

# SUGAR SYRUP FOR BEE FEEDING

The following is adapted from suggestions first published on the Bee Hive Journal's website, in February 2009.

Feeding honeybees with syrup may seem like being a medieval alchemist, but it really is a common task. By feeding your bees supplemental foods such as sugar syrup and pollen patties you are ensuring that your bees have the foods needed to be a strong healthy hive. Bees get their proteins, vitamins, fats and minerals from pollen. No pollen or patties available equals few bees.

If you are just starting a new hive, feed the bees all the first year to build your combs. Generally, as long as either you feed, or nectar is available, the bees will continue to make comb.

Let's get started on making bee sugar syrup. Are you confused by all the different "recipes" to make honeybee sugar syrup to feed your bees? Expert #1 says this, then Expert #2 says that. How can they both be right? The answer my friend is that first you need to understand that when doing ratios of a solid to a liquid they are expressed in terms of WEIGHT not volume..

What makes it confusing is that sugar (dry, white) has almost the same weight as water in the same size container. That is why you get soooo many almost-the-same formulas for feeding bees. In the golden days of beekeeping most persons just used a basic recipe and went from there. In the end as long as you're close it's all good.

So with this new knowledge you can now make the syrup correctly. Your work will be easier if you use a five-gallon bucket to mix in and use HOT water. Remember water weighs 8.3 lbs. (rounded down) to a gallon. So for all those who want the perfect 1:1 syrup for a gallon of syrup, add 8.3 lbs of table sugar to a gallon of water. For a 2:1 syrup add 16.6 lbs of sugar to a gallon. There is also a 1:2 syrup used by some for brood rearing in early spring.

Now for everybody else, grab a cup, bowl, milk jug, bucket, empty soda can or what ever vessel you like to use as your "measuring cup" and just use it as your ratio cup. 1 "cup" sugar to 1 "cup" of water and so on and you will be fine..

If you have no combs or little to no food reserves, put the syrup out early in the year as the weather allows (*staying above zero*). The bees will start to feed on the syrup and it will start them building comb and storing syrup as if a nectar flow has started. The key here is to boost, but not overfeed. Overfeeding could lead to becoming "honey bound" in the brood chamber. This results in no open cells for the queen to lay in, which means no new bees.

To increase brood and your spring buildup, give syrup and pollen patties to the hive about three weeks before the nectar flow. Once started, do not stop syrup until the real nectar flow is started. The timing is important as it takes 21 days for the brood to mature.

Don't forget that in addition to syrup or other supplemental food, your bees will need water. Some salt should be available also. Inside-hive feeders can be used to supply water as well. Water is used by the hive for cooling and for eating. No water and the hive can overheat. Salt is taken mainly early in the year and can be placed (about a tablespoon or so) nearby on a rock or plank, but not on the hive.



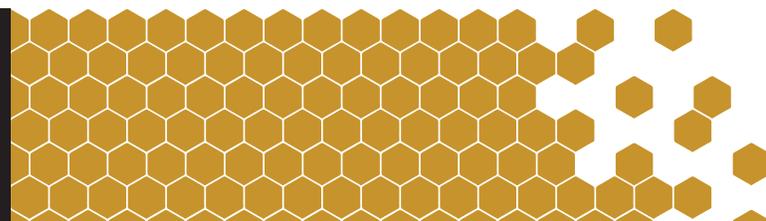
## Recipe Guidelines (first number is sugar):

- 1:2** Recommended by Hiveworld.ca in late winter's colder days when temps first rise reliably above 0°C. Before that, use hard candy feeding to avoid aggravating moisture levels)
- 1:1** Bee sugar syrup is used to stimulate the queen to start laying in the spring. Due to the very high water content it is not used as summer or winter food, but is often used in the preparation of other bee foods or applications such as essential oil supplements.
- 2:1** Honeybee sugar syrup is the most popular syrup for bees. This is a general purpose syrup. You can use it till about 45-60 days prior to winter. It is often made commercially for migratory bees with HFCS. Spoilage is high with this mix. This has less stimulation in laying.
- 3:1** Bee syrup mix is for winter (when temps are such that it won't freeze solid). At this concentration there is little water to evaporate. It also is less likely to freeze. This is also the hardest to make. Use boiling water in making the syrup. Allow to cool before serving. This has almost no stimulation in laying.



