



A Guide to Spring Colony Management in Ontario

Spring management decisions are critical for setting your colonies up for a successful season. Some factors that influence spring colony management include colony strength, remaining food stores, queen health, Varroa mite levels and the presence of disease. This guide will help you assess the state of your colonies coming out of winter and decide what to do next.

Q: When should I check my colonies?

A: This is an important question, and there's no straightforward answer. There is no firm date for spring inspections or unwrapping hives because spring conditions vary from year to year. Timing should be guided by weather conditions and forage availability (timing of flower bloom). A good beekeeper makes decisions based on environmental conditions, not calendar dates.

There are 2 types of spring inspections. The first is an **alive/dead check**, in which you examine the hives for signs of life, including flying bees and bees around the hive entrances (Figure 1). As this is non-invasive, it can be done earlier in the spring. It should be done on a sunny day when the temperature is at least 5°C. You should also check the weight of the hive at this time, as this does not require opening it. These checks can be paired with spring antibiotic applications.



Figure 1. Bees seen at the top entrance of a hive.

The second type of check is a **full inspection**, where you take out and inspect frames for a laying queen/brood and signs of disease. It's important not to do a full inspection too early. Opening the hive will stress the colony at an already vulnerable time of year. Additionally, there's not much to be gained from doing so. In early spring, the most you can do for a struggling colony is provide supplementary feed. Full inspections should **NOT** happen while the bees are still **clustered** (Figure 2). Wait until daytime temperatures are consistently around 15°C and overnight temperatures are warming up. Most importantly, wait until pollen has been consistently available for several weeks. There will be little brood production until this point.



Figure 2. Bees clustered tightly on a cold day. If the bees are clustered, you should NOT be inside the brood chamber or performing invasive management.

Q: When should I unwrap my hives?

A: Wraps should be left on until **overnight temperatures** are consistently above 0° for 1-2 weeks. There is no rush to remove wraps early! Taking wraps off early can lead to starvation. If you take the wrap off, the bees will have to work harder to maintain the hive's internal temperature, which must remain around 35°C for brood production. The bees must eat more food to give them the energy to generate that extra warmth. By spring, the colony's food stores are likely dwindling and nectar is not abundant yet in the environment. The warmth provided by the wrap will be advantageous during this vulnerable time of year - especially during cold spring nights.

Q: Should I give my bees supplemental feed in the spring?

A: Spring feeding is not always required if the bees went into winter well-stocked. In early spring, colony food stores can be assessed by checking the weight of the hive. First, remove any weights from the top of the hive. Second, place one hand under the bottom board and heft the whole hive (Figure 3). If the hive feels light, the bees have eaten through their honey stores and require supplemental feeding. Light hives should be given sugar syrup at a **1:1 sugar to water ratio** (2:1 will also work). If the hive still feels heavy, the colony doesn't need to be fed. The goal is to ensure colonies are fed and wrapped adequately in the fall, so they don't require emergency feeding in the spring. In late spring, if adverse weather prevents foraging, supplemental feeding may be required. Once the dandelion bloom starts, bees will no longer require supplemental feeding and starvation should no longer be a risk.



Figure 3. Checking hive weight by hefting from the back.

Q: Should I feed my bees pollen/pollen substitutes in the spring?

A: Pollen substitutes are typically unnecessary. Pollen substitutes are only required for very specific purposes. These purposes include queen rearing, nuc production, intensive splitting, and providing pollination services – typically commercial activities that require very strong bee populations in early spring. If required for these reasons, commercial products are available, or you can make your own using the recipe available [here](#).

Q: How should I feed my bees?

A: Most types of **in-hive** feeder can be used for spring feeding. Barrel feeding is not recommended at this time of year. In-hive feeding methods include pail feeders, hive-top feeders and baggie feeding. Baggie feeding is recommended for emergency feeding. For more information on feeding bees, click [here](#).

Q: What do I need to know about spring treatments?

A: The main treatment priority in early/mid spring is the prophylactic application of **Oxytetracycline (antibiotic)** for American foulbrood. Oxytetracycline products must be applied early, in order to allow for an adequate withdrawal period before the honey flow starts. The treatment must be finished 4 weeks before supers are added to prevent honey contamination. Antibiotics must be prescribed by a veterinarian. Click [here](#) for more information on antibiotic access.



Varroa mite levels should also be monitored at minimum, twice per season; once in the spring and once in the late summer/early fall. The onset of brood production also means the onset of Varroa reproduction. Only use chemical treatments for Varroa if the treatment threshold for spring is reached. Click [here](#) for more information on Varroa monitoring and treatment thresholds.

Please note that **oxalic acid (trickle or vaporization method)** is **NOT** effective against Varroa mites in the spring. This is because oxalic acid does not penetrate brood cappings, which Varroa mites enter in order to reproduce. When brood is present in the colony (starting in the spring) the majority of Varroa mites infesting the colony will be located in capped brood cells. This means that oxalic acid will not reach the majority of the mites in the colony, making it ineffective.

Q: What should I do if my colony is queenless in the spring?

