

Fondant: Bill W. Recipe

Boil chamomile flowers and a pinch of sea salt in 2 parts water. Slowly add 8 parts organic cane sugar until dissolved. Continue heating until the mixture reaches 240°F (116°C). Allow the solution to cool (without mixing) until it is slightly warm to the touch, and begin to mix and aerate the solution, the color should lighten. Pour into shallow waxed papered cookie tray and save for later use. (All measurements by volume)

Variations:

- Try adding some crystallized honey to the completely cooled fondant
- Substitute 1 part fructose sugar for 1 of the parts cane sugar

Spring Feeding Syrup

2 ½ quarts water

5 lbs. white organic granulated cane sugar, 1 table spoon chamomile flowers & 2 pinches of sea salt (If possible, substitute honey for a portion of the sugar)

Bring water to a rolling boil then remove from the heat. Add chamomile, let sit and then add salt and sugar(s), mixing thoroughly. Add any honey after it becomes lukewarm, not to hot mixture!

Winter feeding Syrup

2 ½ quarts water

10 lbs. white organic granulated cane sugar, chamomile and a pinch or two of sea salt (If possible, substitute honey for a portion of the sugar)

Bring water to a rolling boil then remove from the heat. Add chamomile, let sit and then add salt and sugar(s), mixing thoroughly. Add honey after it becomes lukewarm, not to hot mixture!

New Bee Syrup

Warré advises: 2 parts honey to 1 part water by weight for feeding new bees

Heating Honey - Heating honey leads to drastic changes in its chemical composition. Heating up to 37°C causes loss of nearly 200 components, parts of which are antibacterial. Heating up to 40°C destroys invertase, an important enzyme. Heating up to 50°C turns the honey into caramel (the most valuable honey sugars become analogous to sugar).

Syrup Solutions: sugar-to-water ratio, by weight

2-to-1 (2/3 sugar, 1/3 water)

Fall feeding, during nectar dearth, or to administer medication

1-to-1 (1/2 sugar, 1/2 water)

Spring feeding or to administer medication

1-to-2 (1/3 sugar, 2/3 water)

Stimulate brood or comb production (for installation of a new honeybee package, preparation for requeening, weak hive)

Warré advises: 2 parts honey to 1 part water by weight for feeding new bees

Michael Bush: I use more like 5:3 (sugar:water) all the time. It keeps better than 1:1 and is easier to dissolve than 2:1.

The Bees Needs-Recipe for Bee Tea- Spikenard Farm and Honeybee Sanctuary [info@spikenardfarm.org] Summer 2011, Issue No. 11

To support and stimulate a well-functioning metabolic process, herb tea with a bit of honey should be given. For feeding, i.e. building up packages, nucs and splits, or for the fall feeding, if winter supplies are not sufficient, the honey content should be tripled so that the bees don't have to work so much evaporating the water content of the tea.

For a basic tea recipe, the ingredients should be as listed, but if you don't have them all, at least the first three most important ones--- chamomile, yarrow and stinging nettle--- should be used. They are part of the biodynamic compost preparation plants as indicated by Rudolf Steiner. The Biodynamic Beekeeping Practices include other plants and preparations, but for the most part the ones listed are the most important and helpful.

German chamomile, yarrow, stinging nettle, dandelion flowers, hyssop, rue, thyme, sage, peppermint, lemon balm, anise hyssop.

Here is how you do it:

Bring 2 quarts of good water to a boil, take off stove and add:
3 tsp. each of: chamomile, yarrow, stinging nettle, dandelion flowers, peppermint,
2 tsp. each of: sage, hyssop, thyme, anise hyssop, and lemon balm
1/4 tsp. rue
Let steep for 10 minutes.

Strain through a cloth, add two additional quarts of water and let cool enough (about 100 F) to mix in one pound of local honey. For building up the colonies, mix in three pounds of honey. If you have to use sugar (we don't recommend it), add at least 5-10% good honey and a good pinch of salt (no iodine!) The brand "RealSalt" is good, with lots of mineral content. Whatever you don't use right away needs to be refrigerated.

For building up a swarm, nuc, split or package, you feed daily for ~ 2 weeks or as long as needed. If you have a strong hive and lots of forage you may only need a couple of days. Observation is very important: if the tea sits for days and is not taken by the bees, then either they don't need it or the tea has turned sour (this happens quickly during the summer).

General strengthening: One pint of the tea per month, starting in February/March.
You will have healthy, happy and high-spirited bees!

