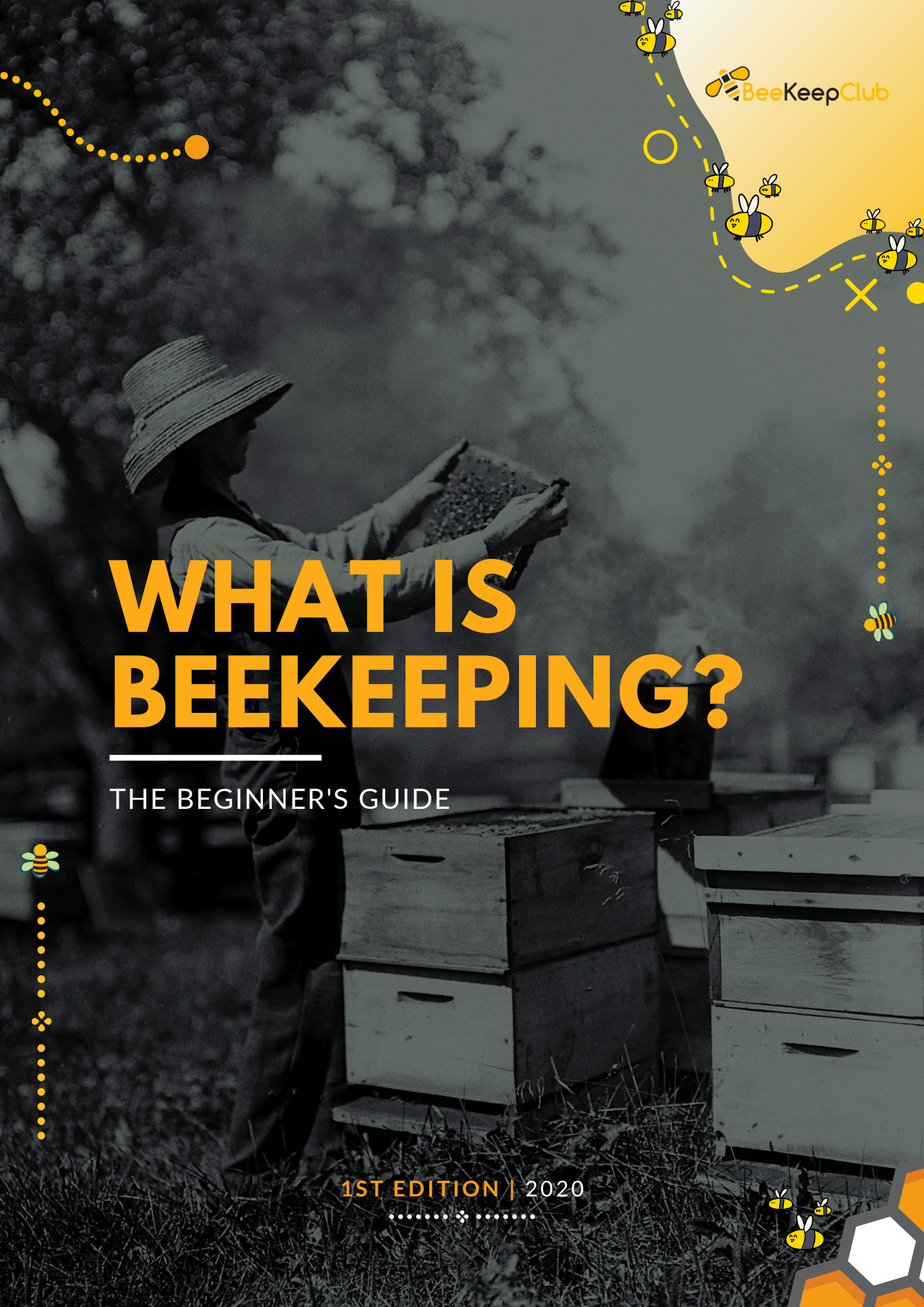
BeeKeepClub
WHAT IS BEEKEEPING?
THE BEGINNER'S GUIDE
1ST EDITION | 2020

