SCIENTIFIC METHOD OF HONEY PRODUCTION

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Introduction : Beekeeping refers only to rearing of domesticated honeybee species and their management. Honey bees help in pollinating many of the important cross-pollinated crops and also provide honey. First attempts to keep bees in movable frame hives were made during 1882 in Bengal and during 1883-84 in Punjab. Honey is a balanced nutritious food having high medicinal value. Honey is a balanced nutritious food having high medicinal value.

Species of honeybees : The common species of honeybees in India are :

Rock bee *(Apis dorsata)*: They are giant bees found all over India in sub-mountainous regions up to an altitude of 2700 m. They build single comb nests with an area up to 1-2 m or more. They are good honey gathers with an average yield of 50-80 kg per colony

Little bee *(Apis florea)* **:** They are the smallest of the true honeybees found in plains of India up to the altitude of 500 m. They build single vertical combs. They are poor honey yielders and yield about 200-900 g of honey per colony.

Indian bee *(Apis cerana indica)* **:** They are the domesticated species, which construct multiple parallel combs with an average honey yield of 8-10 kg per colony per year

European bee [Italian bee] *(Apis mellifera)* **:** This is the most widely distributed and commercially reared honeybee species in the world. They are also similar in habits to Indian bees, which build parallel combs. They are bigger than all other honeybees except Apis dorsata. The average production per colony is 25-40 kg. with foraging range between 2-3 kms.

Stingless bee *(Trigona iridipennis)* **:** In addition to the above, another species is also present known as stingless bees. They are not truly stingless, but sting is poorly developed. They make nests in the ground, hollows of trees, bamboo, rocks or cracks of walls. Honey and brood cells are separate in the nest. They are efficient pollinators. They yield 300-400 g of honey per year

BEE KEEPING :

The following points are to be taken into consideration to start beekeeping:

1. Pollen and nectar source
2. Site
3. Good Aeration
4. Water
5. Wind-Breaks
6. Shade
7. Season

Swarming :

Swarming is the natural instinct of honey bees to reproduce its colonies.
By swarming, strong colonies are divided naturally.
It occurs mostly when the colony population is at its peak.
Some of the several reasons for swarming are sudden honey flow, sudden failure of queen to lay eggs, congestion in the colony, want of breeding space, bad ventilation etc.

Dividing the colonies or keeping young queen or preventing over crowding of bees or adding new combs can prevent swarming.

Care for Swarm prevention :

1. Frequent inspection of colonies during spring
2. Remove queen cell regularly in strong colony
3. Combs with young brood can be removed and given to weak colonies and in place add more empty combs
4. Overcome swarming, colonies can be temporarily divided, which are reunited just before honey-flow
5. Divide colonies, if increase in colony number is desired so that swarms are not lost.

Colony Division :

1. Bee-colonies which are not very strong and can be spared from honey production are divided into 2 or 3 parts. Each divide is given a new queen. These divides grow in spring and summer and colonies produce surplus honey only during next season
2. One or two combs with bees and brood can be removed from strong colonies without impairing their production. The bees from two colonies can be united and made into a new colony by giving a queen.

Absconding :

Absconding is the total desertion of colony from its nest due to incidence of disease / pest attack, too much interference by human beings or robbing of honey by bees from other colonies. Proper scientific management can prevent it.

Communication :

1. The worker bees communicate with other bees about the exact location of nectar, pollen, water, next nesting site etc. by means of dances.
2. Round dance is performed when the food is located within 100 m from hive and wagtail dance to communicate the location of food source when it is more than 100 m away from the hive.

Bee space :

It is the space large enough to permit the free passage for worker bees but too small to encourage bees building a comb and too large for bees depositing propolis in it.

Indian bee (Apis cerana indica)

This is very common domesticated hive bee in India. A colony consists of a queen, 20,000 to 30,000 workers and a few drones.

This species is with gentle temperament and responds to smoking. Lack of flora leads to absconding and also has a strong tendency for swarming. It yields 8-10 kg of honey per colony per year with foraging range between 0.8-1 km.

Bee keeping equipments :

Hive : It is composed of bottom board, brood-chamber,brood chamber frames, super-chamber, super chamber frames, inner cover and top cover.
Smoker : To provide smoke for facilitating easy handling of agitated bees
Bee veil : To protect facial portion from bee-stings during handling of bee-colony
Swarm catcher : To collect honeybee swarms from different natural sources
Hand glove : To protect hands from bee-stings during handling
Boot : To protect legs from bee-stings during handling
Uncapping knife : To remove sealed layer of comb during extraction of honey
Honey extractor : To facilitate extracting honey Bee stand : Made up of bamboo, wood or iron to give support to bee-hive.

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