

# NEW BIOSPHERE AGRICULTURE

**APIARY – BEEKEEPING & HONEY**

**HONEY BEE NOTES**



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### Notes from Claus and Helga:

Claus grew up with a bee-keeper-father and had been taught and trained by him. And Claus and I have been having our own honey bees for 20 years now, pollinating our orchards, vineyard and gardens, and we are registered with the **Department of Primary Industries and Fisheries (DPI)** in Warwick, Queensland, Australia, and we had worked with them over the years (helping them to solve several problems with pest-infestations of hives, etc., in organic ways).

There are currently extensive global and national devastating problems with bee-keeping. There is much info available about all of it now, the daily deaths of trillions of honey bees (and rising) in the USA and Germany are different to the national problems. Here, in Australia, we have the **hive-beetle** who is killing the bees in large numbers. The DPI have been trying to figure our help for years, but all they've come up with is not very loving nor organic.



Claus (inventor) offered them a very good solution (which he worked out and perfected over 4 years), but they haven't acted upon that, yet.

Claus' hives have been reduced to THREE hives now, and he is struggling to keep them alive with his method. We know of fellow-bee-keepers who have lost 200+ hives in one year.

We have been enjoying (and sharing widely, for many years selling and giving away) the most beautiful organic, natural honey for 20 years.

While on the Natural Love Path (which Anastasia used to be on while channelling her books, including this info about honey-bees and honey, to Vladimir Megre), I did not have an issue with eating honey and using bees to work for me and others.

Since I'm now on the DLP, I am understanding the reasons WHY I'm a VEGAN more clearly (from God's perspective). I had been a vegan before DLP, but my reasons differed slightly. I also understand better why I want to eat my food more RAW than cooked.

I want to share with you what a friend of mine (one of my raw food coaches and mentors, Jinjee Talifero) has written about the RAW and VEGAN aspect of honey:

"Most honey is cooked (not because it is "regurgitated", which is not a great word for the process) but because the bee keepers cook it to make it easier to pour. Some of it they cook a little less and call it "raw".

I did a little research on how bees make honey, and they have a special "stomach" or "pouch" (not the same one they use for digestion) exclusively for transporting the nectar, and in which special enzymes are mixed into the nectar which will eventually help to turn the nectar into honey, while the nectar is drying and evaporating in the cells of the hive.



Regurgitation is an unfortunate term used to describe the process of transferring the nectar from the bee to the hive, because when we humans regurgitate it is a nasty, stinky affair that is the result of something going wrong in digestion. However this so-called-regurgitation of nectar is totally clean, fragrant, productive, and healthy.

You can read all about the process here: <http://www.beeswaxco.com/howbeesMakeHoney.htm>

Honey is not a part of the bee's body, however it is an animal product, and therefore not strictly vegan. Bee enzymes turn the nectar to honey.

In the past I have argued that insects are not animals, but I was wrong. Insects are classified as animals. So are the bacteria in our mouth which we all "eat" although we have no choice about that. So are the micro-organisms that are present in all foods, including fruits and vegetables. So, technically, there are no true vegans.

Although honey may not be truly and strictly vegan, I have not found a superior sweetener. Honey has amazing healing properties, including being an anti-inflammatory, a natural anti-biotic, and a pure energy source.

For those concerned with accurate labelling, there is a new term for a **vegan** who also eats honey: **Beegan!**"

Now, my own take on VEGAN, as in not harming any animal in any way ... robbing the bees of their honey, keeping them in captivity (matters not how lovely and clever it's being built), and exploiting them and stealing what they have produced for themselves, to feed their children ... feels very un-loving and out of harmony with Truth to me.

Having said that ... I'm freely admitting that I still eat honey (very much less and less frequently, but I still do) ... our own awesome honey from our exploited hard-working bees.

Seems like I'm not REALLY feeling the full extend of this un-loving behaviour, yet ..... well, I don't WANT to feel it .... as I do like the honey so much.

Before I go ..... I want to mention that I'm truly aware of all the health-benefits of honey ..... and all the other bee-products like pollen and propolis.

Won't change my view of the un-lovingness and exploitation.

The Honey-Processing-Plant: (see volume 1 New Biosphere Agriculture – Beekeeping and Honey)

They are **HEATING** the honey to 63°C. Why ? There is NO need to heat the honey .... ever! At **just under 40 degrees** the **enzymes get destroyed** ..... so what's the point of eating honey?

Understanding the reasons WHY they do that ..... (there are a few) .... One is to reduce the moisture ..... and another one to make it flow faster through the filter .... but NONE of it is necessary, nor should be a reason to HEAT it and destroy what's GOOD about it! No need to filter honey .... what's BAD in it to be filtered out? The little wax bits will float to the top by themselves .....

Another thing is if the honey gets extracted too early (before the bees are capping the frames), the honey will be too THIN .... and then people think they have to heat it to thicken it ... WRONG ! The bees KNOW how to do that themselves .... by capping it and letting it thicken. Why do we have to interfere?

What style of processing unit or process do you recommend?

There should be NO processing. Just extracting, cold, at the right time (not too early, after it's been capped fully), and only screening it through a fine sieve to separate wax-bits. We always screen, but quite often there are small bits of wax in the honey (from the de-capping), but there's nothing wrong with those bits, they are yummy and healthy as well.

