



A Guide to Feeding Bees

Providing your bees with supplemental feed at certain times of the year is an important management practice. Feeding colonies correctly is crucial for getting them through vulnerable periods - most notably, winter and early spring. This guide will help you determine when and how to give your colonies supplemental feed.

PART 1: SPRING FEEDING

Q: Should I feed my bees in the spring?

A: Unlike fall feeding, spring feeding is not always necessary. A strong, healthy colony that was adequately fed in the fall typically does not require additional feed in the spring. In the early spring, you can check how much remaining food a colony has stored, without even opening the hive. No fancy equipment is needed. Simply lift the hive by placing one hand under the bottom board at the rear and gently hefting (Figure 1). If the hive feels light and is very easy to lift, the bees have depleted their food stores. If the hive feels heavy and is harder to lift, the colony has enough stored food and does not require any spring feed. Although it can be tricky at first, gauging food stores by weight is something you get a feel for quickly.



Figure 1. Checking hive weight by hefting from the back.



Q: When should I feed them?

A: If your hives feel light when you check them, you should provide them with supplemental feed immediately. Once you begin feeding a colony, you will likely need to continue feeding it until nectar is available in the environment. The bees will consume spring feed directly, rather than storing it. Therefore, providing spring feed is only a temporary solution; the bees will still starve if they run out of supplemental feed.

Feeding can be stopped as soon as nectar is consistently available in the environment - dandelions are one of the first big nectar producers, but other flowers provide nectar too. Be aware of what is blooming in your area. Remember that you should stop feeding well before placing any supers on the hive. Otherwise, the bees are likely to move sugar syrup in supers, causing honey adulteration.

Q: What type of sugar syrup should I feed them?



A: In the spring, bees are usually fed sugar syrup with a **50% sucrose** (sugar) content. This means a **1:1 ratio** of sugar to water by weight. Sugar syrup with a 70% (2:1 sugar to water by weight) sucrose content can also be fed in the spring. The lighter syrup is usually used because it's less expensive, and the bees consume it right away, instead of storing it. Sugar syrup is easy to make at home. Simply mix white sugar with warm water until the sugar is fully dissolved. Remember that the ratio of sugar to water is by weight. 1 kilogram of sugar is equal to 1 litre of water. For example, if you are using 5 kilograms of sugar, you will need 5 litres of water.




Q: How should I feed my bees in the spring?

A: Only **in-hive** feeding methods should be used in the spring. Other methods, such as barrel feeding, aren't as effective in the spring; unpredictable spring weather often prevents bees from flying, even if the barrel is close-by. In addition, even if the temperature is warm enough to allow flight, foraging bees are often not attracted to cold sugar syrup.




Method	Materials	Instructions
<p>Pail Feeding</p> 	<ul style="list-style-type: none">● Plastic pail with screened lid (can be purchased or made)● Inner cover with middle hole● Empty brood box● Heavy lid● Rock/brick	<ul style="list-style-type: none">● Specialized lids with screens can be made by poking finishing nails through the lid of a small bucket.● Fill the buckets with the syrup and place the bucket upside down on an inner cover with hole.● This allows the bees to access the syrup while not allowing the bucket to rest on the top bars of the hive.● Place an empty box around the pail, with a heavy lid with a rock on top. This will protect it and prevent pests such as raccoons from getting at the syrup.● This method can feed approximately 5 L of syrup at one time.
<p>Hive top feeding</p> 	<ul style="list-style-type: none">● Hive top feeder● Straw (optional)	<ul style="list-style-type: none">● There are many styles of hive top feeder, and they can be found at any bee supply store.● They are placed directly on top of the brood box and filled with syrup.● The inner cover and lid are placed on top.● Bees can access the syrup by climbing up the chimney of the feeder.● Make sure to close up any holes that would allow other pests such as wasps to access the syrup.● Straw can be placed in the feeder to prevent the bees from drowning.



