The best beekeeping manual Kawakawa has ever made

Everything you need to know about keeping bees at Wā Ora Montessori School. Information abounds within these pages!

Contents

Pros and cons to keeping bees

Pros

Of course the obvious advantage, and the product honey bees are well known for is their **honey**, The bees make more than they need. For the beekeepers using a langstroth hive (See the Hives section for more information) it is easy to extract the honey that isn't needed :)
Another product that is often extracted is beeswax, this is made into beauty products (lip balm), soaps and candles.

Bees pollinate your garden. Bees will fly **2.4km** to collect nectar and pollen, For many beekeepers, this is a massive advantage, as the bees will pollinate their gardens and flowers nearby.[1]

As well as this, beekeeping is a job you can get enough money to live from.. People get income from doing this, by selling the honey, the beeswax and sometimes even the bees.[2]

Many beekeepers actually find watching bees very calming and relaxing. To watch the bees at work, to just stare and do nothing but admire the hard work of the bees, and to relax in the sun..[3]

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[1] http://www.dummies.com/how-to/content/discovering-the-benefits-of-beekeeping.navId-402228.html http://library.huttcity.govt.nz/cgi-bin/spydus.exe/ENQ/OPAC/BIBENQ/15477385?QRY=CTIBIB%3C%20IRN(14196089)&QRYTEXT=Beekeeping%20%3A%20a%20practical%20guide

[2] http://library.huttcity.govt.nz/cgi-bin/spydus.exe/ENQ/OPAC/BIBENQ/15477385?QRY=CTIBIB%3C%20IRN(14196089)&QRYTEXT=Beekeeping%20%3A%20a%20practical%20guide

[3] http://www.dummies.com/how-to/content/discovering-the-benefits-of-beekeeping.navId-402228.html http://library.huttcity.govt.nz/cgi-bin/spydus.exe/ENQ/OPAC/BIBENQ/15477385?QRY=CTIBIB%3C%20IRN(14196089)&QRYTEXT=Beekeeping%20%3A%20a%20practical%20guide

Cons

A big problem is the bees' stingers. The worry of getting stung is a reality of beekeeping but the chances of it happening can be minimised, but also for those unlucky people who are allergic that's when the problems kick in.(See the Allergies section for more information)[4]

With hundreds of hives on the go, as many successful beekeepers have, It can be very time consuming, and their hives are usually spread out over many properties depending on how many hives they have. You could say they are 'as busy as a bee' and they almost work themselves to death during the summer, however as winter rolls around the bees stop venturing outside so much and stay indoors keeping warm, meaning the beekeepers are only needing to check on the hives every 2 months or so instead of every 2 weeks. (In our case it won't be too hard as we wont have many hives and they will all be on the same property)[5]

For those who are beekeeping as a hobby and aren't earning money the whole process is quite expensive. (If you want more information or the cost list visit the cost section)[6]

[4] http://www.dummies.com/how-to/content/discovering-the-benefits-of-beekeeping.navId-402228.html
[5] http://www.dummies.com/how-to/content/discovering-the-benefits-of-beekeeping.navId-402228.html
[6] http://www.dummies.com/how-to/content/discovering-the-benefits-of-beekeeping.navId-402228.html

Looking after and maintaining honey bees.

Abby, Samara, Silas, Grace, Emily, Innes, Felix, Rose, Ella, Stuart, Ashlea, Fraser, Danielle, Jayna, Seth, Logan, Katy Zhou, Joshua, Tully, Hunter, Isaac, Neha, Dylann, Celia, Bethany, Katy Bell, Ethan, Marcus, Una, Naomi and Sebastian, have volunteered to be the beekeepers. As the beekeepers they have to look after the bees and maintain their hives. You will also produce and sell, the honey and beeswax. All job duties and answers are listed below with some useful skills, good luck.

Intro-duction :

Work: As beekeepers they will tend to do work in the peak seasons of summer and autumn. Beekeepers work a few hours through summer and autumn. Throughout the year as a beekeeper, they may have to work irregular hours, they may work through evenings, weekends and holidays. They must work in all types of weather, and will sometimes be stung by bees, but will try to avoid this. As beekeepers, you must follow the safety instructions and wear protective clothing in order to avoid injury to themselves and others when working with machinery, tools, hives and bees.

Job duties:

You will……

- Maintain and make sure you have healthy bees, for pollination and honey production
- Make sure the bee colonies are prepared for production and wintering
- Make sure that your bees have enough food resources
- Inspect that there are no diseases or parasites affecting the colony
- Identify, report, monitor and fix hive health issues
- Collect, package and sell the honey and beeswax
- Maintain the bee yard and all related equipment
- Maintain the records regarding the condition of the colony and the production levels
- Ensure food safety and follow guidelines and regulations when harvesting and processing the honey and other hive products

Useful skills for beekeepers .