(When they're selling honey-comb, broken pieces of frames WITH honey in them, it's usually quite expensive, as there is EVERYTHING in it, often including some pollen and propolis).

Heating is un-natural and kills mainly enzymes, but also damages the pollen and the propolis which could be in the honey in small quantities.

I personally used to love chewing the waxy frames-bits

If you go to [www.superbee.com](http://www.superbee.com) (a business on the Sunshine Coast, Queensland, Australia) and look under products, there are descriptions of pollen, propolis and royal jelly etc. They are commercially robbing the bees of all of that to sell it.

Claus considers he keeps his bees so lovingly and with utmost care and consideration. Whilst others may consider that he may not be taking into account that it IS unloving to ROB them of the food for their children, even though he builds all of the bee-hives from our own timber (un-treated, and not poisoned like the stuff available at the shops for bee-keepers, where even the frames are being made from 'treated' pine wood !!!) and looks after them with much natural love, that is, leaves more than sufficient of their own food for them.

Why Honey is not Vegan.

<http://www.vegetus.org/honey/honey.htm>



# Why Honey is Not Vegan

<http://www.vegetus.org/honey/honey.htm>



This essay explains why vegans do not eat honey.

## By Definition

The simplest reason why honey isn't vegan is by definition. The term vegan was coined by Donald Watson in 1944 and was defined as follows:

*Veganism is a way of living which excludes all forms of exploitation of, and cruelty to, the animal kingdom, and includes a reverence for life. It applies to the practice of living on the products of the plant kingdom to the exclusion of flesh, fish, fowl, eggs, honey, animal milk and its derivatives, and encourages the use of alternatives for all commodities derived wholly or in part from animals ([Stepaniak](#)).*

People who follow a vegan diet for health or environmental reasons, please [take note](#).

We don't, however, need to go back to 1944 to define honey as not vegan. Any definition of veganism would talk about not exploiting animals, and honeybees (*Apis mellifera*) are, without a doubt, animals. Honeybees are in the phylum Arthropoda--the same as lobsters and crabs. So in addition to crustaceans, if honeybees don't merit respect, that would also leave earthworms vulnerable to dissection in biology classes. Similarly, is scallops, snails, and oysters would be fair game--they are not as "high up" on the evolutionary



scale as bees. James and Carol Gould (respectively, a professor of ecology and evolutionary biology at Princeton and a full-time science writer) point out that "Honey bees are at the top of their part of the evolutionary tree, whereas humans are the most highly evolved species on our branch. To look at honeybees, then, is to see one of the two most elegant solutions to the challenges of life on our planet. More interesting, perhaps, than the many differences are the countless eerie parallels--convergent evolutionary answers to similar problems" ([Gould, x](#)). Of course, all this talk of higher and lower is fiction. Even Darwin reminded himself to "Never use the words higher and lower" ([Dunayer, 13](#)).

## Who are Honeybees?

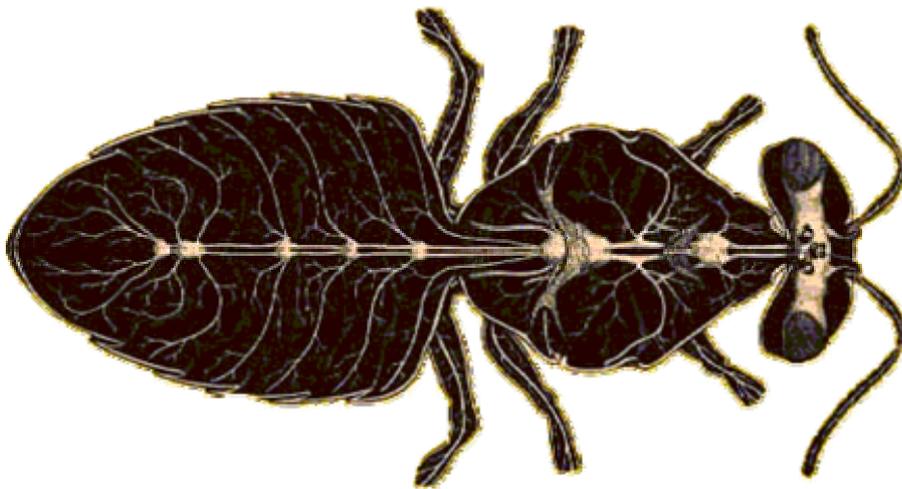
Before we go any further, please take a moment to [meet the honeybees](#).

## Are Bees Smart?

So why do people think they can exploit bees without qualms? Is it because they are not intelligent? There is evidence that says they are. People have been studying bee behavior for hundreds of years, and with good reason. But of course, it's just all pheromones and instinct, right? They act in ways that suggest intelligence, but there's a simple biochemical explanation. (And this is different from humans in what way?) Placing all of this aside, what about a possible bee imagination? The most compelling indication of bee smarts follows. (Yes, it's controversial, but I for one like to err on the side of caution.) Two groups of bees (foragers) from the same hive were trained to two food sources, one on the shore and one in the middle of a lake. When the food quality was increased at both feeders, both groups of bees danced in the hive to tell the rest of the bees where to get the good food. The bees watching the shore feeder dance went out and ate at the shore feeder. Perhaps the bees watching the lake feeder dance, thought, "Flowers in the middle of a lake? This gal must be nuts," and very few bees went to the lake feeder. So at this point you're thinking those bees just didn't want to fly out over a smelly lake? Well, the thoughtful researchers decided to try the experiment again and moved the lake feeder close to the opposite shore (although still surrounded by plenty of water). That time, the bees seemed to have thought the food source to be in a more plausible spot and, following the dance, lots of bees went to both feeders ([Gould, 222](#)).