Any comments relating to the material contained in this document may be sent to:

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INTRODUCTION TO BEEKEEPING

You might hear the term being thrown around all the time, but just what is beekeeping, and what does it entail? Let's start from the bottom

Now beekeeping, or **apiculture** as it is also known, is the human activity of maintaining honey bees. A beekeeper, or **apiarist** (that will soon be you), is someone who keeps honey bees for the purpose of collecting their honey and other products that are produced by the hive such as propolis, beeswax and royal jelly, or to pollinate crops, or to produce bees for sale to other beekeepers. Beekeeping can be done using stinging or stingless bees.

ABOUT HONEY BEES

Honey bees are insects that live in colonies that are led by the **queen bee**. The insects can sometime be very dangerous especially when they are provoked as they can inflict harsh stings. That's why it's very important to take proper precautions when dealing with them.

Honey bees produce their own food called **honey** that they usually feed on in times of inclement weather conditions not favorable for them to go out of the hive. Honey is a very precious commodity loved by many people around the world due to its great taste and also due to its **medicinal properties**.

WHAT TYPE OF AGRICULTURE IS BEEKEEPING

Beekeeping is a type of **agricultural production**. It is called **Apiculture** in general. When stingless bees are used in beekeeping, the agriculturally oriented name of beekeeping changes depending on the species of bee used.

Apiculture is in reference to bees of the **Apis genus**. The most commonly kept honey bee species are **Apis Mellifera** and **Apis Cerana**. Due to the complexity of biological naming and the difficulty in recalling some of the names, it is generally right to call any form of beekeeping ‘apiculture’ when speaking and writing about beekeeping.

The art, science and practice of beekeeping encompass the life of honey bees and their survival in man-made structures in quite a broad way.

All About Learning

Taking into account that beekeeping is a form of agriculture, it is taught in many agricultural courses. The depth of what is taught about beekeeping in each course varies. There are basic and detailed courses that teach about beekeeping. Additionally, books about beekeeping are in plentiful supply. There are books being written and published to date, so you have no excuse not learning about beekeeping.

In learning about beekeeping as an agricultural practice, important aspects to take into account are the life of honey bees, colony organization and the different types of bees in a colony, structures for housing bees and safety measures to take.

Breeding for Improved Genetics

For improved honey bee colonies, beekeepers with advanced experience and knowledge about beekeeping carry out breeding. The selection of genetic stock and its subsequent use to improve specific genetic traits of honey bee colonies gives colonies with better foraging power, high beehive products production capabilities, calm temperament, disease resistance, and pest or parasite resistance.

The last three traits are especially important because diseases, pests and parasites of honey bees can cause a lot of damage to the colony, and drive beekeeping costs very high. Thorough and frequent grooming behavior in honey bees is the sought-after trait as a means towards achieving pest and parasite resistance.

BEEKEEPING

THROUGHOUT THE AGES

Beekeeping is an old practice with depictions of it found in art and artifacts from 10,000 years ago. Early beekeepers of that age used pottery vessels to house honey bee colonies. They developed on to making simple hives and smoke in beekeeping. Later, the storage of honey in jars came about.

In the 18th century, Europeans took a lot of interest in beekeeping. They studied the life cycle and biology of honey bees with the intent to understand honey bee colony organization. Improved understanding led to the discovery and exploitation of ‘bee space’. It gave rise to movable frames in beehives, and the artificial beehives commonly used in beekeeping to date.

Through history, beekeeping has been practiced using skeps, pottery vessels, log hives, top bar hives, Warré hives, and the Langstroth beehive. Of these, Warré, Langstroth and Top Bar hives are the most popular to date. We'll take a quick look at these later on in this eBook.