Feeding bees in preparation for winter by Thun, Maria & Matthias

The herbal teas recommended as supplements in the feeding of bees prior to winter are all plants that have proved their value over many years. Yarrow, chamomile, dandelion and valerian are made by pouring boiling water over the flowers, allowing them to brew for fifteen minutes and then straining them. Stinging nettle, horsetail and oak bark are placed in cold water, brought slowly to the boil and simmered for 15 minutes. Three grams of each dried herb and half a litre of the prepared teas is enough to produce 100 litres of liquid feed. This is a particularly important treatment in years when there are large amounts of honeydew.

Since one focus of this calendar is on the saving and production of seeds it might have been appropriate to describe the swarming and reproduction of bees too. But this subject was described in some depth last year. Instead we would like to respond to several requests and direct your attention to the special 'swarm catcher bag' which every beekeeper should have to hand especially those whose hives are kept in orchards or woodland. Its construction with an extendible pole allows the beekeeper to catch swarms in places that would otherwise require skilled ladder work. The open

bag is held beneath the swarm and the branch is given a sharp tap. The bees fall into the bag that can then be closed by pulling on the cord attached to it.

The most favourable dates for growing queen bees from worker cells this year occur in July. If the breeding of queens needs to start earlier it is best to choose Flower days. The young mated queens from the July breeding should be kept with the mating nuclei because young queens introduced to a hive so late in the season are likely to be more prone to disease the following year.

Question put to Biodynamic Beekeeping Consultant Michael Weiler

30. What guidelines do you have for feeding bees?

Feeding – the best thing is if the bees can over winter with their own honey without any feeding – there is no question that this is best but it is not always possible.

If feeding is necessary to supplement the stored food in the hive, we need a sugar solution. You have to use organically grown crystallized white sugar (not brown or dark sugar). I put 3 kg of sugar into 2 litres of water (or in proportion to the amount you need). To the sugar we add 10% of our own honey (to 9 kg of sugar you add 1 kg of honey); to this mixture we add some chamomile tea and a very little pinch of salt. You only need a small amount of these substances – if I prepare 100 litres of sugar liquid in this way (this would be nearly 75 kg of sugar and 7.5 kg of honey together with 50 litres of water) I would use one or two litres of a strong chamomile tea and maybe a teaspoon of salt (sea salt).

This mixture is suitable for feeding new colonies and nuclei as well as for autumn feed. It helps the bees to convert the sugar solution to a honey like substance.

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Other recipe notes (various sources, parts may be useful)

Bee candy

Having printed and studied all the bee candy references in the archives, we decided to attempt to take a fudgy or fondant-like candy. We did not wish to use corn syrup as we have some question about all corn syrup processes being good for bees. We did not wish to include cream of tartar for similar reasons. We began with the "12345" formula, using a small amount of vinegar (volatilized in process) to break down the sugar. We found the 1:5 water to sugar ratio too quick for the response of our thermometer in small batches, and backed off to 1:4, which doesn't change the end result, but slows the process. Our first pour, on a greased metal sheet, yielded a suitably friable cake but one too brittle for easy handling. Cooling the sheet with snow worsened the brittleness. Pouring onto wax paper on a towel gave a nice cake, but too thin. Cooling to 200F prior to pouring increased cake thickness.

In conclusion, to obtain satisfactory cakes we:

Use 1 part water to 4 parts granulated sugar.

Add 1/4 tsp. per vinegar per pound of sugar.

Bring to boil, stirring constantly until boiling commences.

Boil without stirring for 3 minutes, covered.

Insert thermometer, and boil uncovered until 234F is reached.

Remove from heat, and allow to cool to 200F.

Whip with whisk until whiteness occurs.

Pour (QUICKLY!) onto waxed paper having a towel beneath.

Allow to cool undisturbed. Remove waxed paper, and store each cake in a plastic bag.

The cakes thus made can be handled as plates, but are fudgy. They are totally white with whiter areas inside. Tiny crystals shine from a broken edge of a cake. The waxed paper is readily removed before storage. If the towel is fluffy the wax paper depresses limiting the width of the cake. We did try to make the candy without stirring which yielded a transparent gel that was extremely sticky. We did try to recycle our earlier failures, but they were crumbly until we added vinegar again, after which they behaved as new sugar. The bees seem to like these cakes.