## What About Pain?



But it really doesn't matter anyway, does it? Vegans typically don't judge species based on their intelligence. If it were ok to eat someone because he's dumb, a lot of *humans* would be in trouble. It must be because bees can't feel pain. But why wouldn't bees feel pain? They are animals with a large nervous system ([Snodgrass, 254](#)) capable of transmitting pain signals. And unlike in the case of plants,

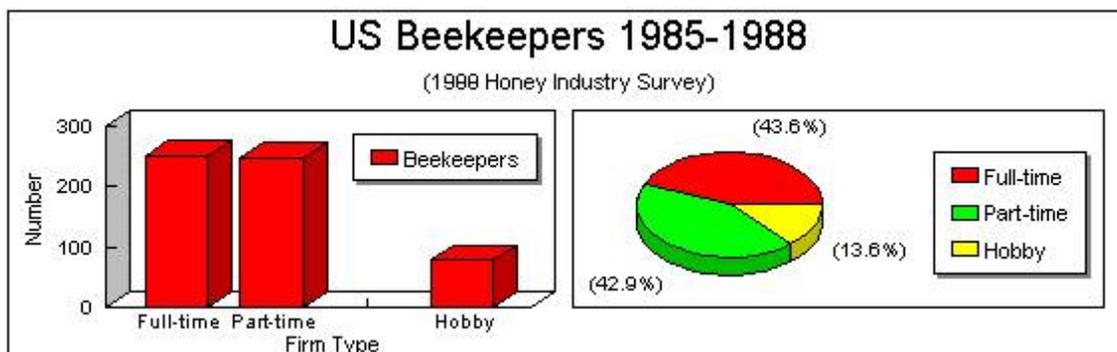
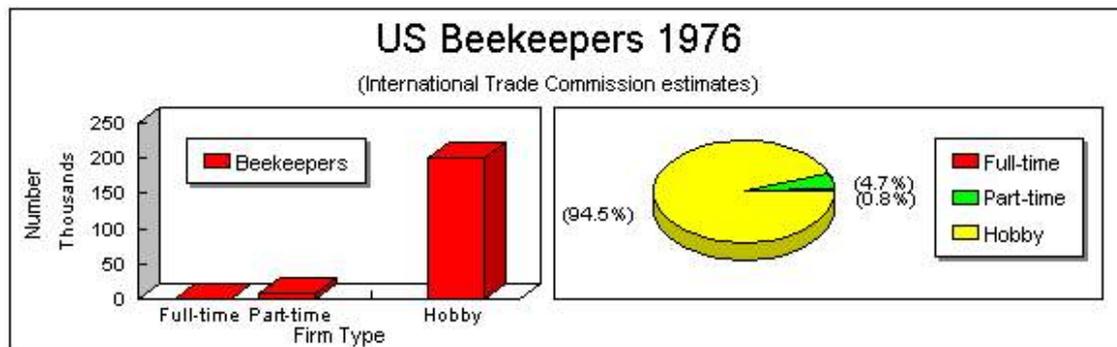
pain as we know it would be a useful evolutionary feature since bees are capable of moving to avoid it. Which, as far as I'm concerned, is all that matters. Pain must be unpleasant or else it wouldn't work. If common sense isn't good enough, we can always resort to [scientific studies](#) that indicate that bees feel pain.

