (2) 20% (33%)
- frames pollen (2) 33%
- pollen patties (25) 33% (53%)
- fondant (1) 100%
- hard candy sugar (17) 40%
- dry sugar (11) 56%
- sugar syrup (39) 54%
- overall loss rate (50) 55%
- honey (21) 57%

The survey results indicate that feeding pollen patties had the highest loss rate (53%), followed by dry pollen (33%), and honey (57%). The overall loss rate was 55%.
Feeding Colonies – II

- Pollen Substitute – Fall
  - Pollen patties in hive
  - Dry pollen in beeyard feeders

Dan Maughan
See his recipe
10 Things to do – to reduce losses

- 6 protect hives from wind and rain

Figure 11. Winter managements

- reduce entrance/SBB (1): 75%
- wind/weather protection (18): 67%
- wrapped (6): 57%
- equalized hive strength (6): 50%
- top insulation (15): 55%
- upper entrance (15): 53%
- WA average: 55%
- rain shelter (21): 48%
- ventilation/quilt box (26): 55%
Figure 12. Lewis Co Winter managements

- reduce entrance/SBB (1) 75%
- wind/weather protection (5) 67%
- wrapped (5) 75%
- top insulation (6) 61%
- upper entrance (4) 59%
- Lewis average 57%
- rain shelter (5) 52%
- ventilation/quilt box (10) 56%
10 Things to do – to reduce losses

- 7 Moisture control at top of colony

**Figure 11. Winter managements**

- reduce entrance/SBB (1) 75%
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- wrapped (6) 57%
- equalized hive strength (6) 50%
- top insulation (15) 55%
- upper entrance (15) 53%
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- rain shelter (21) 48%
- ventilation/quilt box (26) 55%
10 Things to do – to reduce losses

7 Moisture control – top insulation
10 Things to do – to reduce losses

- 8. Good Hive ventilation
- 9. Reduce entrances
- 10 Get hives off ground
FEED ONLY DRY SUGAR or FONDANT CANDY

Need rocks on top?
Need moisture venting?
Colonies leaning forward
Colonies off ground
Need wind break?
So my measure of success is...