MODERN ADVANCEMENTS
IN BEEKEEPING

In recent years, a modification of the **Langstroth beehive** has been made and is marketed as a **Flow hive**. Flow hives use proprietary technologies that allow for harvesting of honey without removing beehive frames from the beehive. The frames are specially made for the Flow hive.

Image credit: Flow

With Flow hives, there is little possibility of harvesting some of the other beehive products available to other beekeepers. Most notably, using a purely Flow hive setup will see you have very little beeswax to harvest at the end of each year of beekeeping. On the other hand, Flow hives give you very clean honey with little or no impurities, and save the beekeeper a lot of time. The costs of buying a honey extractor are also avoided.

Until recently, smoke has been used by beekeepers to keep honey bees from stinging the beekeeper on hive visits.

Before the rise of the beekeeping veil, beekeeping was a rather hands-off practice with beehive visits mainly aimed at finding out if the bees have stored honey, how much it is, and harvesting it.

Modern beekeeping requires more frequent monitoring and management of the honey bee colony, and the beehive in which the colony is housed.

GREAT CONTRIBUTORS TO MODERN BEEKEEPING

Beekeeping has benefited a lot from various people since the study of bees and production was started. The major contributors to beekeeping that are worth noting are those that have given us something about the beehive, honeybee biology, and information about honey bee colony organization. They include;

Rev. L.L Langstroth

He is one of the contributors to beekeeping that you cannot ignore. He discovered 'bee space' and made use of it in the beehive he invented. Today, the Langstroth beehive is the most widely used in the world. It is a vertically expandable beehive that can be used for production and harvest of any beehive product of interest to the beekeeper. Langstroth beehives are great for all climatic regions and are easy to use. They make hive inspection easy too. Lorenzo Lorraine Langstroth published a book, "The Hive and Honeybee", that remains relevant to date.

Dr. Cecil Miller

He was a beekeeping entrepreneur. At one time in his life, he made his living from beekeeping. Miller's book called "Fifty Years Among the Bees" is a widely read and used beekeeping text. It described his experiences and observations in beekeeping. The influence of Miller's work in beekeeping and its management persists to date.

Kenya Top Bar Hive Researchers

The top bar hive that is popularly used in modern beekeeping owes some of its features to research done by Kenyan beekeeping researchers. In a research funded by a Canadian university, the Kenyan researcher, G. Ntenga, contributed to advances to the top bar hive. The subsequent top bar hive is popularly called the Kenyan top bar hive. It beats other top bar hives in more than one performance and management aspect.

Francois Huber

He studied honey bees and documented their behavior. The most significant discovery Huber made was that the queen bee of a honey bee colony mates outside the beehive, high up in the air, with more than one drone bee. Huber was afflicted by blindness in his early age, but pressed on with the study of honey bees despite his blind status, by having an assistant.

Moses Quinby

Inventor of the bee smoker. The device is important safety equipment for many beekeepers round the world. Only in recent days has the bee smoker seen competition in its work from other devices.

Amos Root

He wrote a beekeeping book and pioneered the distribution of honey bee colonies as ‘package bees’ in the USA.

Walter Kelley

A 20th century American beekeeping pioneer who has improved beekeeping clothing and equipment. Kelley’s contributions led to the biggest beekeeping boom since the 2nd world war.

Franz Hruschka

The Italian inventor of the centrifugal honey extractor. Franz’s invention allowed for extraction of honey from beehive frames without damaging the honeycomb. It resulted in the honeycomb being returned to the beehive once honey was removed. This saves honey bees a lot of time, materials and work that would have otherwise been spent building fresh comb.

Reamur Antoine Ferchault

Reamur dissected the honey bee and studied it under a microscope. The result was the largest percentage of what we know today about honey bee biology.

HOW BEEKEEPERS DO IT

Over time, beekeeping has evolved. The way beekeeping is done today differs in many aspects from how beekeeping was done in its infancy stages. Beekeeping in modern times is largely practiced using beehives. Some of the beehives mimic tree hollows or the early log hives that beekeepers used.

