

Modern method of bee keeping:

The modern beehive is based on certain principle and is called "**Movable Frame Hive**" is made up of wooden box. The box may be single or double walled. The single wall is cheap and light, whereas the doubled is heavy, costs more and provides better protection the bees.

Modern hive has basal plate or bottom board which is placed on a wooden box called the "**Brood chamber**". A bottom pore in Brood Chamber acts as **Bee's entrance**, inside this chamber several frames hanging vertically from the top. These frames can be removed independently, that's why the modern hive is called as "**Movable Frame Hive**" The difference between two frames is known as **Bee Space**. The space serves as a passage for the movement of the bees and at the same time it is very important because it is the space in which the bees should not form a comb. If the bee space is kept less than the correct size, the bees joint up the two combs and if the space is more than correct size, bee forms an independent comb in between two frames. In both cases it is impossible to remove the frames independently. The other chamber is called **Supper**. This chamber is meant for the storage of honey only and here Queen is never allowed to enter. To prevent the entry of the Queen there is a **Queen Excluder** used between brood chamber and super chamber. On the top of the Super chamber there is an inner covering and then a roof. The hive is painted with two coats of white colour which not only protect the hive from whether condition but also helps the bees to recognize easily their hives.

1. **Queen Excluder** made of metallic wire net and used to preventing entry of queen from brood to super chamber.
2. **Comb Foundation** is a sheet of bee wax on both side of which exact shape of different cells of comb is made in advance. The sheet is

cut to size of the hanging frames and are fitted inside. It can be used for several years.

3. **Bee Gloves** are the leather gloves used by bee keeper to protect their hands from bee sting.
4. **Bee veils** cover the face from bee sting.
5. **Smoker** is a device used by the keepers to sub due the bees if irritated during inspection. The material used for producing smoke are anything like wood chips, paper etc.
6. **Hive Tools** – to scraping the dirty materials from the hive.
7. **Uncapping Knife** - to remove the cap of the hive for the inspection at regular interval
8. **Feeder** – during draught and lack of natural food bees are fed with artificial food like sugar syrup.

The queen introducing cage, honey extractor, bee brush and hive entrance guard are also used in modern frame hive.

Hive

The house of Honey Bee is termed as Hive or Comb. It consists of hexagonal cells made up of wax secreted by the workers abdomen. These hives are hanging vertically from rock, building or branches of trees. Its hive has thousands of hexagonal thin-walled fragile cells arranged into opposite rows on a common base. The resins, gums secreted from the plants are used for repairing of hives. The young stages are generally occupying the lower and central cells in the hives, which are brood cells. In *A. dorsata* brood cells are similar in shape and size but in other species brood cells are 3 (three) types e.g. **Worker cell, Drone cell and Queen cell**. The Queen cell can not be used again while the rest are used a number of times. There is no special cells for the adult, which generally keep clustering for moving about on the surface of the comb. The cells are mainly intended for a storage of honey and pollen specially in upper portion of the comb, while those in lower parts for brood rearing .

The wax is used in building of a comb, is secreted from the wax gland present in the abdomen of worker bees. This wax have highest melting point of 140° F. Before use, wax is masticated and mixed with secretion of this cephalic gland to convert into plastic substance. The resinous substances called **Propolis** prepared from pollen is used in making the comb water proof. It is also help in filling cracks and crevices.

The cells of the hive are various types. The **storage cells** which contain honey, built in the margin and at the top of the comb. The **Brood cells** which contain young. The Brood chamber is further divided into

- a. **Worker Chamber** – developing workers reared.

b. Drone Chamber – developing drone reared.

c. Queen Chamber – larger in size and the larvae develops into queen and reared.

For adults there is no special chamber and they move on the surface of the comb.

Selection of Bees for Apiculture

For running a good **apiary** selection of honey bee is most important –

- i) Honey Bee should be gentle temperament.
- ii) It should have capability to construct strong colony.
- iii) It should have ability to protect from enemies.
- iv) Honey bee should be energetic and industrious workers.
- v) Workers can suck juices from numerous varieties of plants.
- vi) Bees on the whole produce more and more honey from its comb.
- vii) Bees can form their comb easily at any place.

In India *Apis indica* is the best bee for apiculture industries due its gentle nature and having efficient and prolific workers

A beginner should learn about the habit and behavior of bees. The hives should be placed in a locality rich in vegetation specially the flowering plants. If several hives are kept in a plot the distance between two hives should be at least 6 (six) feet. The hives should face east and receive sunlight at morning and evening and some shade during noon. Water should be available in a space in front of hive entrance is necessary. Spring is the best season for starting bee keeping, as swarming occurs .

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