Method	Materials	Instructions
Baggie feeding 	<ul style="list-style-type: none">• Wooden rim• Re-sealable plastic bag• Knife	<ul style="list-style-type: none">• Put syrup in a large resealable plastic bag and place on the top bars. An air bubble will form, and a hole can be cut into the bag to allow the bees to access the syrup.• A rim must then be put underneath the inner cover to prevent squishing the bag and pouring syrup all over the bees.• The bag can be refilled as necessary.• Recommended for early spring feeding.

The following method can be used in the spring, but it is **temperature dependent**. The brood chamber must be opened in order to install the feeder, so it is only recommended when temperatures are above 15°C. If it is still cold out, a less invasive method should be used.

Method	Materials	Instructions
Frame feeding 	<ul style="list-style-type: none">• Frame feeder	<ul style="list-style-type: none">• Frame feeders can be purchased at bee supply stores.• They act as a trough that goes directly in the brood chamber.• Remove an empty frame from the brood chamber and replace it with a frame feeder filled with syrup.• Ensure it is placed close to the brood nest.• This method is not recommended for fall feeding. You'll need to remove a frame, at a time when there shouldn't be any empty frames. It also only feeds small amounts at a time.• We recommend frame feeding for providing supplemental feed during mid-season dearth periods.



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

A: Pollen substitutes are typically unnecessary in Ontario. Due to Ontario's climate, there are plentiful natural sources of pollen available during the bees' active season. 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 on the OBA website.

There are risks to using pollen substitutes to increase brood rearing without intensive management (like the listed activities). A pollen substitute will cause the colony to increase brood production to a level that cannot be sustained without consistent pollen, at a time when there is no pollen available in the environment. Additionally, colonies that are booming in early spring will be at risk of swarming early.

PART 2: FALL FEEDING

Q: Should I feed my bees in the fall?

A: YES! Feeding your colonies in the fall is critical for helping them survive the winter. Colonies that do not have adequate food stores will starve over winter. A colony needs ample food stores to give them energy to maintain the winter cluster's temperature. This heat is generated through continuous muscle vibration, so it's very energy intensive.

Q: When should I feed them?

A: In the fall, you can start feeding your colonies as soon as you finish harvesting your honey supers. This means that your supers need to come off early enough that there is time for the bees to take the feed down. Conversely, feeding should also not begin too early, as this can prevent the queen from having enough room to lay the winter bee population.

Worker bees must transport, cure and cap the syrup in order to store it for the winter. If their population is strong, they can do this fairly quickly. However, the temperature must still be warm enough to allow them to do this. Feeding should be completed before the temperature gets below 10°C (this is the point where bees stop flying). In Ontario, supers can stay on as late as mid-September, depending on seasonal factors. As a general rule of thumb, colonies should be fully fed by mid-October - however, earlier is always safer. Note: barrel feeding should not commence until neighbouring beekeepers have removed their supers, to avoid honey adulteration.

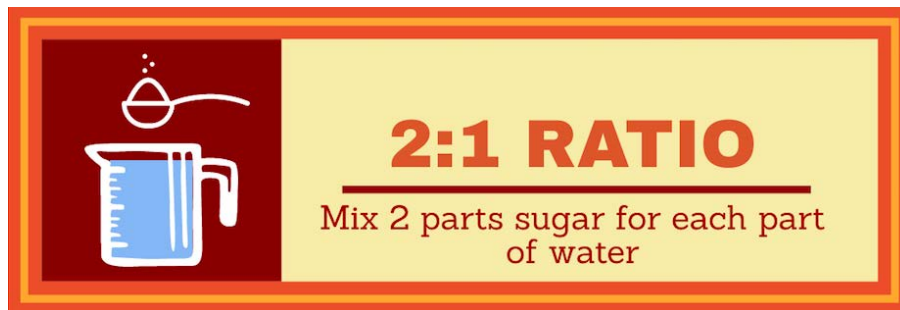


Q: My colony already has some stored honey, do I still need to feed it?