You have to……

- Know rough knowledge of the yearly cycle and habits of bees
- Know how to approach bees
- Know your plant types
- Have knowledge of how and when plants produce pollen and nectar
- Be able to identify, control and fix any bee diseases
- Be able to extract honey, wax, royal jelly, pollen and propolis (the royal jelly is what the queen eats and propolis is mixed with the wax to create the combs on the frames)
- Be able to fix, repair and build hive boxes
- Know how to use the tools and equipment provided
- Know some small business skills

Information about job duties and useful skills

You can……

- Find out more about collecting,extracting the honey and how to use the equipment in "Preparing the honey"
- Find out more about looking after your bees in the "Bee" section
- Find out more about pests, starvation and moisture to your bees and hives in "Hive problems and how to handle them!"
- Research the other things you don't know, like how do you fix a beehive or how to maintain a beehive.

Bee Climate

Any climate is ok. Bees adapt to different climates very well. That is why they can live in cities when at first they were mainly in the country. As bees are so flexible, you do not need to paint a perfect picture for them. But it is best if you can make it is perfect as you can. Here are some main thing you need to know about keeping bees.

Things to know

1. Hives should be put away from roads, footpaths and traffic.

2. Keep your hive away from other people and out of sight. Neighbours could be a problem because of all the bee myths of them hurting people. Keep them out of sight will help reduce the amount of complaints. After all, "Out of sight, Out of mind."

3. A water source is needed for the bees. A river or stream is perfect for this but you can use a bird bath with pebbles at the bottom so the bees don't drown. A water source can also be puddles as long as they are there when the bees need them.

4. Keep the hygiene level of the hive at a high standard. If the frames need changing, change them (See Victor's Beekeeping and Bee Work for more info). If the hive needs fixing, fix it.

5. The sun is vital for the bees. Bees breath out moisture like humans. Sun is also needed for dehydrating the nectar. In a perfect world the bees would get a few hours sun in the morning then have shade in the afternoon.

6. Higher ground is better for a hive. No, don't put it on a mountain but put it somewhere where the bees have to fly up to get out of the hive.

7. Wind. You want to place your hive in a place where it is not going to get very much wind at all. Wind makes it harder for the bess to control the temperature of the hive and it also makes it harder for them fly out of the hive.
8. Lastly, make the hive accessible. This is more for the convenience of you rather then the bees.

Types of Hives

Langstroth hive

A Langstroth hive is a hive made up of stacked boxes of various depths, a floor, inner cover and roof. Within each box are wooden frames in which the bees build their comb. It is the most common hive in North America and Australia.

Pros

- Easy to manage
- Good Ventilation
- Great Standardization
- Easy to move
- Easy to harvest

Cons

- The cost
- Doesn't look very nice

Skep hive

Skep hives are baskets placed open-end-down, have been used for about 2000 years. Initially they were made from wicker plastered with mud and dung but from the Middle Ages they were made of straw. In northern and western Europe, skeps were made of coils of grass or straw. In its simplest form, there is a single entrance at the bottom of the skep. Again, there is no internal structure provided for the bees and the colony must produce its own honeycomb, which is attached to the inside of the skep.

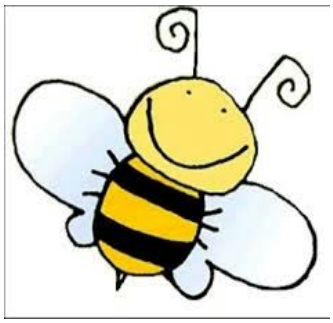
Natural hives

Honey bees use caves, rock cavities and hollow trees as natural nesting sites. Members of other subgenera have exposed aerial combs. The nest is composed of multiple honeycombs, parallel to each other, with a relatively uniform bee space. It usually has a single entrance. Western honey bees prefer nest cavities approximately 45 litres in volume and avoid those smaller than 10 or larger than 100 litres. Western honey bees show several nest-site preferences: the height above ground is usually between 1 metre (3.3 ft) and 5 metres (16 ft), entrance positions tend to face downward, Equatorial-facing entrances are favored, and nest sites over 300 metres (980 ft) from the parent colony are preferred.

Bee gum Hive

In the eastern United States, especially in the southeast, sections of hollow trees were used until the 20th century. These were called "gums" because they often were from black gum trees.Sections of the hollow trees were set upright in "bee yards" or apiaries. Sometimes sticks or crossed sticks were placed under a board cover to give an attachment for the honeycomb. As with skeps, harvest of honey from these destroyed the colony. Often the human bee "robber" would kill the bees before even opening their nest. This was done by inserting a metal container of burning sulfur into the gum.

Hive problems and how to handle them!



Beekeeping isn't always just honey and fun. There are a lot of problems and diseases that you have to look out for when keeping bees. The main problems that I will be talking about are mites, starvation, swarming and moisture in the hives.

Mites

The varroa mite is a massive problem in the beekeeping world. They weaken individual bees causing the entire hive to slowly die out if not treated. They also carry around at least fifteen different viruses.