A: If you can't find the queen, or any eggs or young brood, it means that your queen did not survive the winter (you may find her dead on the bottom board or on a frame). First, examine every frame for signs of brood disease – especially [American foulbrood \(AFB\)](#). If you find no signs of disease, you can shake the surviving bees into a healthy and queenright colony.

Another method is to combine the queenless colony with a healthy, queenright colony. If the queenless colony is free from disease, you can open a queenright colony and place a layer of newspaper on top of the brood frames. Next, place the brood chamber from the queenless colony on top of the newspaper, resulting in a double brood chamber hive. The workers will take some time to chew through the newspaper, allowing them to get used to the new bees' scent. Note: this method is only recommended if the queenless colony is in a single brood chamber hive; triple brood chambers are not ideal to work with.

Q: What should I do if my colony is queenright but weak (1-2 frames of bees)?

A: If the queen is laying but the worker population is very small, the colony will require some help. If it's a double (two brood chamber hive), reduce it to a single. Ensure that you keep the queen and any brood in the single. If necessary, reposition the frames so that food (honey and pollen) frames are on both sides of the brood nest. Do not separate or reposition brood frames; just ensure food frames are close to the brood frames (Figure 4). Increase the population by shaking nurse bees (workers found on brood frames) from another strong and healthy colony into the hive. **Caution:** be sure to find the queen before shaking bees, so she doesn't end up in the wrong hive. Once the worker population is strong, you can add frames of sealed brood. Leave the winter wrap and insulation on the hive until the population gets stronger. Leave the entrance reducer in, if using.



Figure 4. This labelled bird's eye view of a brood chamber shows how food frames should be placed on either side of the brood nest.

Q: What should I do if my colony is queenright and medium-strength (3-5 frames of bees)?

A: As long as the queen is laying well (there are lots of all brood stages – eggs, larvae & capped pupae) and there is no sign of pests or disease, they should build up their population with a little time. Ensure that they have enough honey stored, and supplement with 1:1 sugar syrup if necessary. Again, reposition the frames so that food frames are located on both sides of the brood nest (Figure 5).



Figure 5. This labelled bird's eye view of a brood chamber shows how food frames should be placed on either side of the brood nest.

Q: What should I do if my colony is queenright and strong (5+ frames of bees)?

A: Remove the entrance reducer, if using – at this point the bees can fend for themselves. Do not give strong colonies supplemental feed unless there is a sudden and severe dearth. Ensure the queen has empty frames to lay in. Donate capped brood frames to a weaker colony. Replace the frame(s) with empty drawn comb, or with foundation you want drawn out. If the bees are bringing in nectar and the queen is running out of space to lay, put a honey super on. You can also help balance populations between your colonies by swapping the location of a strong and a weak hive (if you are certain that the weak colony is not struggling due to disease). This colony will be a good candidate for splitting/making nucs from. **Caution:** strong colonies that are not managed adequately using these methods (allowed to get overcrowded) will be more likely to swarm in late spring/early summer! Strong colonies will also have higher Varroa levels, so prioritize monitoring.

Q: What should I do if my colony is dead?



A: There are many causes of overwinter colony losses, mostly related to beekeeping management practices. It is very important to thoroughly inspect deadouts to identify the cause of death. This ensures that a) if disease is the culprit, it is not spread to healthy colonies and b) any mistakes are learned from and not repeated! **Do not skip this step!** Click [here](#) for our guide to diagnosing deadouts. Frames with symptoms of disease (like AFB, European foulbrood, or heavy dysentery from *Nosema apis*) should be culled. **Note:** AFB is a reportable disease – if you think you have it, by law you **MUST** report it to a [provincial apiary inspector](#). Hives with confirmed AFB infections must be burned.

Deadouts shouldn't be left lying around the beeyard. If there are no signs of brood disease, wooden ware from deadouts can be reused. Honey frames from disease-free deadouts can be given to another colony. Dead bees (Figure 3) should be brushed off frames before reusing. You don't need to remove dead bees from cells, the bees can do it. The bottom board and inner cover should be scraped down. The scraped debris and dead bees are a biosecurity risk and must be disposed of safely. Scrape debris and dead bees into an airtight garbage or burn barrel that cannot be accessed by foraging bees. Moldy frames that are free of disease can be placed in a strong colony – the bees will take care of the mold. Equipment you aren't going to use this season should be stored properly.



Figure 3. A very small cluster of dead bees on a frame containing uneaten food stores.

Q: Do my hives need a spring cleaning?

A: Absolutely! Spring is a great time to go through and clean out hives because there will be fewer bees in the way and lots of empty frames. Scrape debris off of all bottom boards and burr comb off of the top bars, inner covers and the sides of the boxes. An easy best management practice is to cull and replace 1-2 old, dark or uneven frames from each hive (Figure 6). This is an easy and effective way to help keep your bees healthy, as disease spores and chemical residues can remain in wax for years. In addition, old brood frames are more attractive to pests like wax moth and small hive beetle.



Figure 6. An old, dark frame with mouse damage - perfect for culling!