

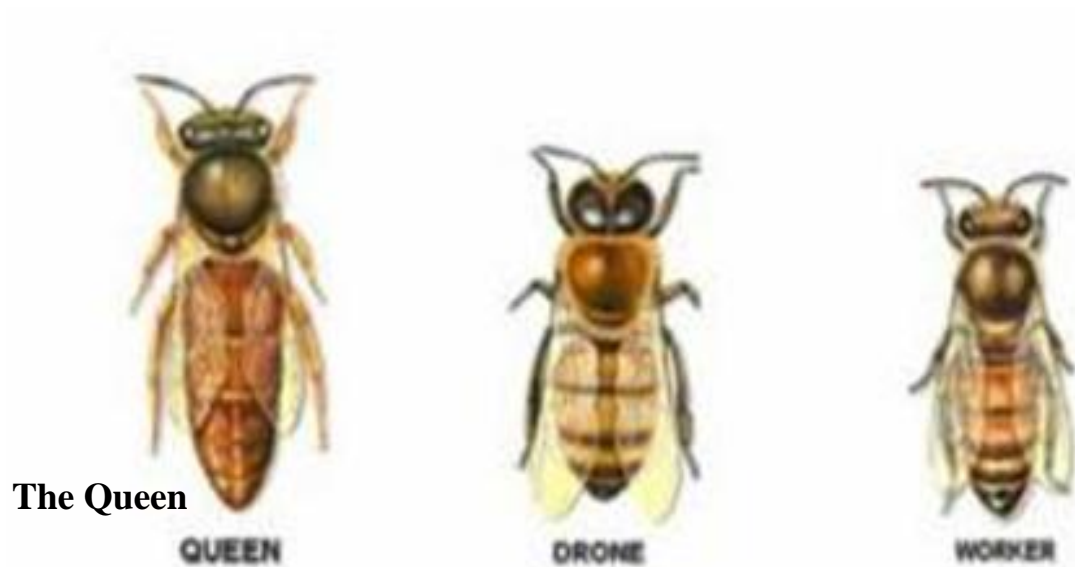
Inputs for honey

The main inputs required in bee keeping are bees, bee forage, bee hives, equipment and water

Bees



A bee is a social insect which lives in a colony. The bee colony is made up of 3 types of bees as follows:



In a bee colony there is only one queen whose function in the hive is to:

- Lay fertile eggs — The queen can lay about 1,500 — 2,000 eggs per day. The eggs are laid only when conditions are favourable and after being mated by the drone. Mating takes place in the air and about 5-7 drones are required. The queen stores the sperms in a spermathaeca and hence requires mating only once in her life time.
- Control the colony behavior and functions through a pheromone (queen substance) which maintains the cohesiveness of the colony.

The Drones

Drones are usually about 300 in number in a colony. Their functions in the colony are:

- To fertilise the queen.
- To control the temperature or to cool the hive. This they do, by flapping their wide wings at a very high speed.

The drones are killed by the worker bees after fertilizing the queen.

The Worker Bees

In a colony, the worker bees are about 60,000 in number. They are the soldiers and are normally female bees. Their functions in the hive are to;

1. Feed the queen, the drones and the brood (young bees).
2. Protect the hive from intruders.
3. Collect nectar, pollen, trees resins, gums and water.
4. Build combs and seal the cracks and crevices in the hive.
5. Clean the hive.

Life Cycle of a Bee

In the development of bees the following takes place:

Fertilized queen moves from one cell to another laying an egg in each. The warmth and moisture generated by a cluster of worker bees, causes eggs hatch after three days.

Larvae are initially fed on royal jelly by nurse bees, then on a mixture of pollen and honey. Each larva spins a cocoon and after two days moults into a pupa.

The pupa becomes a young bee after ten days and emerges from the cocoon.

Eggs, larvae and pupa form what is called the brood. In this development, it takes twenty-one days to produce a worker bee, twenty-four to produce a drone and fifteen to produce a queen from the brood.

