

Basic Beekeeping Course

Session 5 – Wintering of Bees

1. Winter conditions

Winter health of bees depends on:

- Adequate autumn feeding
- Adequate ventilation
- Protection from pests and predators
- Security from the worst weather.

Bonus conditions

- Young queen
- Weather not too mild
- Weather not too severe.





Mouse guard in place

2. Observation and feeding

- Observe, especially during snow or storms
- Heft regularly, do not disturb
- Feed Candy if necessary
- Treat with Oxalic Acid for Pyrethroid Resistant Varroa.

Candy recipe (thermometer vital or buy Baker's Fondant)

- 1 pint to 4 pounds white sugar (not critical)
- Stir continuously to 118°C
- Cool to 43°C
- Stir until milky
- Pour into moulds lined with grease-proof paper.

3. Temperature and humidity

Bees are 'cold blooded' as individuals but the colony is 'warm blooded'. 20°C with no brood, 32°C with brood

Remember – constant temperatures require CONTROL systems

Respiration:

Glucose + Oxygen >> **Energy** + Water + Carbon Dioxide

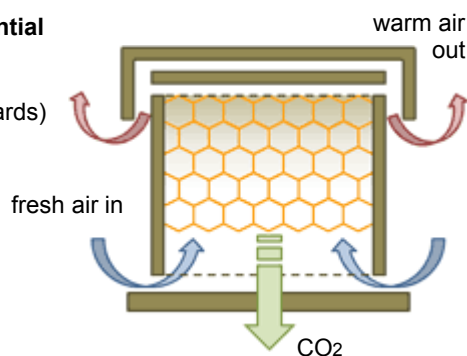
1 lb honey will release about ½ lb water

About 55 ft³ of air to supply the oxygen

20% of heat is needed to evaporate the water. Feed early!

4. Ventilation is essential

- Full entrance (with mouse guards)
- Roof vents clear
- Roof secure.



5. Controlling temperature

Traditional View

Heat generated by respiration should be conserved by insulation
Packing and storage in cellars was common in America.

Modern View

Temperature is controlled at the centre of the cluster by expansion and contraction of the cluster
Expansion increases ventilation and convection through the bees
Contraction decreases ventilation & convection.

NB Comb is a very poor conductor of heat



Bees can be attracted out by bright sunlight reflected from the snow

6. Observations

- Mild winters are not good for bees; food is used quickly, brood rearing starts too soon
- Mild winters = damp winters, especially in Devon
- Mould & fermentation likely due to excess moisture
- Packaging does not give earlier or stronger colonies
- Hives facing North tend not to fly so quickly
- Winter economy of stores:
 - Native strains are more economical
 - Yellow, Mediterranean strains are less economical
- Of 35-40 lbs of stores, 10 will be used up to February
20 could be used February to March
- SOME insulation in March is valuable for weak colonies & Nucs.

7. Things to do in winter

- Check for storm damage or disturbance
- Heft hives regularly
- Examine debris at hive entrance
- Look for signs of dysentery
- Watch for damage by woodpeckers and mice
- Keep entrance clear
- Listen.

Feeding candy should not be necessary except maybe in Feb/March to colonies you are anxious about.



Signs of dysentery at the hive entrance



Woodpecker damage

8. Spring management

- Previous Autumn care
- Winter care
- Early Spring management
- Late Spring management.



9. Previous Autumn Care

- Minimum 30 lb stores
- Varroa – check and treat
- Nosema? Check notes & treat
- Queenright?
- Mouse guards, ventilation, roof secure
- Autumn feed by end of September
- Thick syrup – 1 pint to 1kilo.



Apistan strips
now not effective

10. Early Spring – Feb / March

- HEFT, OBSERVE & NOTE
- Balance – warmth versus ventilation
- Feeding? Contact or internal feeders
- Emergency or stimulation?
 Thick syrup for emergencies
 Thin syrup for stimulation
- Water available.



Bees seen on their first
foraging trips

11. Late Spring – End of March

- When to go in?
- First warm day after third week
 February?
- Flowering Currant in bloom.
- Comfortable in shirt sleeves
- Check : BIAS (Brood in all stages)
- Brood pattern
- Stores
- Check combs for Wax Moth.



Flowering Currant



Signs of wax moth
tunnelling in the comb



Wax moth compared in size
to cells on the comb

12. What has to be done? (Not all at once!)

- Remove mouseguards
- Clean floors, examine debris, monitor for Varroa
- Clean & scrape to bars, brood chamber edges & crown boards
- Diagnose weak colonies – ACTION?
- Disease check all colonies
- Remove old combs – bruise capped honey & place behind dummy board
- Mark & clip queen
- Medication if necessary (before Spring flow)
- Hive overwintered Nucs.



The queen starts laying as the weather warms; it becomes urgent that the bees collect pollen and nectar.

13. Reading brood combs

What can we learn from an examination of brood combs?
Make an observation at the hive entrance before opening the hive.

- Are there adequate stores – pollen? honey?
- Is the colony Q+ (Queenright)? Laying workers?
- Is the Q laying? Amount? How recently? Virgin Q?
- Is the colony expanding? Room? Wax building?
- Are there signs of swarm preparation? or supersedure?
- Is there any sign of disease?
- Comb quality.

Use all your senses, remember the season.



Reading the comb is an essential skill in bee husbandry.



Queen cell