

Lecture 3: APIARY MANAGEMENT

Pre-requisites to start beekeeping

- a. Knowledge/Training on beekeeping
- b. Knowledge on local bee flora
- c. Sufficient on local bee flora
- d. If necessary practice migratory beekeeping

Apiary site requirements

- a. The site should be dry without dampness. High RH will affect bee flight and ripening of nectar.
- b. **Water** - Natural source/Artificial provision
- c. **Wind breaks** - Trees serve as wind belts in cool areas
- d. **Shade** - Hives can be kept under shade of trees. Artificial structures can also be constructed
- e. **Bee pasturage/Florage** - Plants that yield pollen/nectar to bees are called bee pasturage/florage

General apiary management practices

- i. **Hive inspection** - Opening the hive atleast twice a week and inspecting for following details.
 - Presence of queen
 - Presence of eggs and brood
 - Honey and pollen storage
 - Hive record to be maintained for each hive
 - Presence of bee enemies like wax moth, mite, disease
- ii. **Expanding brood net**
 - Done by providing comb foundation sheet in empty frame during honey flow period.
- iii. **Sugar syrup feeding**
 - Sugar dissolved in water at 1:1 dilution
 - Used to feed bees during dearth period
- iv. **Supering (Addition of frames in super chamber)**
 - This is done when brood chamber is filled with bees on all frames are covered
 - Comb foundation sheet or constructed comb provided in super chamber
- v. **Honey extraction**
 - **Bee escape board** - Kept between brood and super chamber
 - Bees bushed away using **brush**

- Cells uncapped using uncapping knife
- Honey extracted using honey extractor
- Combs replaced in hive for reuse

vi. Swarm management

- Remove brood frames from strong colony and provide to weak
- Pinch off the queen cells during inspection
- Divide strong colonies into 2 or 3
- Trap and hive primary swarm

vii. Uniting bee colonies - Done by Newspaper method

- Bring colonies side by side by moving 30 cm/day
- Remove queen from weak colony
- Keep a newspaper on top of brood chamber of queen - Right colony
- Make holes on the paper
- Keep queenless colony on top
- Close hive entrance (the smell of bees will mix)
- Unite bees to the brood chamber and make it one colony

SEASONAL MANAGEMENT

- Pollen and nectar available only during certain period
Honey flow season (surplus food source) x Dearth period (Scarcity of food)
- Extremes in climate like summer, winter and monsoon - Need specific management tactics

Honey flow season management (Coincides with spring)

- Provide more space for honey storage by giving CFS or built combs
- Confine queen to brood chamber using queen excluder
- Prevent swarming - As explained
- Prior to honey flow - Provide sugar syrup and build sufficient population
- Divide strong colonies into 2-3 new colonies - if colony multiplication need
- Queen rearing technique may be followed to produce new queens for new colonies

Summer management

- Bees have to survive intense heat and dearth period
- Provide sufficient shade (under trees or artificial structure)
- To increase RH and reduce heat - Sprinkle water twice a day on gunny bag or rice straw put on hive
- Increase ventilation by introducing a splinter between brood and super chamber
- Provide sugar syrup, pollen supplement/substitute and water

Winter management

- Maintain strong and disease free colonies
- Provide new queen to the hives
- Winter packing in cooler areas (Hilly areas)

Management during dearth period

- Remove empty combs (and store in air tight container)
- Use dummy division board to confine bees to small area
- Unite weak colonies
- Provide sugar syrup, pollen supplement/substitute

Rainy season/monsoon management

- Avoid dampness in apiary site. Provide proper drainage
- In rain when bees are confined to the hive, provide sugar syrup feeding

BEE PASTURAGE/BEE FORAGE

Plants that yield pollen and nectar are collectively called bee pasturage or bee forage.

Plants which are good source of nectar

- | | |
|-----------------|-------------------------------|
| 1. Tamarind | 6. Moringa |
| 2. Neem | 7. <i>Prosopis juliflora</i> |
| 3. Soapnut tree | 8. <i>Glyricidia maculata</i> |
| 4. Eucalyptus | 9. <i>Tribulus terrestris</i> |
| 5. Pungam | |

Plants which are good source of pollen

- | | |
|---|-----------------|
| 1. Sorghum | 6. Sweet potato |
| 2. Maize | 7. Tobacco |
| 3. Millets like Cumbu, Tenai,
Varagu, Ragi | 8. Coconut |
| 4. Roses | 9. Castor |
| 5. Pome granate | 10. Date palm |

Plants which are good source of Pollen and Nectar

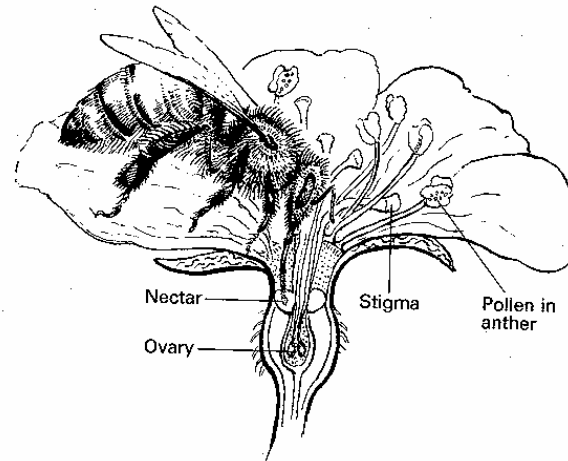
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|------------|---------------|
| 1. Banana | 7. Peach |
| 2. Citrus | 8. Guava |
| 3. Apple | 9. Sunflower |
| 4. Berries | 10. Safflower |
| 5. Pear | 11. Mango |
| 6. Plum | |

FORAGING

Refers to collection of nectar and pollen by bees.

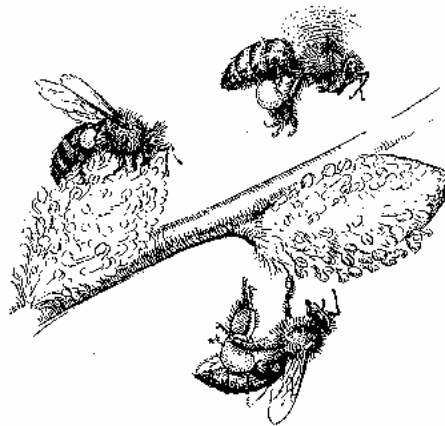
Nectar foragers

- Collect nectar from flowers using lapping tongue
- Passes the nectar to hive bees
- Hive bees repeatedly pass the nectar between preoral cavity and tongue - to ripen honey
- Later drops into cell



Pollen foragers

- Collects pollen by passing flower to flower. Pollen sticking to body removed - Using pollen comb
- Packed using pollen press into corbicula
- A single bee carries 10-30 mg pollen (25% of bee's wt)
- Dislodge by middle leg into cell
- Mix with honey and store



Floral fidelity

A bee visits same species of plant for pollen/nectar collection until exhausted. Bees travel 2-3 km distance to collect pollen/nectar.