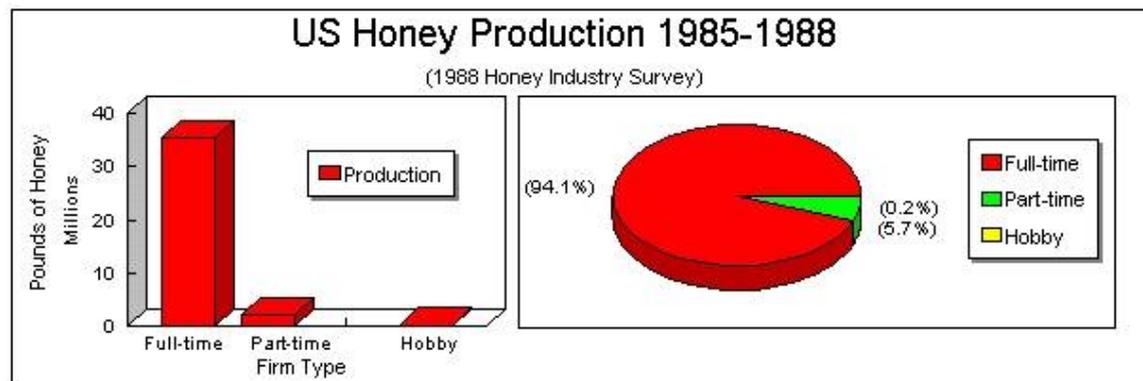
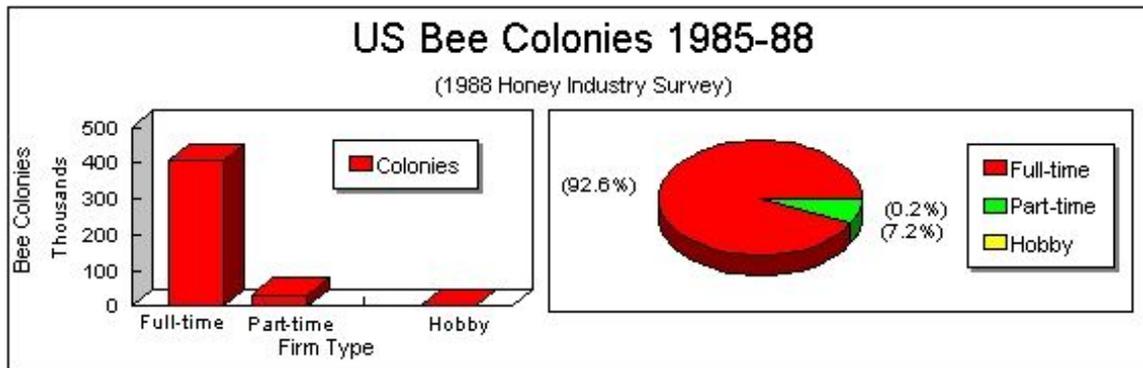
Not being a beekeeper myself, it is hard to say why life would be more painful for kept bees vs. wild bees. The kept bees would seem to have more contact with humans and more bees would die from stinging them. But, again, unless you are a "vegan" who lives on a farm and raises animals with lots of love so you can drink their milk and eat their eggs (??) pain really isn't the issue either.

## The Enslavement of Bees

The simple fact is that the bees are enslaved. What? Bees slaves? Yes, bees as slaves. Or it's dominionism, exploitation of nature, human superiority, whatever you like to call it. It's the idea that humans are justified in using all other life forms instrumentally, for our own benefit. As Alice Walker said, "The animals of the world exist for their own reasons. They were not made for humans any more than black people were made for white, or women created for men." (I would also add that plants and the earth were not made *for* humans either.) What follows is a look at specifically how honeybees are exploited by humans. Note that this follows precisely the same pattern of animal exploitation that vegans seek to end for other species.

It is important to realize who is keeping these bees. You may have an image in your mind of a man (indeed, 5% of US beekeepers are women ([Hoff & Schertz Willett, 10](#))) with a few hives out in his backyard. While that is in fact the proper image of most beekeepers, most honey comes from full-time factory bee farmers; check out some illustrative [charts](#).





A successor queen is selected by a human instead of the reigning queen--both of whom may have been "[artificially inseminated](#)." "Queens can live for as long as five years but most commercial beekeepers replace them every two years" ([Shimanuki & Sheppard, 181](#)) (and often yearly). "Replace" is a euphemism for killing the old queen. Backyard beekeepers also regularly kill their queens. This is done for numerous reasons that all boil down to exerting control over the

hive.

For

example, it is done to prevent swarming, aggression, mite infestation, and to keep honey production at a maximum. Queens come from commercial queen suppliers. The image to the left is hundreds of queens with a few nursing bees in individual cages waiting to be flown around the country ([Beekeeping](#)). Travel can be rough on the queens; according to Eric Mussen, a UC Davis Extension Apiculturist, "Once at the post office or shipping depot, nearly anything can happen. Queens can be over heated, chilled, left out in the sun for hours



(desiccated), banged around in baggage compartments, and exposed to insecticides. Often, the post office or shipping hub fails to contact the customer when the queens arrive and they may sit in storage for days. It is surprising that the queens come through as well as they do" ([Mussen](#)). Finally, colonies (hives) are routinely split in half according to what the keeper wants, not the queen.

When manipulating the bees, most beekeepers use a smoker to maintain control and to prevent some stings. The smoke gets the bees to gorge themselves on honey, which calms them down. The smoke probably also masks the alarm pheromone that the guard bees release and prevents the entire colony from becoming agitated.

During the fall and winter a mouse guard is often placed over the entrance to the hive. Usually, the bees drag their dead out of the hive, but the mouse guard often prevents this from happening. Beekeepers are warned, "it is helpful to remove any pileup of dead bees behind the mouse guard once or twice during the winter" ([Bonney, 116](#)).

Some bees even get to travel all around the country in trucks like the one pictured below or on larger flatbed trailers ([Beekeeping](#)). Beekeepers follow the nectar flows to increase honey production, that is, profits.

You may have the impression that since the bees are not fenced in like cattle, they are free to leave if they wanted to. Read about [swarming](#) to understand why this common misperception is false.



There is often a lack of regard for the bees' lives. In the US, 10 to 20 percent of colonies are lost over the winter. It is partly by accident and partly on purpose. Some beekeepers kill off their hives before winter. This practice can make [economic sense](#). Unfortunately, it is not the small backyard beekeeper, but rather the large, factory bee farmer, so a lot of bees are killed even if most beekeepers don't use the practice. Also, in the process of checking up on the hive and taking the honey, some bees get squashed by the frames or stepped on. Bees who sting the keeper in defense of their home necessarily die. If two colonies are combined, the queen of the weaker colony is killed. So that the honey can be easily removed from the comb, it is often warmed prior to removal. "Bees brought into the warming room with the supers will fly to a window where they can be trapped to the outside by a wire cone or bee escape. If there are no windows in the room other methods such as an electric grid can be used to *dispose* of the stray bees" ([Root, 121](#) emphasis added).