Bee Forage

Honey bees depend on a number of plants for nectar, pollen and propolis. They make honey from nectar while pollen is fed to brood as a source of protein. Propolis is used to seal any unwanted openings in the hive.

Key bee Plants



Bottle brush
(*Callistemon citrinus*)



Eucalyptus stricklandii



Acacia xanthophloea



Croton megalocarpus




Erythrina abyssinica



Sunflower (*Helianthus annuus*)

Bee Hives

A hive is a box or some other container where bees live. In Kenya there are three types of hives:

TYPE	ADVANTAGES	DISADVANTAGES
<p data-bbox="203 411 349 443">Log Hive</p> 	<p data-bbox="626 411 1114 541">Materials for construction are locally available, cheap and in most cases they are free.</p> <p data-bbox="626 569 1114 653">The hives are easily occupied by bees.</p> <p data-bbox="626 680 1114 764">Beeswax and propolis are relatively high.</p> <p data-bbox="626 791 1114 875">Hive lasts long due to the hard wood used to make it.</p>	<p data-bbox="1146 411 1511 600">Combs are destroyed during harvesting which forces the bees to build new combs all over again.</p> <p data-bbox="1146 627 1511 732">Swarming is often common due to limited space.</p> <p data-bbox="1146 760 1511 833">Loss of brood during harvesting.</p> <p data-bbox="1146 861 1511 934">Honey production is limited.</p> <p data-bbox="1146 961 1511 1066">Honey quality is usually low (mixed with brood , pollen and ashes)</p> <p data-bbox="1146 1094 1511 1167">Colony disturbance during harvesting</p>

Top Bar Hive



Only one critical dimension in construction i.e. the top bars.

Other measurements are not too critical, thus hives can be made with simple tools from relatively cheap local materials, including concrete.

It is easy to lift individual frames to inspect the comb and/or harvest the honey.

It is relatively easy to remove the honey crop and the uniform shape of the honeycomb in the frames makes it easier to extract the honey.

Every comb is accessible without removing the others.

Fewer disturbances to the colony reducing the number of bees flying around when the hive is opened.

The brood can be inspected easily which keeps the beekeeper real control over the management of the hive.

The beekeeper can judge the exact time when combs are ready for honey harvesting.


Quality honey as the combs can be selected free of pollen and brood.

Combs are cut during harvesting, and bees have to make new combs after each harvest.

Bees naturally build comb in deep, catenary curves (the shape made by a chain or rope suspended by its ends).

But the use of preformed foundation inside rectangular frames forces bees to build comb according to *our* requirements, not theirs.

Bees prefer to adjust the size of cells according to their needs.

<p>Langstroth Bee Hive</p> 	<p>Easier to manage</p> <p>Foundation can be plastic or wax(material easily found)</p> <p>More honey is harvested per honey flow season</p>	<p>Slightly difficult to make.</p> <p>A very expensive hive thus unaffordable to many beekeepers.</p> <p>Little or no beeswax is harvested from this hive.</p>
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Bee Equipment

Protective Clothing

This is a set of clothing that is used to protect the beekeeper while inspecting the hive or harvesting honey. It is composed of the veil (headgear), coverall (protect the torso), gloves (protect the hands) and gumboots (protect the feet). The clothing can be made of cotton, nylon or gunny bag material. Materials of light colour are preferred because bees are less attracted to light colour.



b) Smoker

This equipment is used to emit smoke when opening a hive to inspect or harvest honey.



c) Hive tool

This is a curved metallic plate about one foot and it is sharpened at both ends. It is used to pry apart (lever open up) the top bars which may have been glued up by the bees using propolis making it difficult to separate them by hand. It is also used to scrap off propolis stuck on top bar sides.



Bee Brush

While working bees it is important to use a bee brush to gently wipe off bees from the combs, honey containers and the body of the person working on the bees.