The female varroa mite is a copper colour and can easily be seen (about the size of the top of a pin), the male varroa mite however is considerably smaller and is a more pale colour.

The female varroa mites lifespan is 2-3 months in the summer and 6-7 months in the winter.
The female mites cling to the adult bee and suck their blood. On day five of their lifespan they enter a brood chamber to produce offspring who, in turn suck the blood of the bee developing in the brood chamber. Mite infested bee colonies almost always die within 2 to 3 years. Infestation with mites usually takes place in late Autumn to early spring. Treatments include chemicals on paper strips, and poisonous gels. Other methods include drone cell traps and dusting with powdered sugar [7].

You can find out if you have mites by using this trick:

The sticky board method[8]

This method estimates the total number of mites in the hive.

1. A 'board' is constructed from a stiff sheet of white paper.
2. The upper surface of the paper (facing the bees) is sprayed with an aerosol cooking spray to create a homemade sticky board.
3. The board or paper is placed between two 8-mesh wire covers (with one cover on the top and one on the bottom) so that the bees do not stick to the aerosol cooking spray.
4. Place the sticky board on the bottom floor of the hive. Some of the mites will fall off the bees, fall through the mesh screen, and stick to the white board.
5. Remove the board 24 hours later, and count the total number of mites on it. If the number of mites is between 60 and 190 (depending on the amount of bees you have in

[7] http://www.dummies.com/how-to/content/how-to-control-a-varroa-mite-problem-in-your-bee-h.html

[8] http://www.cals.ncsu.edu/entomology/apiculture/pdfs/2.03%20copy.pdf

your hive) you should get some information on options for getting rid of your mite infestation.

Starvation

Having enough honey supplies to last the winter and colder months, when bees are not collecting as much nectar and pollen, is very important to your hives survival. If the bees go through their winter food supply too fast, they will find it very hard to start making honey again, and might even starve.

But the most common problem with starvation is not having enough bees in your hive. Not having enough bees in your hive during the colder months can cause a cluster of bees to become colder as they huddle together, which means they can not move closer to the honey.

You can resolve this by moving the honey frames closer to the middle of the hive. You should also be prepared to give the bees additional food, as the bees often starve in early spring after winter. This additional food may consist of feeding the bees sugar water, which is just white sugar mixed with room temperature water, as soon as the bees are active. But many beekeepers prefer to just provide honey, or even four or five honey frames.

Swarming

It's very annoying when your hive swarms. It's when the hive gets too big causing the current queen bee takes around half the hive and takes them to another home. A swarm can happen any time, although it usually takes place early in the spring, when the bees need to focus more on getting nectar and pollen. If it takes place just before winter there won't be enough bees to keep themselves warm when moving to get their winter supply of honey. Knowing when the bees are going to swarm is an extremely hard thing to do, especially if you are a beginner beekeeper, since it's up to the honey bees to decide when they think the conditions are right to swarm. But if you miss time they swarm, you lose half your hive.

To prevent a swarm, it's good to know your hive and the nature of the bees, so you can notice any changes in their activities. Another thing to do, to prevent a swarm altogether, is to split large hives. When you split the large hives, it's good to put a few frames (with the bees on it, but not the queen) into a smaller, weaker hive. the frames you put in the weaker hive should be relatively empty of honey, so the queen can lay, but to have enough pollen in it for them to start making honey.[9]

[9] //www.uky.edu/Ag/Entomology/ythfacts/4h/beekeep/basbeop.htm

Moisture in your hive

Moisture in your hive is a surprisingly important problem. It can wipe out a whole colony if left for too long. It causes lots of bees to die because being cold makes them susceptible to diseases. Moisture also generates an environment where mold grows well.

Mould isn't necessarily a bad thing to have in your hive, it grows in the winter on the thin layer of debris on the ground of the hive. It's best to leave it there, because it won't do any harm to the bees.

Like most animals, bees generate heat. The heat rises in the hive, then cools on the ceiling and walls, to drip and run down onto the bees and their living areas.
Watery living conditions makes the bees cold and unhappy, which weakens their health. This makes them susceptible to disease, especially fungal diseases like chalkbrood, which infects their gut.

Moisture is less of a problem in modern hives, which have built-in ventilation, such as meshed floors and air holes in walls. The solution to moisture is to increase airflow throughout the hive, with extra air holes or other means of letting air into the hive. Well insulated hives can remain warm even when the airflow is increased[10].

By Nea Blackham

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http://www.hobbyfarms.com/crops-and-gardening/5-hive-problems-and-how-to-fix-them.aspx

Allergies

what are we going to do about Allergies?

NO MATTER WHAT PULL THE STINGER OUT

well there only 5 people in the class have an allergic reaction to bee stings. I will describe to you what the reaction to a bee sting will look like. well for starters there will be swelling of the face, throat or mouth tissue. They would also have trouble breathing as well. They could also fall unconscious for 10 minutes or less. this type of reaction can occur within minutes after a sting and can be fatal. So if you see this happen to a Student or a Teacher then run as fast as you can to get some help and call 111. when you go to take the stinger out don't pull it out just give it a flick other wise you'll give the person the full dose and that is BAD. If you are allergic to bees then please please don't go near them and try not to wear a flower top or pants because it might attract them to you. If you got stung and are not allergic then you can put either ice for 20 minutes, vinegar on a tissue or honey.