## Here's a list of the top 10 syrup mistakes to avoid:

1. Failure to check on your hives EARLY in the year (first warm day of the new year/ season). Many will wait till warmer weather, this leads to starved bees. Check for food before the end of the winter weather or anytime a day of 7°C is reached in the winter.
2. Making too much. Syrup can go bad faster than you think. It can ferment and/or grow mould, neither of which is good. Make about what can be used in a week or less. Always start clean. Nasty containers just breed problems and sick bees.
3. Letting the syrup get hot. Hey it's sugar syrup! How do you think they make mead? Keep it cool, keep it fresh.
4. Leaving the container open. If you want to be a friend of bugs just leave it open and every ant and creepy thing will come your way. Sadly, some of your bees will find it and take the big plunge.
5. No landing pad or float in open container. Bees can't swim but they do drown well. Organic materials are fine for a while but will soon lead to other problems as they rot or mould. Try styrofoam peanuts or pieces of wood. If the depth is more than 1/2", you will at some time find hundreds of dead scuba bees.
6. Leaving dead bees in the syrup. Just not right. Why do you think dead animals make water unfit to drink? Well same goes for bees. Clean them out and wash the feeder once in awhile.
7. Using too small a filling device. Use a bigger bucket or container when filling. The name of the game is to work quickly and neatly. Try placing feeders late in the evening to reduce robbing.
8. Pouring the syrup all over the place like a drunken sailor. Be neat. This helps prevent robbing and pests.
9. Using syrup too late in the year. After it gets cold bees will not go to the feeder.
10. Using 1:1 in winter or while there is a strong chance of frost. It will freeze. Use 2:1 syrup when there is a chance of freezing, as it generally does not freeze. Change back to 1:1 as weather allows.



## Medicated Sugar Syrup:

Medicated syrup is preferably fed in the fall. About 2-3 gallons of 2:1 sugar syrup (2 parts sugar to 1 part water) is the usual feeding per colony. If spring (warm weather) feeding, the syrup mix may be reduced 1:1 (1 part sugar to 1 part water). Package colonies, feed about one gallon of medicated syrup as soon as the package is installed. Continue feeding as required for three weeks.

Spring time feeding is approximately the late February to latter part of April in the US Northeast. Use of a top feeder or baggy is preferred. Put tray feeder on top of brood chamber and fill with medicated syrup, then close hive back up. Pollen patties may also be used at this time.

Fall timeframe for feeding is approximately mid-September to latter part of October. I recommend feeding as much 2:1 sugar syrup as your bees will take. The tray feeder is the best method recommended for this.

Fumagilin-B is an antibiotic used primarily for treating package bees, nucleus colonies, and overwintering colonies for *Nosema apis* infection. Fumagilin-B should be fed only in sugar syrup, as directed. *(note that under 2018 Canadian regulations, antibiotics must be obtained from a veterinarian with whom you have an established relationship.)*

## Preparation of Medicated Syrup:

These instructions are given in US measurements  
1 US gallon = approx. 3.78 litres

Water +	Sugar =	Syrup +	Fumagilin-B
44 gallons	727 lbs	100 gallons	16 oz (454g)
9 ½ gallons	152 lbs	21 gallons	3.4 oz (96g)
2 ¼ gallons	37 lbs	5.2 gallons	0.85 oz (24g)
½ gallon	8 lbs	1 gallon	0.18 oz (5g) = 1 rounded tsp

## Fall feeding of medicated syrup:

2 gallons for each 2-chamber colony (approx 30,000 bees)  
1 gallon for each 1 chamber colony (approx 18,000 bees)  
½ gallon for each 5-frame colony (approx 8,000 bees)