## Stealing Honey

So what do the captives do with their time? In the words of the National Honey Board, "Honey is 'manufactured' in one of the world's most efficient factories, the beehive. Bees may travel as far as 55,000 miles and visit more than two million flowers to gather enough nectar to make just a pound of honey" ([NHB](#)).

Bees gather pollen in sacs and nectar from the flowers. Honey is stored in the hive as winter food for the bees. Yes, sometimes they make more than they can eat, but do the beekeepers only take the extra? No, according to James E. Tew, an Extension Specialist in Apiculture at Ohio State University in Wooster, "Commercial beekeepers frequently extract [steal] all fall-autumn season honey and then feed colonies either sugar syrup or corn syrup in quantities great enough to provide all the winter food the bees would need" ([Tew](#)). (Everyone steals most of the spring-season honey.) Theft of all of the fall-season honey is merely the most blatant form of exploitation. Bees are also often fed in the fall in preparation for winter and in the spring and early summer to ensure the hive gets off to a good start ([Bonney, 131](#); [Vivian, 101](#)). That is, to make the bees start working earlier than they would normally. The sugar that is fed in the fall is turned into honey by the bees, so even if a beekeeper tells you their bees survive on honey over the winter, much of that honey may have simply come from Ziplock bags full of sugar water. A typical hive in the UK uses at least 8 kg (17.6 lbs.) of sugar per year ([Consumers in Europe Group, 21](#)). In the US, a typical figure can be 25 lbs. (So if by chance a vegan doesn't eat bone char processed cane sugar, but does eat honey, they're not doing a lot of good in terms of reducing the demand for sugar.) Some people claim the sugar water is better for the bees than honey, and if this is the case, I don't want to hear any claims about the health benefits of honey or pollen. Sugar water may be better if the bees had particularly poor nectar sources in the fall, but this would not normally be a problem if their spring honey hadn't been stolen. Honey is more than sugars; it contains very small (by human standards) amounts of fats, proteins, vitamins and minerals that bees' bodies might like to use over the winter.



Another thing to keep in mind is the history of beekeeping ([Crane](#)). Honeybees are unique in that they are not domesticated despite a very long relationship with humans. For most of human history, honey was gathered from wild hives. Beekeeping began only 10,000 years ago. Bees were kept in logs, baskets, and pots all lying horizontally to the ground. Bees were also kept in trees in forests and by hanging containers in trees. Eventually in Europe and Asia they turned the containers upright. The earliest recorded use of hives with moveable frames was in 1682 where top bar hives were used in Greece. In nature, bees build combs that hang from the roof of their dwelling and everything is stationary. In top bar hives, the bees build their combs on a wooden bar such that individual combs can be removed by pulling up individual bars. The combs retain their natural U shape at the bottom. These top bar hives were not very widespread. It was not until 1851 that the modern Langstroth hive was invented



(where else but in the US). Here the combs fill up entire frames (like a window screen) and are rectangular. This makes hives stackable and since the frames are of universal size, they can be interchanged between hives and prepared by humans. Additionally, honey extraction equipment can be built due to the standard size. A queen excluder is generally used to keep the queen from laying eggs in the area where the beekeeper only wants honey stored. Additional frames can be added as necessary to allow for and encourage excess honey production. Needless to say, the Langstroth hive caught on very quickly and is the hive of choice today. New technology is on the horizon that allows even greater efficiency in extracting honey ([Lomas](#)). So if a beekeeper tells you that they are only continuing an ancient tradition, keep in mind that the practices they are using are only 100 years old and are radically different from the methods that existed for millennia. They also have nothing in common with non-Western beekeeping methods that emphasize humility, respect, and truly being part of nature, as opposed to managing nature for human gain.



Beekeepers will naturally deny that they are slave owners who steal the products of the bees' labour. They will tell you that they are working with the bees to help them reach their full potential, which just happens to be measured in honey output. (Hmm, remind anyone of recombinant bovine growth hormone?) In addition to being horribly paternalistic, the beekeeper's perspective makes little sense. Under natural conditions, if the hive were producing a surplus, they would divide into two colonies and there would be none wasted. Nonetheless, it is important to regard beekeepers as potential allies. They are often more aware of environmental concerns than other people and may truly care about their bees. A few simple changes in their attitudes would likely make their behaviour acceptable to vegans, although making those changes is not a simple thing. They would need to stop regarding themselves as beeKEEPERS. They would also need to recognize that their role is largely temporary, as a stop gap measure until farmers get their act together and facilitate the growth of native pollinator populations. They should immediately switch to top bar hives, discourage surplus honey production and stop stealing honey. Otherwise, there is too much incentive to exploit the bees and the environment. Top bar hives are less high tech than Langstroth hives, result in less surplus honey, and the users generally have a different mindset ([Satterfield](#); [Caldeira](#)). Keep these things in mind if you are thinking buying locally grown honey from a small apiary--although they are better than large commercial apiaries, they still may share many of the objectionable philosophies. (How much respect can you have for someone if you are taking advantage of her?) Finally, beekeeping varies due to the different environments in which it occurs. Beekeepers are an opinionated group (like vegans). Just because one beekeeper tells you that one of the practices I've described is crazy and something he would never do, doesn't mean that another beekeeper thinks he is crazy not to.