Cost of beekeeping

Equipment for starting up

Suit: $120
Smoker: $30
Hive: $190
Wooden frames: $50
Bees: $100
Queen bee: $30
Hive tool: $18

Total: $528

Equipment for extracting honey

Honey strainer: $20
Frame extractor: $450
Honey grade pail: $20
20 Honey jars: $15
Bee tub: $10
Honey trowel: $40

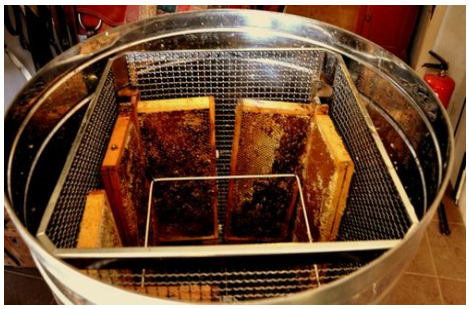
Total: $555

Grand total: $1,083

Preparing the honey

First step you need to do is put all your gear on so you won't get stung. Then go to your hive and get the smoker out to calm down the bees once the bees have calmed down get one frame at a time with the frame gripper and gently brush the bees off with your hand, put the frames in a secure box so they stand upright and then carry the box to where you will extract the honey.
now you are ready to harvest the honey. You will need to go and get out your heated uncapping knife, when you uncap the wax cells remember to do both sides.
Once you are done you will be able to put the frame in the honey extractor
Once the extractor has stopped spinning wait for a minute so the honey will be able to fill up the bottom, get a bucket and put a strainer over it so when the honey pours out it will catch the unwanted wax cells so you have nice smooth honey then open up the valve and let the pour.



Hooray for honey!!

For more information on honey and how it could be used go to the pros and cons section (page 1)

What laws apply to beekeeping?

The Hutt City Council has a bylaw about beekeeping in urban areas. It says:

> **6 HEALTH AND SAFETY ISSUES FROM BEEKEEPING**
>
> **6.1** No person may keep bees in such a way so as to create a danger to the health and safety of persons in the vicinity.

And that's it! It's only one sentence long. All we need to do is to make sure our bees don't danger people.

First, let's list all the ways bees can endanger people.

Every single way bees can endanger people

1. Getting stung

A very short list, huh? If no one gets stung, they're no danger to anyone. So how do we stop people getting stung?

How to avoid getting stung

Bees only sting when they think you're a threat. So don't be a threat. Bees are more likely to be defensive close to their hive[11]. Avoid the hive and they'll avoid you. If you're VERY unlucky, you might step on a bee in the grass. Wear shoes outside if you're worried. Also, don't swat at them. If you leave them alone, they'll leave you alone. If you try to hit them, they'll try and sting you.

Other tips to avoid getting stung[12]

1. Don't smell like a flower (perfume, etc.)
2. Don't look like a flower (bright colours or flower patterns)
3. Be still around bees. They get bored once they realise you're not a flower.

Remember, if you're not a flower or a threat, bees don't care about you :)

[11] https://en.wikipedia.org/wiki/Bee_sting

[12] http://insects.about.com/od/antsbeeswasps/a/10-tips-to-avoid-bee-stings.htm

12 Ways to Help Wild Bees

1. Plant a variety of flowers that bloom from early spring to late fall.

Don't expect native bees to wait around until your vegetable crops bloom. Bees need pollen and nectar to live, and if they can't find flowers in your yard, they'll move elsewhere. Digger bees begin foraging as soon as spring arrives, while bumblebees and dwarf carpenter bees are still active in the fall. Plant a variety of flowers to provide blooms from early spring to late fall, and you'll keep native bees happy all year.

2. Cut back on the mulch.

Gardeners love mulch, and it does have its benefits. But look at the mulch from a bee's perspective. Ground-nesting bees dig nests in the soil, and a layer of mulch will discourage them from taking up residence in your yard. Leave a few sunny areas free of mulch for the bees.

3. Minimize your use of weed barriers.

Ditto on the weed barriers. If you don't like to weed, barriers of black plastic or landscape fabric may be an easy solution for keeping the garden weed free. But bees can't tear through these barriers to reach the soil surface, so rethink your weeding strategy. If you must use a barrier, try laying down newspapers instead – they'll biodegrade over time.

4. Leave some sunny areas of your yard free of vegetation.

Many native bees nest in the ground; these bees usually seek out loose, sandy soils free of vegetation. Leave a few patches of ground so they can burrow, and they won't have to travel so far to pollinate your flowers. Remember, bees like it sunny, so try to designate plant-free areas where there's enough sun exposure to please them.