A: Even if they have brought in some fall honey, they should still be topped up. They need more winter stores than you think! Feed is also cheap insurance that your bees will survive the winter.

Q: What should I feed them?

A: In the fall, the bees need thicker sugar syrup that contains less moisture. Bees should be fed sugar syrup with 70% **sugar** (sucrose) content. This means a 2:1 ratio of sugar to water. It is important to ensure fall feed has a higher sugar content, as the bees will be able to ripen it quickly for storage. If the stored syrup has too high a moisture content, it can cause dysentery. Dysentery is a common cause of overwinter colony death. Sugar syrup is easy to make at home. Simply mix white sugar with warm water until the sugar is fully dissolved. Remember that the ratio of sugar to water is by weight. 1 kilogram of sugar is equal to 1 litre of water. For example, if you are using 10 kilograms of sugar, you will need 5 litres of water.




Q: How much feed do I need to give them?

A: Each colony should receive at least 15L or 4 gallons of sugar syrup. Of course, you can give them more than that if they keep taking it down. A colony with a single brood chamber should weigh 70-90 lbs going into winter. A colony with a double brood chamber should weigh 100-120 lbs. You don't have to actually weigh the hives - simply place one hand under the bottom board to lift the hive from one side. A hive that is ready for winter should feel very heavy and difficult to lift.



Q: How should I feed my bees in the fall?

A: You can use any of the feeding methods recommended for spring in the fall, as well as barrel feeding, described on page 7. Please note that frame feeding is the only spring feeding method that is **NOT** recommended for fall.

Method	Materials	Instructions
Barrel feeding 	<ul style="list-style-type: none">● Barrels of pre-made syrup can be ordered from some bee supply stores.● Straw● Piece of wood● Rocks/bricks	<ul style="list-style-type: none">● Important note: barrel feeding carries some biosecurity risks. It is still commonly used, because it is an easy way to feed a large number of colonies. Additional biosecurity precautions can be found below this table.● Place the barrel(s) in the bee yard. For biosecurity purposes, open them one at a time, if multiple barrels are required. This way, your bees will take down the syrup quickly and there will be less robbing from outside sources.● Place straw in the barrel so there is a good amount floating at the top of the syrup. This will prevent drowning.● Prop the lid open with a piece of wood, so that there is an entrance for the bees, but the syrup is protected from the elements. Place heavy bricks on top of the lid to keep it in place.● Check the barrels periodically to ensure the lid is in place, etc. Once the first barrel is empty or low, open the second barrel.



BIOSECURITY CONSIDERATIONS WHEN BARREL FEEDING

- Do not overfeed - make sure you only have the necessary amount of syrup. Giving bees access to more syrup than they can take down will lead to robbing by other bees.
- Only dispose of old, fermented syrup at times when bees aren't flying (ie. the winter).
- We recommend avoiding barrel feeding if you follow an organic management plan/do not treat prophylactically for AFB with antibiotics.
- Be extra vigilant in monitoring for AFB and Varroa mites if barrel feeding is used.

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

A: Pollen substitutes are typically unnecessary in the fall, unless there has been a severe dearth. Pollen/pollen substitutes are the colony's protein source. Protein is critical for brood production. As brood production is paused during the winter months, protein is not required during this period. In addition, pollen patties left uneaten in the hive will be attractive to pests like wax moth.

Q: Should I feed fondant or dry sugar?

A: Feeding fondant or dry sugar is not recommended as standard feeding methods. The bees are less likely to take them down than sugar syrup. In fact, sometimes the workers will toss dry sugar out of the hive instead of eating it. Dry sugar should not be fed to a weak and/or starving colony. The bees will require water in order to eat the dry sugar, but they won't have the strength to forage for water. As such, the dry sugar will not be edible, and they will still starve to death. Fondant can be used as an emergency feed in late winter or early spring, as it is placed directly inside the brood chamber, making it easily accessible to the bees. However, the baggy method is the preferred option for early emergency feeding.