In years past, and for a very long period of time, beekeeping was done by farmers with large tracts of land, or by placing beehives in forests.

This was because there is need to keep bees from interaction with humans and other animals.

Sometimes, bees get very defensive of their hive and sting any animal or human they come across – within a certain distance from the beehive. Advances in understanding the honey bee and its temperament have allowed the honey bee to be kept closer to home over the years.

Additionally, selective breeding and other management practices in beekeeping have helped beekeepers come up with rather calm honey bee colonies that are not likely to go on stinging sprees with little provocation. These advancements have made it very easy to keep bees in rural settings.

Further advances in understanding aggression in honeybees have made it possible to practice urban beekeeping. With adequate measures taken and safety at the top of the priorities for the beekeeper, many people are able to keep bees in urban locations.

ADVANCEMENTS IN
BEEHIVES

Beekeeping today is mainly done using beehives. These beehives have come a long way over time and seen some evolution into what they are today. Modern beehives also employ concepts that make production easy, and allow for targeting of some beehive products over others. This progress in the structure used to house honey bees is good and enables continuity of the honey bee colony even after beehive products are harvested.

Previous beehives, as recent as the log hive, made continuous survival of the honey bee colony difficult because harvesting honey would ruin a lot of the brood comb which is usually near the entrance of the beehive. Today, the major beehives used in beekeeping are the Langstroth beehive, Top Bar hive, the Warré hive, the British standard hive. Others which may not be as popular but still have decent utilization are the Layens hive and the Dadant hive. The suitability of these beehives varies depending on the preferences of individual beekeepers, and whether the beehive has a vertical or horizontal orientation.

MAJOR FACTORS

TO CONSIDER IN BEEKEEPING

Below you will find the major factors that you will have to consider when venturing into beekeeping.

1. The Surroundings of the Beehive

When you have decided to keep bees you will have to think about where you will keep them. The location where bees are kept is called an apiary or bee yard. You will have to check with your local authority and find out about their regulations regarding beekeeping, which varies from state to state and country to country.

If you are planning to keep the bees in your backyard it will be better for you to do consultations with your family members and your neighbors and make agreements with them, so as to avoid any possible quarrels.

2. Types of Beehives

The next thing you'll have to do is to choose the right type of hive in which to keep your bees.

Langstroth Beehive

Named after its earlier designer **Rev L.L. Langstroth**, it has a history that spans over a century and a half. This type of beehive is usually preferred by hobbyists and commercial beekeepers and very common in North America and New Zealand.

Its advantages includes easy maintenance, a simplified design with enough space available between brood chambers and supers, frames that are easily removable allowing for easy bee inspection and division of bees; the beehives can also be re-used. The main disadvantage of this beehive is that during inspection bees get disturbed a lot more than the other types of beehives.

Top-bar Beehive

The top-bar beehive is usually widely used because of its ease of construction and affordability. With a top-bar beehive, bees do not get easily disturbed during inspection, and it ensures high quality honey production by the bees.

However, when compared to the two other types of beehives mentioned above, the top-bar beehive allows bees to make more wax and less honey.

Bees usually need to build new combs after every inspection, and its open design exposes the combs to all weather conditions which may sometimes be too harsh to the bees.

Warré Hive

The Warré hive is very easy to manage compared to the other hives, and is ideal for people who are busy and don't have enough time to regularly interact with the bees.

British Standard National Beehive

The national beehive is usually very commonly found in the United Kingdom. Its advantages include its affordability and its ease of assembly; it is also very efficient. However, most beekeepers who have used it have complained that its brood box is a little smaller than average. To address the problem a different brood box can be used to operate it.

3. The Site Where you will Place your Beehive

Usually the best location to place your beehive is a sunny place with a bit of shade, with a nearby water source like a pond.