5. Provide some wood for carpenter bees.

Carpenter bees look for soft wood, such as pine or fir, in which to make their homes. While you might consider them pests when they burrow into your deck or porch, they rarely do any structural damage. Carpenter bees don't feed on wood (they feed on nectar and pollen!), but do excavate nests in lumber. Let them be, and they'll pay you back by pollinating your fruits and veggies.

6. Plant pithy vines or canes for dwarf carpenter bees.

Dwarf carpenter bees, which grow to just 8mm, spend their winters nestled inside hollowed out canes or vines. Come spring, the females expand their pithy burrows and lay eggs. Besides providing these native bees with homes, you're providing food; dwarf carpenter bees love to forage on raspberries and other cane plants.

7. Limit pesticide use.

This much should be obvious, right? Chemical pesticides, particularly broad spectrum pesticides, can negatively impact native bee populations. Use pesticides conservatively, or better yet, not at all. By doing so, you'll also encourage beneficial predators to stick around and feed on your insect pests.

8. Leave some leaf litter in your yard.

Digger bees burrow in the ground, but they don't like their homes exposed. They prefer to make their nests in places with a little leaf litter to camouflage the entrance. Put down that rake and leave a few areas of your yard the way Mother Nature intended it.

9. Don't mow your lawn so often.

Bees like to hang out in your lawn, especially when on warm, sunny afternoons. Many "weeds" provide good sources of nectar and pollen, so bumblebees and other native bees may be foraging underfoot. Mowing kills bees, and trims the flowers that feed them. Try to let your lawn grow a little longer before you mow. When you do need to trim the lawn, do it during the cooler parts of the day or when it's cloudy to avoid killing foraging bees.

10. Provide a source of mud for mason bees.

Mason bees are known for their skilled nest construction. They look for existing holes in wood, then carry mud to the site to craft their nests. If you've got some exposed soil in your yard, keep it moist for these native bees. You can also provide a shallow dish of mud to encourage mason bees to make their home in your yard.

11. Leave some weeds for the bees, and limit your herbicide use.

Pollen bees don't discriminate between your prized perennials and the weeds in your lawn. Weeds are wildflowers! Bumblebees love clover, so don't be so quick to break out the weed killer when clover invades your lawn. The greater the diversity of flowering plants in your yard, the more native bees you'll attract to pollinate your plants.

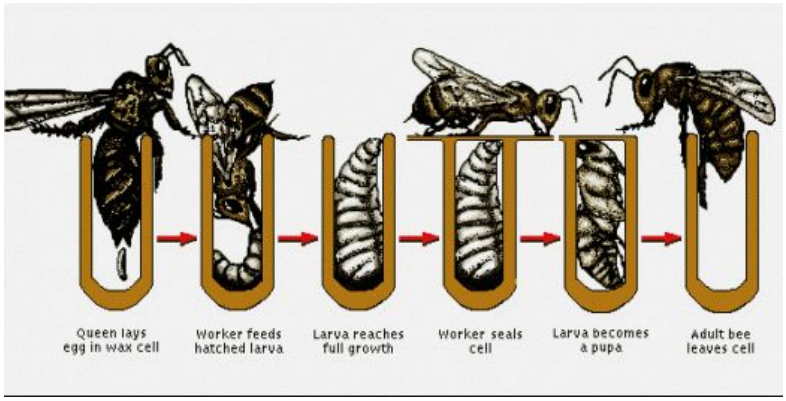
12. Install some artificial nests for mason and leafcutter bees.

Both mason bees and leafcutter bees make tube-shaped burrows, in which they lay their eggs. These bees don't usually excavate their own burrows, preferring to find existing cavities and build within them. Fill a coffee can with a bundle of drinking straws, mount it to a fence post in a protected area, and you've got yourself an artificial nest for these efficient pollinators. If you're handy, drill some holes in a block of pine or fir wood instead.

The Life Cycle of a Worker Bee

There are 3 different types of honey bees that work together in the hive - the queen, the drones and the worker bees. The hive could not survive if any one of these types wasn"t there.

A worker bee will live for 40 - 41 days (approximately 6 weeks) after becoming an adult bee. A worker bee actually works itself to death, as it will work its entire life, changing tasks as it gets older.



The queen bee will start the life cycle by laying an egg. She will lay up to **2,000** eggs a day. After three days the egg will hatch into a larva. The larva is fed 1,300 times a day. Once the larva reaches full size, the worker bees will 'cap' it by putting a thin layer of wax over the cell. After 21 days, the pupa has become a adult bee, the hairs have grown and the eyes and wings have formed. The bee will 'chew' through the wax cap that was built for it, and crawl out of the cell.