## "Products" of the Hive

So how exactly is honey made? The bees swallow nectar into their crop, regurgitate it, add enzymes (spit), chew, swallow and repeat many times. Not a pretty picture, but it does make for a [funny cartoon](#)

or [two](#). Beekeepers get very defensive about this aspect of honey. One told me "Honey is not a regurgitant. Regurgitation is a digestive process." Ok, well, whatever you call it they still swallow it and spit it back up. And they do partially digest it, so I don't see how it's not a "digestive process." He went on to tell me "If you have a problem with nature's processes perhaps you should stay out of nature," which makes me wonder why he has a problem with me pointing out nature's processes to others. The bottom line is that beekeepers get mad that I mention how honey is made, because it's something they'd rather you not think about. With [one exception](#), this aspect of honey production is not used as a marketing tool. You can't even find out how honey is made at the [National Honey Board's](#) website! (OK, after all these years, they finally [added a little, vague line](#)--I like to think in response to this website--"bees use their honey stomachs to ingest and process the nectar a number of times.")

Of course, honey is not the only product of bee exploitation. The following are other bee products to watch out for:

- Bee venom is obtained when the bee stings someone or something. The bee dies if she stings someone.
- Bee pollen is pollen collected by bees in sacs on their legs. It also contains some nectar and bee saliva. It is popular because humans cannot collect such a wide variety of pollen.
- Royal jelly is the nutritious food (for bees) fed only to the queen. It literally makes workers into queens.
- Beeswax is secreted by bees to build their hives.
- Propolis is plant resin collected by bees and mixed with enzymes. It is used around the hive as glue and as an antiseptic.
- [Bee brood](#) are bees that are not fully developed. Not even vegetarian.

## You Can Make a Difference

The average American consumes 1.1 lb. (0.5 kg) of honey annually ([National Honey Board](#)). The average person in the UK consumes 0.3 kg (0.66 lb.) a year ([Consumers in Europe Group, 21](#)). Germans consume a whopping 4.3 kg (9.5 lb.) a year ([Sue Bee](#)). Honey is the main source of [income](#) for beekeepers ([Hoff, 4](#)). According to Hachiro Shimanuki and Walter Sheppard of the USDA Agricultural Research Service, "In recent years the honey bee industry in the United States has faced many difficult problems. Foreign honey imports and lower honey prices coupled with increased costs of production have created considerable financial challenge." However, they went on to say that "Fortunately, the demand for one of the direct products of the insect, honey, shows signs of increasing" ([Shimanuki & Sheppard, 184](#)).

Just like the "meat" and "dairy" industries, the beekeeper's have their own [National Honey Board](#) designed to promote honey using a US\$3 million dollar budget. Unfortunately, it seems to be working. In addition to the hordes of mainstream products adding honey, say Grey Poupon Honey Mustard, Honey Wheaties, Hidden Valley Honey and Bacon French Dressing, etc., honey dominates the health food market. The National Honey Board is currently on a campaign to increase honey consumption by about 20% in the next four years and one of their main strategies is the following: "Encourage the widespread use of honey in 'healthy lifestyles' by positioning honey as both a healthy food and as an ingredient in products with medicinal value" ([NHB](#)). "A shift in strategic focus to position honey as a 'healthy' product that should be used as an ingredient in foods and medicines aimed at health-conscious

individuals" ([NHB](#)). Their use of the word "healthy" in quotes says it all--it's all a lie, it's just a marketing tool.

Do you think no one will notice if you eat honey? I assure you, they are watching closely! The National Honey Board newsletter always ends with a section listing new products containing honey. They even go so far as to monitor sales of honey products with respect to similar honey-free products. I strongly recommend viewing the [National Honey Board Handbook](#) (pdf) for a sampling of their work.

Of course it's not always enough to not eat something. Why not let companies know you're not buying their products because they have honey in them? This is a particularly urgent issue in the "health food" area since there are an increasing number of products containing honey that would otherwise be vegan. You can email companies from the [feedback](#) page.

## Common Questions

Don't honeybees pollinate agricultural crops and are otherwise good for the environment? Actually, bees are [harmful to the environment](#). That link also covers the comparative environmental impact of honey versus other sweeteners.

But don't you [kill other bugs](#)?

What about free range honey? If you want free range honey you would have to go out into the woods and stick your hand in a bees' hive and grab some for yourself. Of course, you probably won't find a colony because they've all been killed off (see the [environment section](#)). If you did find one, the theft would destroy their home and you'd get some nice stings. Unless of course, you are part of a culture that has a sustainable (i.e., thousands of years old) tradition of respectfully gathering honey like that found in the Malaysian rainforest where honey hunters climb 100 foot trees to take honey from the giant *Apis dorsata* ([Buchmann & Nabham, 145](#)).