The hive should be placed in such a way that it faces the south and should also have a fence in the north acting as a windbreak. A site near a field of flowers is even more ideal as the bees will find it easy to collect nectar and easily get back to their hives.

It would also be wise to find out about any possible bee predators and determine if the beehive can easily be accessed by such predators.

You wouldn't want to invest your precious time and finances doing all the hard work then eventually lose your bee colony to predators.

4. Other Important Things that you will Need

As mentioned earlier, people decide to venture into the business of beekeeping for various purposes but honey is usually the major basis for beekeeping.

As you know, bees get wild at the slightest provocation and can unleash harmful stings on humans, so they must be handled with great care and caution. A beekeeper will therefore need some protection when going out to handle bees during routine inspection of the hive or during harvesting.

As a beekeeper you need to have purchase the beekeeper suit, the beekeeper gloves, the beekeeper hat and veil, the beekeeper jacket and the beekeeper boots. These are the protective pieces of clothing that will help you avoid getting stung by the bees as you interact with them.

For harvesting of honey, you will need to get the bee smoker and the honey extractor. The bee smoker helps to calm bees making them less aggressive as you handle each of the frames on the hive.

Once you have collected the combs rich in honey the next thing you will do is to get the honey and wax from the combs without damaging them. This is where the honey extractor comes in handy. The honey extractor helps in the extraction of honey from bee combs without damaging the combs or the wax.

Honey extractors come in two major variants – the manual extractor and the electrical extractor. If you are a beginner beekeeper you may start off with just a simple manual honey extractor as it is more affordable.

BENEFITS
OF BEEKEEPING

There is increased global awareness about the need for many people to take up beekeeping. You may wonder how it would help you and what difference you can make by becoming a beekeeper.

Needless to say, beekeeping is a very rewarding undertaking. The time spent in beekeeping is never wasted. Learning about bees and being able to steward a colony successfully is something that you will be proud of.

Additionally, bees are under pressure round the world. Their populations are dwindling due to a combination of many factors including global warming and the prolific use of pesticides in agriculture that have an effect of killing large numbers of bees.

By becoming a beekeeper, you enjoy the following **major benefits**:

Being Useful and Valuable

You get to be a producer of something useful and valuable in the world. Beekeeping will have you producing honey. It is a sought-after commodity that will bring you profits.

You will also have plentiful of honey for your own use. The global demand for honey is so high that production rarely satisfies it fully.
It is however important to note that not all beekeepers are in the practice for honey production and profiteering purposes.

Harvesting of Other Beehive Products

In addition to honey, you will be a producer of the other beekeeping products we have seen.

These beehive products fetch good prices in the market. You can target to harvest one of these alternative beehive products in large amounts as the major secondary product of your beekeeping operation. Indeed, beekeepers with sufficiently large operations make a lot of money from the alternative beehive products they harvest and sell in addition to honey. We'll discuss these later on.

Contributing to Conservation Efforts

By becoming a beekeeper, you contribute towards bee conservation efforts. In conservation beekeeping, you can allow periodic swarming of honey bees so that wild populations of bees are restored.

The wild population of bees also helps keep up the genetic diversity of the entire species and the various strengths that come with good genetic diversity.

SAFETY
IN BEEKEEPING

Safety is of utmost importance in beekeeping. Other people and animals in the general area of a beehive or apiary are also at risk of being stung by honey bees. Proper safety is also necessary for uninterrupted and peaceful beekeeping. Honeybees can sting the beekeeper and cause medical problems.

With other people and animals, losses may be incurred and legal proceedings instituted against the beekeeper. Managing the beehive, apiary and the general space is therefore a major aspect of beekeeping.

With other people and animals, safe beekeeping is achieved by manipulation of the beekeeping space. Honey bees exhibit vertical movement at a constant ratio of 1:1 vertical climb per horizontal distance.

