Potential Reasons for Colony Loss: Spring Checklist

Adapted from OBA Tech Transfer Program

Colonies (Previous Fall): #_____ Winter Loss:_____%

Impacts and clues to consider:

1. Timing of colony mortality
2. Queen issues
3. Varroa status, monitoring, & treatment history
4. Dysentery
5. Moisture
6. Starvation
7. Stress from pests, disturbances, environment

The following checklist will assist in determining why you have dead or dying hives and how to proceed

Checking this list throughout the season may help to prevent some issues leading into winter.

Did colony loss occur consistently across the operation or in pockets?

Describe: _____

_____

_____

1. **Timing of colony mortality**

(depending on how soon you check the colonies)

→ *Recent death:*

☐ Intact, fresh-looking bees, clustered on frame(s)

→ *Died earlier/Slow depopulation:*

☐ Bees lying on bottom board

→ *Died much earlier:*

☐ Very dry bees, mold on frames

☐ Smelly decomposed bees, mouldy

☐ Dead brood (check for disease)

☐ Wax moth is present (cocoons and tunnels)

Note: wax moth does NOT cause colony death but rather takes advantage of unprotected equipment

2. Queen Issues

- ☐ Small cluster
- ☐ Remnants of queen cells on brood frames
- ☐ History of queen issues (swarming supersedure, etc.)

3. Varroa: status, monitoring, treatment history

- ☐ It was one of your strongest colonies/yards in the summer (strong colonies often have higher mite levels)
- ☐ Died late fall or early winter
- ☐ Bees disappeared in late fall - few dead bees on bottom board
- ☐ Bees abandoned brood when they disappeared
- ☐ Small, dwindling cluster
- ☐ Presence of high amount of mite feces (white, dry, crystalline, attached to brood cell walls)

→ **<u>Treatments Applied Last Fall</u>**

Did you treat for:

- ☐ Varroa mites
- ☐ Tracheal mites
- ☐ Nosema
- ☐ AFB
- ☐ EFB

<u>Treatment considerations:</u>

- ☐ Y ☐ N Did dose, timing, etc. match label recommendation?
- ☐ Y ☐ N Aware of approx. resistance levels for amitraz in apiary?
- ☐ Y ☐ N Treat with optimal environmental conditions?

→ **<u>Varroa Monitoring</u>**

- ☐ Colony/yard notes from last fall indicate concerns. eg. strength, population, feed levels, queen status
- ☐ Monitored mite and/or disease levels **before and/or after** treatments were applied. Specify: _____
- → Fall mite levels: _____ % Date: _____
- ☐ Don't know

• Additional notes: _____

Notes on treatments applied or apiary health statuses:

(Eg. • *Oxalic dosage and timing, strip placement timing, formic formulations – equipment and weather conditions.*

• *Past outbreaks of chalkbrood, nosema, EFB, etc.)*

4. Dysentery

- ☐ There are fecal stains on the top bars/top of frames
- ☐ There are fecal stains on the front of the colony, near upper entrance
- ☐ Extended periods of extreme cold (no cleansing flights)
- ☐ Bees were fed in fall with a high moisture content syrup (50% sugar syrups are higher in moisture than 67% which can cause dysentery over the winter)
- ☐ Bees had Nosema disease (N. apis or N ceranae)
  Did you get samples analyzed by the lab?_____
  Note: In Manitoba, dysentery is more likely to be caused by poor feed, typically canola stores

5. Moisture

- ☐ Dead bees and debris are blocking the lower entrance, reducing ventilation
- ☐ Excessive moisture on inner cover, inner walls, frames
- ☐ Puddles of water on the bottom boards, mold
- ☐ No upper entrance (upper entrance provides good airflow to reduce moisture)
- ☐ Bottom board not tilted to allow for water drainage
- ☐ Excessive water in yard surrounding the colonies

6. Starvation

- ☐ The brood chamber is light in weight. eg. easy to lift/tip up from back
- ☐ The frames contain little honey, especially in the middle of the brood chamber many dead bees have their heads in the cells
- → Was the starvation due to extreme cold?
- ☐ The dead cluster is “stuck” in an area with very little or no honey

- ☐ Dead bees are tightly clustered, with several empty cells surrounding them, but honey is nearby
- ☐ Brood chamber still contains adequate feed/honey
- ☐ Hives were not wrapped, screened bottoms were left open, yard in a windswept location with no windbreak
- → It may not be starvation if:
- ☐ The bees died from another cause and the surrounding colonies robbed out the feed stores
- ✳ Checking the hives too late in the spring means there may have been a spring window for robbing that resulted in chewed wax cappings on the bottom board

7. Stress: pests/disturbances/environment

- ☐ Scratches or chew marks on the hive/wrap
- ☐ Many tracks in the snow (human, animal, machine)
- ☐ Mouse nests, chewed comb
- ☐ Recurring nearby activities that are loud, create vibrations
- ☐ Poor fall forage (nutritional stress) or summer drought?
- ☐ Fall patties were fed

Additional information/observations