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Posted by: "jmapowell" jmapowell@gmail.com jmapowell
Mon Sep 19, 2011 10:05 pm

I could not find the one circulated here a while ago, but this is from the book Honey Bees and Their Management by Stanley B Whitehead D.Sc. 1945 (later than I thought):

"It is made dissolving two pounds of sugar in every pint of water" "it is beneficial to medicate the syrup by adding two camomile blossoms and a pinch of dried thyme to each pint of water, simmering together for 10 minutes, and then straining and adding the sugar. This treatment was suggested to me by some notes of the late Dr Rudolf Steiner, and over the past five years I have found this medicated syrup is very acceptable to the bees and conducive to their good health. It appears to make the syrup more attractive and digestible."

It is interesting that there is a relationship between sucrose and chamomile tea which was picked up recently in the press with regards to diabetes:
<http://news.bbc.co.uk/1/hi/health/7617294.stm>

I read some of the papers about this. It seems to invert the sucrose, but not in a simple way that I could understand., Jonathan (uk somerset)

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This is what I do and it works for me.

I make it in small quantities In a thick bottomed pan because I haven't got a jam pan. If the mixture is too deep the temperature at the top is different to that at the bottom and you finish with a mass of sugar with much bigger crystals than you started with..

2 kg of sugar is dissolved slowly over the heat into 400 ml of water until the mixture becomes transparent. When it begins to boil, 118°C, cook for about 5 or 6 minutes then leave to cool stirring from time to time to keep the temperature even. When it falls to 70° start stirring more or less continuously until 40°.

At this temperature the pan is cool enough to be handled. Pour in a Kilo of honey from your own hive and stir vigorously. Pour into moulds.

> I hope it works for you. Bil, France 01/09/2013

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The "soft ball" sugar stage for fondant is described in this "The Science of Candy" web site.
<http://www.exploratorium.edu/cooking/candy/sugar-stages.html>

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Study: Sugar diet may have impact on honeybee health

Tuesday, May 21, 2013 4:00 PM

URBANA, Ill. — Diets used in beekeeping may play a role in preventing the insects from staving off the effects of some pesticides, a new study suggests.

The findings of the research, led by University of Illinois entomologist May Berenbaum, were recently published in the Proceedings of the National Academy of Science.

While bees in the wild feed on honey stored in the hive, those in commercial hives generally are fed a sugar solution after the honey is harvested. That may contribute to an inability to break down enzymes in pesticides.

“One thing we found is that the genetic response to pesticides in the diet is different, depending on whether the bees are eating honey or whether they’re eating sucrose or high fructose corn syrup,” Berenbaum said.

“That led us to wonder what it was in honey that is regulating the honeybee detoxification system. There are clearly components in honey that bees respond to by cranking up their systems for disposing of pesticides.”

The researchers identified specific components found in honey that turn on defense genes in the bees. Most active is the chemical p-coumaric acid, which is present within walls of pollen grains. Certain chemical components give animals — including humans — the ability to break down chemicals.

“Like bees, we use enzymes to break down poisons. Our liver breaks them down,” Berenbaum said. “Honeybees use their mid-gut like we use our liver. They need a signal to get activated, and the honey provides a signal for the enzymes to act.

“Honeybees that eat honey are better at breaking down pesticides than bees that eat sugar. The big surprise is not only do they turn on detoxification genes, they also can turn on some of the immunity genes.”

The use of pesticides — specifically neonicotinoids — has been suggested as a contributing factor of colony collapse disorder, a phenomenon of reduction in honeybee populations both in the U.S. and Europe, though the cause has not been scientifically established.

Regardless, a diet that impedes a honeybee’s ability to break down chemicals in poisons could have an effect on hive health, according to Berenbaum.

“One of the longstanding questions about bee health and bee decline was whether there’s an impact of feeding bees — particularly over the winter — not honey, which is what they naturally eat, but sugar substitutes,” she said. “Our results suggest that maybe it’s not such a good idea to feed bees only sugar substitutes because none of these sugar substitutes contain the components we found in honey that turn on the defense genes.

“We don’t even know if the bee decline we see today is the same thing as the bee decline in 2007, when it got the name colony collapse disorder. We don’t know if the bee decline in Europe is the same thing here in the United States.”

A decline in bee populations has implications far beyond those involved in apiculture. Honeybees pollinate a number of agriculture crops.

“In general, we know there are problems in apiculture,” Berenbaum said. “It’s really more productive to think about bee health than it is to worry about one specific manifestation of bee problems. Instead, focus on why we’re losing bees across the board.”