

## INTRODUCTION

Bee keeping for honey production has vast potential in the state of Goa. Some talukas of Goa (Valpoi, Sanguem, Quepem etc) fall in Western Ghat and have diversified vegetation comprising variety of flowers blooming in different seasons. In Goa, naturally seen *Apis cerana indica*, Indian bee (Satode muha mus yields about 2-5kg honey/year/colony) and *Trigona sp.*, Stingless bee (koynatale/Poyeche mus) about 60-180 ml honey/year/colony).

Bee keepers in Goa should have scientific knowledge on bee keeping for commercial production of honey and improving cross pollination of crops for higher yield.

Apiculture is the practice of rearing honey bees and Apiary is the place to rear them.

Honey bees are reared in artificial hives to enhance the crop pollination and generate income through honey, wax, royal jelly, venom, eco-tourism etc.

## KEY FOR SUCCESSFUL BEEKEEPING

### 1. Good apiary site

- Should be away from power station, brick kilns, highway and train tracks.
- Should be located in open and dry shady place with an easy access to road.
- Fresh water, good sunshine should be available near apiary.
- Should have wind breaks and green foliage.
- Area should be rich in bee flora.

### 2. Good quality bees

The weather in Goa is suitable for bee species, however success of Bee keeping depends on the quality of honey bee.

For healthy bees following points are to be considered:

- Buy disease free bee colonies from professional beekeepers.
- Get proper training on apiculture.

- Maintain honey bee colonies with healthy prolific queens, which are disease resistant, high honey yielding, healthy and has high egg laying capacity.
- Capture few bee colonies from their natural abodes in forests, which may be used for further breeding/ multiplication to prevent inbreeding in colony.

## 3. Management

### A. placement of colonies in apiary

- Bee hive boxes should be as per the specification of BIS/ISI and should be of locally available seasoned light weight wood.
- Avoid nailing the bottom board comprising brood chamber.
- Restrict number of bee colonies to 50-100 in an apiary.
- Keep row to row and box to box distance of 10 and 3 feet respectively.
- Avoid over- stocking of colonies in an apiary.

### B. Inspection of colonies

- Adopt general colony hygiene in an apiary like cleanliness in the beehives including frequent cleaning of bottom board, top cover, etc.
- Inspect colony once a week during the growth period and keep a periodic check for any abnormalities or changes in behaviour of bees.
- Handle colonies gently without any jerks.
- Isolate diseased colonies.

### C. Dearth period management (June to August)

During rainy season there is less availability of pollen and nectar, the egg laying capacity of queen is reduced.

Therefore adopt following measures:

- Provide 50% sugar syrup to honey bees in colonies. The syrup should be prepared by boiling clean water in the vessel and sugar added with slow stirring for few minutes.

- Feed cooled syrup in a shallow container with a pinch of turmeric as it has antiseptic properties.
- Feed the colonies in the evening preferably after sunset
- Store extra frames in air tight chambers and fumigate with sulphur powder regularly
- Discard old and dark combs.

### D. Management during September to February)

After the end of the rainy season, some herbs and shrubs start flowering, which provide nectar and pollen to honey bees. The queen starts laying eggs increasing the strength of workers.

In October to December some arboreal vegetation flowers, known as minor honey flow season. Supersede takes place during this period if queen is old. During this period, honey can be extracted from supers of well-established colonies.

## COMB RENEWAL

During growth period the uncovered old and moulded discolored combs should be removed as the queen does not lay eggs and the bees leave taking honey stock available in the colony.

Keeping the empty frames on rotation without disturbing the middle of the brood nest is called renewal. Comb renewal should be completed by mid-December.

- In January-February supers chamber should be fitted with empty combs to help honey bees store the honey.
- In the month of February pollen and nectar are easily available.
- February to May is known as the peak honey flow season.
- One hive can yield about 5 kgs of honey.

# HONEY BEE REARING FOR HONEY PRODUCTION IN GOA

## SWARM CONTROL

Availability of a plenty of nectar and pollen stimulate bees to prepare for swarming first by making drone cells.

- Honey should be extracted once in 8 days.
- Drone cells and Daughter queen cells should be carefully inspected and colony can be divided.

## E. Care during honey extraction (Feb- May)

- Use honey extractor, containers and other bee hive tools/equipments made of stainless steel /food grade plastic.
- Wash all the equipments/containers etc. thoroughly with warm water before honey extraction.
- Extract honey only from super chambers.
- Select frames only with 75% sealed cells with ripened honey for extraction.
- Cover the entrance gate of the colony with small branches or twigs to prevent robbing.



Honey Bee



Honey bee box

## Pests



Yellow Banded  
Wasp



Wax Moth  
Larva



Training students

PREPARED BY  
Mr. RAJAN SHELKE, ASSISTANT PROFESSOR,  
DEPARTEMENT OF AGRICULTURAL  
ENTOMOLOGY

PUBLISHED BY  
Dr. SURESH KUNKALIKAR, PRINCIPAL,

DON BOSCO COLLEGE OF AGRICULTURE,  
Sulcorna, Quepem  
GOA. 403 705



**DON BOSCO COLLEGE OF AGRICULTURE**  
Sulcorna, Quepem, Goa. 403 705