As soon as the bee crawls out of the cell, she will begin work. The first job that this bee will take on is **cleaning the cells**, she will begin with the one she was born in. After 2 - 3 days of **cleaning cells**, She will move on to **feeding the larvae** until she is 12 days old. She will now begin to **produce wax**, **build honeycombs**, **move the pollen and nectar** from the field bees to where they store the produce, and **clean bits and pieces** from around the hive. When the bee reaches 18 days old, she will go onto performing the last duty before becoming a field bee, **guarding the hive** entrance. Bees will **guard the hive** entrance to making sure that no bees from other hives enter the hive and steal the honey, nectar or pollen. Once 21 days old, the bee is ready to leave the hive and become a field bee. The bee will leave the hive, and orientate herself to her surroundings, before flying off to find the flowers with nectar and pollen ready to collect. After 20 or so days of flying around and being a field bee, collecting nectar and pollen the bee will die, this is why, people say they work themselves to death.

http://library.huttcity.govt.nz/cgi-bin/spydus.exe/FULL/OPAC/BIBENQ/18725682/2197211,4
http://www.buzzaboutbees.net/honey-bee-life-cycle.html
http://www.buzzaboutbees.net/how-long-do-bees-live.html
http://www.orkin.com/stinging-pests/bees/honey-bee-life-span/

How honey is made

From bee

The honey starts off as nectar in a flower. Which is collected by the bees when they go and pollination. The bees take the nectar back to the hive and then start to turn it into honey. The color and flavour of the honey depends on what type of tree or flower the bees collected from to make it. Bees only collect honey from one different flower when they go out to collect and pollinate.

To hive

Beekeepers, they are the ones that help the honey be produced at such a high rate. Without them honey would be a much rarer food and even more expensive than it already is!

Beekeepers extract the honey from the frames by using a machine called a extracter. The extractor is a type of centrifuge that spins the frames making all the honey come out of the combs in the frames. The honey get spun and then gets pushed to the side. Gravity then pulls the honey down to be collected from a tap.

TO BOTTLE

Once the honey is extracted it is strained to make sure no pieces of wax or anything else that is not honey goes into the bottle. Once the straining is done, the honey is bottled and sent off to companies for selling to consumers or even sometimes sold at the local market by the beekeepers themselves! “Whether the container is glass or plastic, or purchased at the grocery store or farmers market, if the ingredient label says pure honey, you can rest assured that nothing was added, from bee to hive to bottle.”

Different types of honey

Clover Honey

Clover honey is honey produced by bees that feed primarily on the nectar of clover plants. The United States, New Zealand, and Canada are some of the world's highest producers, with varying levels of quality. It's usually easy to find this type of honey in stores because consumers like its mild, slightly floral flavor, and it is typically one of the least expensive varieties available.

Rata Honey

Rata is a magnificent New Zealand native evergreen tree found from sea level to 760 metres. Rata trees have glossy dark green leaves and trunks that are often gnarled and twisted. They are best known for their brilliant red flowers that appear in profusion from November to January. The trees tend to flower well only once every few years and favour the temperate, high rainfall conditions of the West Coast of the South Island which is where we source our honey. The nectar is treasured by native birds such as the Tui, Bellbird and Kaka, and produces very white honey considered to be of the very finest quality of any in the world. (Rata honey hives are located in a number of New Zealand’s National Parks)

Lavender Honey

Lavender honey is gathered from the flowers of one of NZ's largest lavender farms in the South Island. This elegant honey is smooth and rich in flavour, perfectly perfumed with a delicate floral taste.

Rewarewa Honey

Rewarewa honey is a classic dark honey with a rich, caramel-like flavour and can be used as a substitute for sugar in your drinks and baking too. Recent research done on Mossop's Rewarewa honey has shown that may contain Antioxidants, which help neutralise free radicals (Looks like manuka honey)

bee diseases!

foulbrood diseases: There are two foulbrood diseases, both reckless and dangerous to your bees, produce and hives, which if not treated will kill your colony.

American foulbrood: The most common foulbrood disease is the American foulbrood (AFB).This disease is a bacterial disease which infects the brood of the honeybee while it is sealed. The disease is a bacterium that produces spores which are very resistant and long lived. A colony with AFB will die if not treated, but the disease may take months before it takes effect. How to stop AFB? Make sure you and your staff can recognize AFB, If you don't here's how too and also to stop it. First if there is AFB, it will let of a rotten like flesh smell, then you'll notice the holes in the capped cells, when you have a look at your brood cells look for holes or fallen capping. Last of all your honey will not have the same texture as honey without AFB, and it will be a darker colour than before with AFB, and your bees will start to die out. Here are a lists of do's and don'ts:

Do's:

- Inspect hive for AFB twice a year
- Inspect hive before removing bees, honey or equipment
- Inspect all brood frames
- Shake off bees from frame when inspecting for AFB
- Report AFB to the management agency within seven days
- Burn infected colonies
- Feed pollen substitutes rather than pollen
- Feed sugar syrup rather than frames of honey
- Use hive and apiary quarantines
- Only use approved sterilisation methods
- Use a thermometer and timer when wax dipping (10 minutes at 160° Celsius)
- Treat hives to clear up parasitic mite syndrome (PMS) before checking for AFB
- Get suspect AFB samples tested

Don’ts:

- Don't feed drugs to control AFB.
- Don't scorch boxes to sterilize them.
- Don't try to control AFB by removing diseased frames.
- Don't extract honey from infected colonies.
- Don't feed bee-collected pollen to colonies.
- Don't feed extracted honey to bees.
- Don't let hives get robbed out.
- Don't shook swarm.
- Don't let stock knock over beehives.
- Don't use steam chests to sterilise infected equipment.
- Don't distribute the equipment from dead hives between other hives.
- Try not to let colonies die of varroa or any other cause.