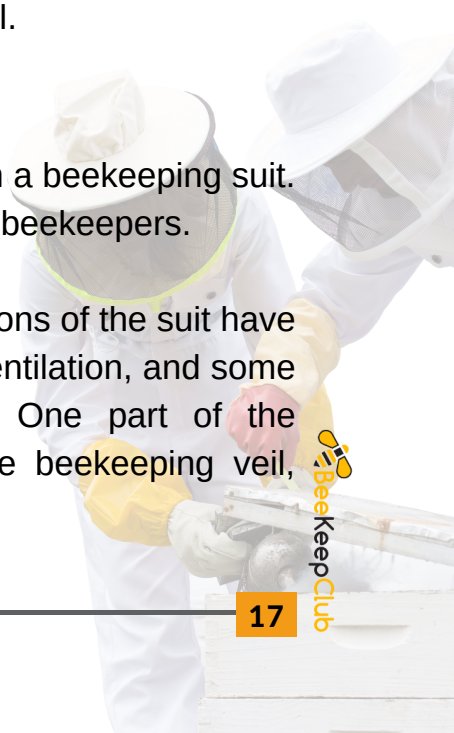
Placing screens and barriers around beehives makes honey bees fly up and away from people and animals that may be nearby. Hedges are very useful for this purpose. Additionally, the location chosen for beehives is best when it is away from routes used by people and animals.

Urban beekeeping is possible in the highly populated town environments by placing the beehives on the rooftops. From the rooftop, bees do not usually fly down to sting people, but forage for beehive resources very well.

Bee Suits

Safety for beekeepers working with and around bees starts with a beekeeping suit. In the past, heavy clothing was the main protection available to beekeepers.

In modern beekeeping, the beekeeping suit is preferred. Variations of the suit have been made available to beekeepers. The variations allow for ventilation, and some are minimalist such as beekeeping jackets and smocks. One part of the beekeeping suit that has remained largely unchanged is the beekeeping veil, which confers protection to the face and neck of the beekeeper.



Using Smoke

Smoke is another tool deployed in beekeeping to improve safety. It is commonly released on bees using equipment called a bee smoker. The smoker partially burns wood-based fuels to produce smoke.

Due to their natural instinctual reaction to smoke, honey bees gorge on honey and have difficulty stinging. While the bees are engaged in eating honey, the beekeeper can carry out the activities they set out to carry out at the beehive. A second effect of smoke is blocking out pheromones released when a bee is squashed or stings something.

Using Sugar Water

A development in beekeeping safety has seen some beekeepers adopt the use of sugar water to make bees less likely to sting them. The application of sugar water in a fine mist makes bees start grooming themselves and each other. While they are thus engaged, the beekeeper goes about their business at the beehive.

Caution with Machinery and Tools

There are a number of machines that are used in beekeeping. The number of machines you use varies by the size of your beekeeping operation, your ability to purchase individual machines.

Some of these machines may be hot, have blades or can cause injury in other ways. It is important for the beekeeper to read operation manuals of each machine they use in beekeeping, and take measures to ensure safe operation of the machine at all times.

Tools and other equipment used in beekeeping are also a point where safety must be emphasized on. These tools can injure beekeepers when used incorrectly. The general rule of thumb is that you should use each tool for its designated job only, and do it with your safety and of those around you in mind.

ADVANCES IN BEEKEEPING

Practices and Products

The evolution of beekeeping is a continuous – though a little slow at times – process. The most recent developments in beekeeping have given beekeepers unique and very interesting methods of beekeeping. Not to be left behind, the products of beekeeping that beekeepers can earn from are also evolving. Some of the notable products among these include;

Pollination services

Farmers are increasingly seeing the services of beekeepers for the pollination activities of honey bees. Beekeepers that provide these services move their honey bees from one location to the next as needed and release the bees in the crop fields to pollinate plants.

Package bees

For the starting of new honey bee colonies, beekeepers split colonies and sell the splits off as package bees. In local settings, one beekeeper may help the next one with a colony by following the principles of package bee trade.