But isn't honey (or pollen or royal jelly) good for you? Doesn't it prevent allergies? Don't bee stings cure MS? Isn't honey more nutritious than sugar? Check out the [health aspects](#) of honeybee products.

But what do I eat / wear / burn / floss with [instead of honey and beeswax](#)?

Isn't this site [biased](#)?

## Further Information

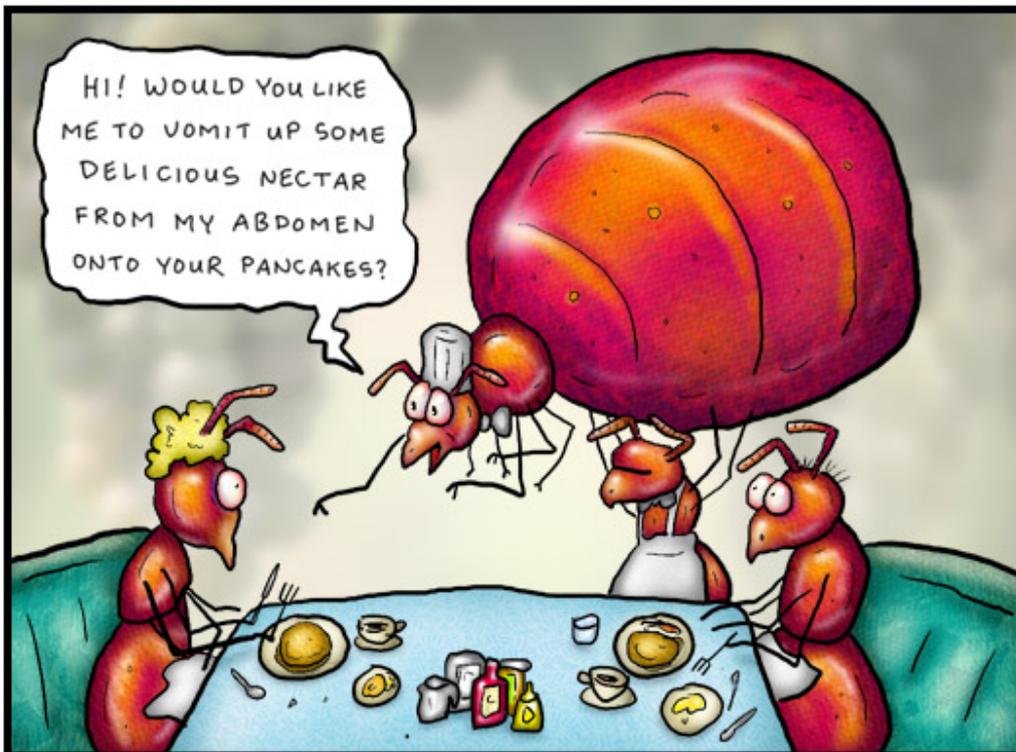
I recommend reading the following:

- [Honey Bee Temperament](#) Honeybees sting.
- [Fall Feeding](#) Yes, beekeepers really do feed their bees sugar.
- [Bee Talk](#) A lifelong beekeeper talks about how bees are quite intelligent.

- [Toward an Appropriate Beehive](#) A must read for those concerned with industrialization. An alternative beekeeper points out the evils of traditional beekeeping. Also, some large-scale beekeepers kill off their hives before winter.
- [How bees make honey](#) by Claude Needham Ph.D. Did you know each droplet of nectar is swallowed and regurgitated fifty times?
- When bees find food, they go back to the hive and do a specific dance to let the rest of the hive know exactly where to go to find the flowers. Videos of honeybee dancing:
  - [The waggle dance explained](#) (The narrator can't get the bees' pronouns right--using "it" then "his." She is the appropriate pronoun.)
  - [Experimenting on bees isn't cool](#)

## DOCTOR FUN

18 May 2000



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<http://metablab.unc.edu/Dave/drfun.html>

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Breakfast at the Honeygot Ant Diner

## Fun Facts about Bees

[http://www.beeright.com/fun\\_facts/bees.shtml](http://www.beeright.com/fun_facts/bees.shtml)

### Honey Bees



- 🐝 The honey bee has been around for 30 million years.
- 🐝 It is the only insect that produces food eaten by man.
- 🐝 Honey bees are environmentally friendly and are vital as pollinators.
- 🐝 They are insects with a scientific name - *Apis mellifera*.
- 🐝 They have six legs, two eyes, and two wings, a nectar pouch, and a stomach.
- 🐝 The honeybee's wings stroke 11,400 times per minute, thus, making their distinctive buzz.
- 🐝 A honey bee can fly for up to six miles and as fast as 15 miles per hour, hence, it would have to fly around 90,000 miles - three times around the globe - to make one pound of honey.
- 🐝 Honey bees are almost the only bees with hairy compound eyes.
- 🐝 A honey bee visits 50 to 100 flowers during a collection trip.
- 🐝 Honeybees can perceive movements that are separated by 1/300th of a second. Humans can only sense movements separated by 1/50th of a second. Were a bee to enter a cinema, it would be able to differentiate each individual movie frame being projected.
- 🐝 Honeybees' stingers have a barb which anchors the stinger in the victim's body. The bee leaves its stinger and venom pouch behind and soon dies from abdominal rupture.
- 🐝 Honeybees communicate with one another by "dancing" so as to give the direction and distance of flowers.
- 🐝 The average honey bee will actually make only one twelfth of a teaspoon of honey in its lifetime.
- 🐝 Honey bees produce beeswax from eight paired glands on the underside of their abdomen.
- 🐝 Honey bees must consume about 17-20 pounds of honey to be able to biochemically produce each pound of beeswax.
- 🐝 Honey bees are entirely herbivorous when they forage for nectar and pollen but can cannibalize their own brood when stressed.
- 🐝 The honeybee is not born knowing how to make honey; the younger bees are taught by the more experienced ones.