European foulbrood:

European foulbrood (EFB) is not that common in many countries except for NZ, but can do a lot of damage if not treated.
EFB is is a bacterial disease which infects and kills the honeybee larvae.
EFB is ingested by the larvae when they eat the food that is infected with the disease. After eating the infected food, the larvae start to die but ,then can also live. if the larvae dies it gets sealed in its comb. If the larvae live they, can move on through their life, but after they leave their comb with EFB and the comb gets infected which then the next larvae will get infected, then the disease. Signs for EFB: The larvae can curl upwards or start to melt and turns a light brown colour, then the larvae start to die. Also the honey has a different texture and colour. \

Do’s:

Inspect hive for EFB twice a year
Inspect hive before removing bees, honey or equipment
Inspect all brood frames
Shake off bees from frame when inspecting for EFB
Report EFB to the management agency within seven days
Burn infected colonies
Feed pollen substitutes rather than pollen
Feed sugar syrup rather than frames of honey
Use hive and apiary quarantines

Only use approved sterilisation methods
Use a thermometer and timer when wax dipping (10 minutes at 160° Celsius)
Treat hives to clear up parasitic mite syndrome (PMS) before checking for EFB
Get suspect EFB samples tested

Don’ts:
Don't feed drugs to control EFB.
Don't scorch boxes to sterilize them.
Don't try to control EFB by removing diseased frames.
Don't extract honey from infected colonies.
Don't feed bee-collected pollen to colonies.
Don't feed extracted honey to bees.
Don't let hives get robbed out.
Don't shook swarm.
Don't let stock knock over beehives.
Don't use steam chests to sterilise infected equipment.
Don't distribute the equipment from dead hives between other hives.
Try not to let colonies die of varroa or any other cause.

Fungal diseases: There are two common fungal diseases, the Chalkboard disease and the stonebrood disease.

Chalkboard disease: This fungal disease kills the larvae if it is not treated, which will slow down your population .
Chalkboard disease infects the baby larvae by starving them to death. The fungus produces spores which makes it way through the larvaes digestive system and eats the larvaes food from the inside after the larvae have fed. Then after the larvae die the spores grow into fungi feeding off the corpse thence to spread through the colony. How to stop and identify Chalkboard disease. You can identify Chalkboard disease by noticing the larvae have died before capping and, have fungal growth on the corpses, and dead larvae at the hive entrance or on the bottom boards.
Treatment for Chalkboard disease: Adopt the size of the hive to the strengthen of the bee colony, make sure your hive has good hygiene behavior, ensure that the colony has a strong worker population, and that the hive is well ventilated from moisture, remove and replace diseased combs, clean up dead larvae found in bottom boards and around the entrance of the hive.

stonebrood disease: stonebrood disease is a little like Chalkbrood disease but different, it is also a rarer disease than most.
Stonebrood disease is a fungal disease which its spores seep through the bee's larvae digestive system. After the spores are in the digestive system the start to grow inside out. The first growth starts in the head, then starts to devour the rest of the

body, thence spreading out more spores to infect the rest of the colony. How to notice and stop stonebrood disease: look for dead larvae with fungal growth and dead larvae on the bottom of the floorboards and entrance. How to stop Stonebrood disease: Adopt the size of the hive to the strengthen of the bee colony, make sure your hive has good hygiene behavior, ensure that the colony has a strong worker population, and that the hive is well ventilated from moisture, remove and replace diseased combs, clean up dead larvae found in bottom boards and around the entrance of the hive.

link sources:
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Pollination

You may have heard that bees are really important to pollination and that pollination is really important for growing food. Does this mean that without bees we wouldn't be able to grow food. Would the world descend into a dusty apocalypse where the only food to be found is the moss on the rock of dead civilisations?

Not quite. And that's a good thing.

You'll discover there are many different animals that pollinate, honeybees are VERY well-designed for pollen collecting, and why this is good for plants.

Pollinators

It's true that bees are effective pollinators. But they're not the only pollinators out there, there are many, many more. Who are these others? Let's see! Roll out the green carpet, put your hands together and welcome, the secret-agent pollinators!