Queen bees

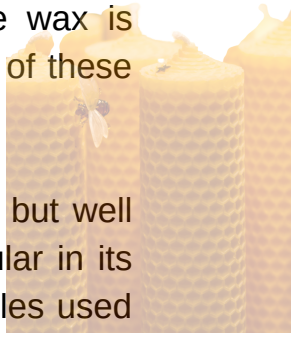
Honey bee colony management sometimes calls for the introduction of a new queen bee in a colony. It helps with genetic diversity of the colony, calming the colony, and ensuring the continued survival of the colony in other cases. The process by which this is done is called requeening.

OTHER BEEHIVE PRODUCTS THAT
CAN BE HARVESTED

Honey is the most visible product of beekeeping. It is used in many ways, primarily as a sweetener. There are however, other products of beekeeping that are harvested. Some of these products have become of interest in recent years, while others have been around for many years. These other products of honey bees in addition to honey include:

Beeswax

Beeswax is the second most important beehive product by availability and popularity. Wax is used by bees to build the structures on which they rear their young and store honey. These structures are called honeycomb. The wax is shaped into hexagonal cells. A single face of honeycomb has thousands of these cells.

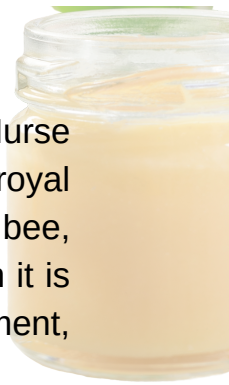


Typically, honeycomb is two-sided.Beeswax melts at high temperatures, but well below the boiling point of water. The wax is also combustible. It is popular in its use in maxing candles. Some religious organizations insist that the candles used in religious practice be made from beeswax as it has traditionally been. Today, beeswax is used in some beauty, cosmetic and therapeutic products such as creams and soaps.

Pollen

Pollen is another beehive product that has become popular in modern beekeeping. It is used in many ways, but primarily as a health-boosting food supplement. It is rich in protein. Pollen is collected from flowers by foraging honey bees and stored in the beehive in granular form.

In a honey bee colony, pollen is used as a major food for the queen bee and larvae. Other bees may also eat some pollen occasionally.



Royal Jelly

This is a paste-like white fluid processed by worker bees and fed to larvae. Nurse bees in a honey bee colony produce it for 5-15 days and feed larvae with royal jelly for 3 days each. When the honey bees are aiming to raise a new queen bee, the targeted larvae is fed royal jelly for its entire lifetime as a larva, and when it is an adult queen bee. Beekeepers harvesting royal jelly require special equipment, and can only get small quantities of the substance at a time.

Royal jelly is also eaten by humans; it does a good job stimulating neurological cells to grow, as well as other health benefits.

Propolis

Resins collected by honey bees are a major component of propolis. It is harvested for its detoxifying and antiseptic properties. In a beehive, propolis is used to seal spaces, openings and cracks that honey bees do not want. It prevents microbial growth in the hive. The exact composition of propolis varies by season and the plant species which are visited most frequently by many foraging honey bees of a colony.

A FINAL WORD

People usually get into the business of beekeeping (apiculture) for various reasons such as to help with cross pollination of crops, breeding and sale, or to get honey and other bee products, i.e. wax or propolis. Those who wish to get into beekeeping should always first deal with legal issues governing beekeeping in their localities before starting.

Beehives also have to be placed in a place that gets enough sunshine and near flowers and a water source. A location that is not easily accessed by bee predators will be most ideal.

It must be mentioned that the population of bees have plummeted in recent years worldwide, and due to the role they play in pollination, and the subsequent role that plants play in producing oxygen, (which, last we checked, is vital to human survival), now is the perfect time to become a beekeeper, even if it is just as a hobby. So what are you waiting for? Read on to learn more.