

APICULTURE

The modern scientific and commercial method of breeding and care of bees for the production of honey and bee wax is known as apiculture.

Honey is a major source of food for man and other animals. It is a good source of vitamins and minerals and also simple sugars. Bee wax is also used for medicinal and cosmetic purposes.

Bee keeping or apiculture is widely practiced in U.S.A., Canada, Australia and New Zealand. The Khadi and Village Industries Commission (KVIC) and Indian Council of Agricultural Research (ICAR) are making efforts to raise the industrial status of apiculture in India.

It involves following features -

Choice of Flora -

A place where bees are kept is known as apiary. For setting up an apiary, the local flora is an important part of apiculture. Bees can collect nectar and pollen from far distant places but it will be better to choose more nectar yielding plants such as neem, Jamun, Soapnut etc. Plants like maize, rose and sorghum are rich in pollen whereas others like cherry, apple, Sheesham, coconut, guava and mustard serve for both nectar and pollen.

Choice of Bees - For starting an apiary, it is important to select a good variety of bees for domestication.

- 1) They should be gentle in temperament and have less stinging habit.
- 2) They have large capacity to suck the nectar.

3/ They should be high honey yielding variety.

The most common species of honey bee found in India are -

1. *Apis dorsata* - Popularly called Giant Honey bee. It is the largest in size about 20mm in length, highly yielding variety, but due to their ferocious and migratory habits they are not suitable for cultivation.
 2. *Apis indica* - The small India Bee found throughout India, easily domesticated but less honey yield about 3 to 4 kg per comb.
 3. *A. florea* - The little bee (8mm) with less honey collection capacity, docile in nature and stings rarely.
 4. *Apis mellifera* - The European bee, docile in nature and easy to domesticate.
- out of these four *Apis indica* is the best variety for apiculture industries.

Methods of Apiculture - There are two main methods of Apiculture

- 1) old or indigenous
- 2) Modern.

(1) old method is very crude and unscientific in which the honey comb is allowed to develop on the branches of trees and wall or beehive on artificial movable hives the bees are allowed to breed their and then they are killed or made to escape by smoking or bringing fire near the bee hives the main drawbacks of this method are -

- 1) The honey is not pure as it contains the larvae and pupae some pollen grains in it

- 2/ Destruction of old hives leads to loss of energy and bee hives.
- 3/ Bees may not construct their hives at same old place.
4. A lot of natural enemies like rats, ants, wasps and monkeys damage them.
5. No improvement of race can be done in this method.

II Modern methods - The modern method of apiculture was invented by Longstroth in 1951 which converted apiculture into cottage industry. The modern method of apiculture involves following applications -

1. Artificial hive - Artificial hives are made up of wooden boxes which can be shifted easily if may be of 2 or 3 tiers.

2. Brood chamber - The larger lower chamber is called brood chamber containing the queen bee, the upper smaller one is called the super chamber separated by perforated zinc sheet called queen excluder. The size of perforations is 3.75 mm so that workers and drones can pass easily through them.

The super chamber is covered by a wooden inner cover bearing several holes for proper ventilation. The top cover fitted with a plain and sloping zinc sheet, protects the bee hive from rains. The entire bee hive is mounted on a stand which is adjustable for creating slope.

(ii) Comb foundations - The brood chamber contains 5-10 vertical frames having hexagonal chambers of wax sheets called comb foundations as they provide basis for construction of comb by worker worker bees.

The queen bee lays eggs in a hexagonal chamber it can be used repeatedly for getting a regular brood of worker bees.

(ii) Models of hives - there are many models of bee hives (a) The Longstroth Model having 10 frames generally used in Kashmir, Punjab and Himachal Pradesh.

(b) The Newton model - 7 to 10 frames popular in South, east and central India

(c) Doolittle Model - containing 8 frames
Manufacture of comb foundations is done by central bee research Institute, Patna.

Honey extractor -> It is a large drum of tin containing revolving rods bearing packets of netted cloths. Extraction of honey is done on the principle of centrifugal force. Comb foundations full of honey are kept in packets of netted cloth and the rods are rotated manually at a high speed. The pure honey thus extracted is collected through a basal outlet. The undamaged comb foundations can be used again and again.

unclapping knife - before placing the combs in honey extractor their wax seals are unclapped with a knife heated over steam.

A smoking apparatus is used to smoke the bees out of hive, rubber gloves are also needed to protect hands from bee sting and a bee net made up of synthetic or cotton cloth is needed to protect from bee attack.

The main products of Apiculture are Honey ~~bees~~ and bee wax

Honey is made up of sugar, ~~overt~~ and minerals which is used in treatment of various disease like typhoid, dysentery, anaemia and pneumonia.

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