Bumblebees

Wait, we know that bees are pollinators. Why are they a secret? Even though everyone knows honeybees pollinate flowers, it turns out that bees pollinate even if they don't make honey. Bumblebees make honey too.[13]

Butterflies

Butterflies also pollinate.[14] In fact they travel further than bees to do so.[15] Butterflies have a harder job to pollinate because they have a longer proboscis (mouth) which means they don't get their whole body into the flower to collect pollen.[16]

[13] https://en.wikipedia.org/wiki/Pollinator

[14] http://insects.about.com/od/BeneficialInsects/tp/7-Insect-Pollinators-that-Arent-Bees-OrButterflies.htm

[15] http://www.naplesnews.com/lifestyle/home-and-garden/wings-work-butterflies-pollinate-plants-ways-diffe

[16] Ibid.

Other insects

Wasps, ants, flies, midges, mosquitoes, moths, and beetles also pollinate flowers.[17] The flying insects can travel further and faster which makes them more efficient at collecting lots of pollen for themselves and spreading the pollen far and wide for the flowers. Crawling insects can only cover a small area of flowers.

Bats and birds

Bats pollinate some tropical flowers. While birds, (hummingbirds, honeyeaters and sunbirds) pollinate deep-throated flowers.[18]

Mammals and reptiles

Mammals such as monkeys, lemurs, possums, and rodents as well as reptiles such as lizards and snakes pollinate certain plants.[19] It was hard to find information about these animals so I presume they're very rare and aren't significant pollinators. Still, they're secret-agent pollinators all the same.

How bees collect pollen for themselves

Even though there are lots of pollinators, honeybees are the most well-known. Is this because they're the best? I couldn't find any information saying that they're the best so it's unclear. They are, however, the most well-known by far. Even if honeybees aren't the best, they've got to be in the top three. They're so well designed for collecting pollen, you couldn't improve them if you tried.

When a honeybee is around 20 days old[20] it begins to fly outside the hive to forage. Most people know that honeybees are looking for nectar found inside flowers, but they also collect pollen! On a single trip, honeybees only visit one kind of flower[21] which is good for the flowers as they can only be pollinated by the same kind of flower as themselves. On each trip, a honeybee can collect up to 60mg of pollen in two pollen baskets. You can see these two pollen baskets on this honeybee here. How does *that* happen?

[17] http://insects.about.com/od/BeneficialInsects/tp/7-Insect-Pollinators-that-Arent-Bees-Or-Butterflies.htm

[18] https://en.wikipedia.org/wiki/Pollinator

[19] https://en.wikipedia.org/wiki/Pollinator

[20] Stella Harrison, Bee expert

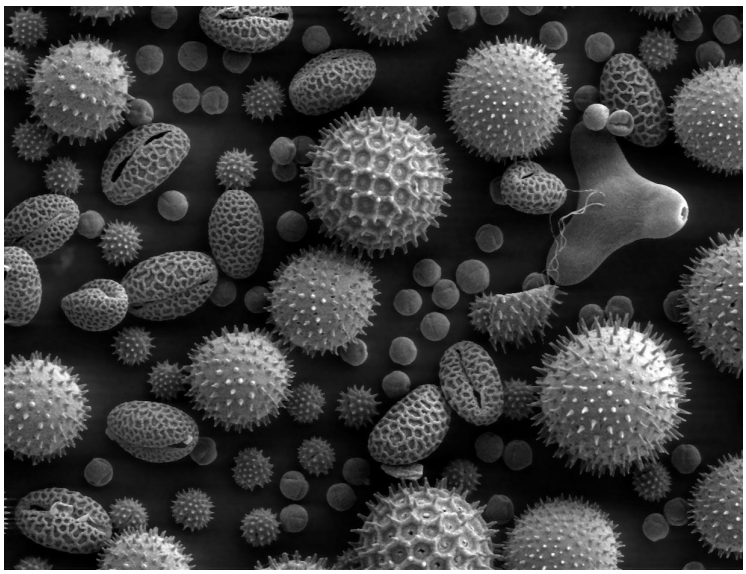
[21] Beekeeping, W. Melzer

This is how bees get pollen from the flower to the hive. First, they wriggle around in flowers getting plenty of pollen stuck to their hairy skin. They use combs on their front legs and brushes on the inside of their back legs to press the pollen together near their back legs. Then they push the pollen into the back of their knees where they squash it into pellets. These pellets are then stored around a single strong hair on the outside of their back legs as you can see in the earlier picture.[22] [23] This pollen then becomes food for the hive.

How pollination helps plants

This is all very good for the bees, but how do the plants benefit from this? Plants are pollinated when a bee lands on a flower and gets covered in pollen, travels to a different flower of the same kind and spreads that pollen into the new flower. This helps plant species to reproduce, spread, and grow fruit.

The pollen of different flowers looks very different. Not only can it be different colours so that an experienced beekeeper can tell where the bee has been by the colour of the pollen in its baskets, but pollen also looks very different under a microscope. This is a picture taken by an electron microscope of pollen from many different plants.



Pollination is good for us, plants, bees, and all the secret-agent pollinators that often get forgotten.

Save the bees!

[22] http://www.empiricalzeal.com/tag/pollen-basket/

[23] Manuka, C. Eaton