



Fall Checklist for Beekeepers

Fall is a very busy time for beekeepers as they harvest honey and get things ready for winter. There is a very small window between honey harvest and the end of the bee season to identify and control diseases, and to prepare the colonies to overwinter. Here is a checklist that can help beekeepers prepare. Specific timing depends on the region. As well, timing can vary from year to year depending on weather patterns.

Colony strength (~August-September)

Honey bee colonies with 5 or more frames of bees are more likely to survive winter. It is important to identify the colony is queen-right. There is not much time left to manage a queenless colony; depending on the region and the time left beekeepers could consider introducing a mated queen or instead unite weaker colonies together.

- Colony strength
- Queen presence

Brood diseases (~August-September)

As there is a very small window between harvest and overwintering, it is critical to inspect the brood chamber and identify diseases, including European Foulbrood, American Foulbrood, Nosema disease, and Varroosis (parasitism caused by *Varroa destructor* mites).

- Brood diseases
- Adult bee diseases
- Treatment or management required
 - Sending samples to the lab
 - Treatment (e.g. oxytetracycline for EFB or Fumagillin for Nosema disease)
 - Comb destruction
 - Sanitation of equipment
 - Other _____

Varroa mite monitoring (critical in late summer and early fall)

Varroa monitoring should be done throughout the year, but it is critical during late summer/early fall. Colonies with 3% or more varroa mites are less likely to survive winter. It is extremely important to monitor mite levels before and after treatment. Decide on the best treatment option based on: mite levels, brood presence, presence of honey supers, outside temperature, and the acaricide used in previous years (i.e. rotation of synthetic acaricides). Large-scale beekeepers should test at least 10% of the colonies in each yard. Small-scale beekeepers should monitor all of their hives. Keeping yearly records is a good practice to design Integrated Pest Management (IPM) strategies.

- Varroa levels before treatment
- Varroa treatment
- Varroa levels after treatment
- Method used to check for mites
 - Alcohol wash
 - Sticky board
 - Sugar shake

Feeding (~September-October)

Fall feeding is critical. If your colonies are light, they will need to be fed with 70% sugar syrup (1 part of water and 2 parts of sugar; 1:2). The sugar can be refined beet or cane sugar but do not use corn syrup or unrefined (brown) sugar. Bees should be fed before the temperature drops to 10° C or less (50°F). There are many options for feed delivery, including top feeders, pail feeders, and entrance feeders. In-hive frame feeders are only recommended in the spring, and not for fall feeding. Remember that bees have to bring the syrup into their cells and reduce the moisture content; if there is high humidity in their hive they will have difficulties regulating their temperature.

- Check the weather and feed before it gets cold ($\leq 10^{\circ}$ C)
- Prepare 15 L (4 gallons) of 70% sugar syrup per colony
- A single colony should overwinter weighing 80-90 lbs (35-40 kg)
- A double colony should overwinter weighing 120 lbs (54 kg)
- Place straw on top feeders to avoid bees from drowning.

Note: emergency feeding during winter or spring can be done using fondant; do not use liquid syrup when temperatures are below 10°C. It's better to use fondant that is not prepared using acids or heat as these processes could produce hydroxymethylfurfural (HMF), which is toxic for bees.

Important: The Animal Health Act states that 'A person must not feed bees by leaving food exposed or by any other method that is reasonably likely to cause robbing behaviours'; consider the location of your yard, neighboring beekeeping operations, and the risk of disease transmission and robbing when selecting your feeding method (i.e barrel feeding).

Wrapping (~early October)

Wrapping is a good practice to help the bees control temperature and humidity during winter and spring. There are many homemade and commercial wraps available. Wrappings can be left on hives until late spring or early summer; there is no rush to take them off.

- Place entrance reducers to discourage mice.
- Tilt colonies to the front to facilitate water drainage
- Wrap the colony
- Provide upper and lower ventilation to avoid water condensation
- Place insulation on top of the hive (avoid materials that retain moisture)
- Place wind barriers if necessary
- If you use a screened bottom board, install a temporary bottom plate (or a wooden back block) to avoid cross ventilation.

Yard and equipment

Cleaning the yard and properly storing your equipment will prevent pests and predators from entering the yard and damaging the equipment. It will also facilitate starting the season in the spring.

- Tidy up your yard, remove debris and unused equipment, remove garbage or residues of previous treatments (like plastic strips).
- Clean your equipment.
- Store your equipment properly: clean, stacked, wrapped in plastic (saran; look for compostable or environmentally friendly options), and store inside (e.g. warehouse or storage unit).

During winter

- Do not open the hive (avoid disrupting the cluster and their temperature regulation)
- You might see dead bees and signs of defecation in the front of your hives; that is normal. It means that the colonies are alive and the bees are doing cleansing flights
- If you notice that they need food (i.e. the hives are light), provide emergency food (fondant) on top but do not take frames out. Do not use syrup as bees cannot reduce the humidity inside the hive during the winter, and it will affect thermoregulation.
- If the apiary is located in a snowy location, do not shovel or remove the snow. it will help with insulation and temperature regulation.
- Enjoy the winter and make plans for the next bee season!

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