### Queen Bee



- 🐝 The queen is the only sexually developed female in the hive.
- 🐝 The queen bee lives for about two to three years and is the only bee that lays eggs. She is the busiest in the summer months, when the hive needs to be at its maximum strength, and lays up to 2500 eggs per day.
- 🐝 A queen can lay her weight in eggs in one day and 200,000 eggs in a year.
- 🐝 Fertilized eggs will become female offspring, while unfertilized eggs will become males.
- 🐝 The queen may mate with up to 17 drones over a 1-2 day period of mating flights.
- 🐝 The queen stores the sperm from these matings in her spermatheca, thus, she has a lifetime supply and never mates again.
- 🐝 A queen bee can control the flow of sperm to fertilize an egg when she is about to lay an egg. Honey bees have an unusual genetic sex determination system known as haplodiploidy. Worker bees are produced from fertilized eggs and have a full (double) set of chromosomes. The males, or drones, develop from unfertilized eggs and are thus haploid with only a single set of chromosomes.

### Drone Bees



- 🐝 The male honey bees are called drones, and they do no work at all, have no stinger, all they do is mating.

### Worker Bees



- 🐝 The workers are sexually undeveloped females.
- 🐝 Worker honey bees live for about four weeks in the spring or summer but up to six weeks during the winter.
- 🐝 The brain of a worker honey bee is about a cubic millimeter but has the densest neuropile tissue of any animal.

- 🐝 In the course of her lifetime, a worker bee will produce 1/12th of a teaspoon of honey.
- 🐝 Only worker bees sting, and only if they feel threatened and they die once they sting. Queens have a stinger, but don't leave the hive to help defend it.
- 🐝 It is estimated that 1100 honey bee stings are required to be fatal.

### Bee Colony



- 🐝 A colony of bees consists of 20,000-60,000 honeybees and one queen.
- 🐝 Each honey bee colony has a unique odor for members' identification.
- 🐝 The honeycomb is composed of hexagonal cells with walls that are only 2/1000 inch thick, but support 25 times their own weight.
- 🐝 During winter, honey bees feed on the honey they collected during the warmer months. They form a tight cluster in their hive to keep the queen and themselves warm.

### Metallic Green Bee



- 🐝 Metallic blue or green sweat bees are considered to be "solitary bees" (small colonies) as opposed to "social bees" (large colonies).
  - 🐝 They often build their nest in the soil.
  - 🐝 The female bees create chambers within the soil where they lay their eggs on the pollen balls.
  - 🐝 Sweat bees are known for their habit of licking sweat from people or animals.
  - 🐝 They gather pollen to provide for their offspring.
  - 🐝 Because they don't have a large nest with a lot of offspring to defend, solitary bees tend to be less defensive than bees that live in larger groups (or "social bees").
  - 🐝 Although the females are capable of stinging, they only do so if trapped or otherwise threatened.
  - 🐝 They may be considered to be beneficial because they pollinate crops and native plants.
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## References

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2. Carl Hayden Bee Research Center - <http://gears.tucson.ars.ag.gov/ic/trivia.html>
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**Bees** are flying [insects](#) closely related to [wasps](#) and [ants](#), and are known for their role in [pollination](#) and for producing [honey](#) and [beeswax](#). Bees are a [monophyletic](#) lineage within the superfamily [Apoidea](#), presently classified by the unranked taxon name **Anthophila**. There are nearly 20,000 known species of bees in seven to nine recognized families, though many are undescribed and the actual number is probably higher. They are found on every continent except [Antarctica](#), in every habitat on the planet that contains insect-pollinated [flowering plants](#).

Bees are adapted for feeding on [nectar](#) and [pollen](#), the former primarily as an energy source and the latter primarily for [protein](#) and other nutrients. Most pollen is used as food for [larvae](#).

Bees have a long [proboscis](#) (a complex "tongue") that enables them to obtain the nectar from [flowers](#). They have [antennae](#) almost universally made up of 13 segments in males and 12 in females, as is typical for the superfamily. Bees all have two pairs of [wings](#), the hind pair being the smaller of the two; in a very few species, one sex or caste has relatively short wings that make flight difficult or impossible, but none are wingless.

<http://a-z-animals.com/animals/honey-bee/>

The honey bee is a small sized bee that inhabiting quiet forests, jungles, meadows and gardens all over the world. There are only 7 recognized species of honey bee out of 20,000 different bee species found worldwide, but these individual species often contain their own subspecies. There are 44 known subspecies of the 7 species of honey bee.

The honey bee is a herbivorous [animal](#) and therefore lives purely on the nutrients from plants. Honey bees prefer to ingest the sweeter plant produce such as nectar, pollen, fruits and even honey.