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Care and Management of Apiary

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Seasonal Management of an Apiary

Pollen and nectar are available only during certain seasons of the year; therefore, appropriate and timely management practices are essential for successful beekeeping. Honeybees require different types of care under various conditions:

- **During the honey flow or breeding season**, when floral resources are plentiful and colonies grow rapidly.
- **During the dearth period**, when natural food sources are scarce and supplementary feeding may be required.
- **During extreme climatic conditions** such as summer, winter, and monsoon, to protect colonies from heat, cold, excess moisture, and diseases.
- **During periods of colony stress**, such as migration, pest infestation, or disease outbreak.
- **During queen rearing or colony multiplication**, when additional management and monitoring are necessary.

❖ **Honey Flow Season Management (Coincides with Spring)**

- Provide adequate space for honey storage by supplying comb foundation sheets (CFS) or allowing bees to construct new combs.
- Restrict the queen to the brood chamber by using a queen excluder to prevent egg laying in honey combs.
- Adopt suitable measures to control and prevent swarming.
- Before the onset of honey flow, feed colonies with sugar syrup to build up a strong and healthy population.
- If colony multiplication is required, divide strong colonies into two or three nuclei.
- Follow appropriate queen rearing techniques to produce additional quality queens.
- Strengthen weak colonies by transferring brood combs from strong colonies.
- To further reinforce weak colonies, shift them to the position of strong colonies during a bright morning when foraging bees are active, allowing the weak colony to gain more worker bees.

❖ **Dearth Period Management**

- Remove all empty combs from the hive and store them safely in air-tight containers to prevent pest infestation.
- Use a dummy division board to restrict bees to a smaller area, helping them conserve energy and maintain hive temperature.
- Install wax moth nets to protect combs from wax moth damage.
- Provide supplementary feeding in the form of sugar syrup and pollen supplements or substitutes to overcome food scarcity.
- During this period, wax moth infestation is common, and sugar syrup may attract black ants, so proper precautions should be taken.
- Regularly check the strength and health of colonies to ensure their survival during the dearth period.

❖ **Summer season management**

- During summer, bees must withstand high temperatures along with food scarcity.
- Provide adequate shade to the hives to protect them from direct sunlight and excessive heat radiation.
- Maintain higher relative humidity (RH) and reduce heat stress by sprinkling water twice daily on a gunny bag or rice straw placed over the hive.
- Ensure a continuous water supply by keeping water sources available near the hive or between the brood and super chambers.
- Improve ventilation by placing a small splinter between the brood and super chambers to allow better airflow.
- Support colonies with sugar syrup, pollen supplements or substitutes, and sufficient water during the stressful period.

4. Winter season management

- Maintain **strong, healthy, and disease-free colonies** to withstand cold stress.
- Replace old or weak queens with a **new, vigorous queen** to ensure better colony performance.
- In colder or hilly regions, provide **proper winter packing or insulation** to protect colonies from low temperatures.
- **Reduce hive entrance size** to prevent cold winds and entry of pests during winter.
- Ensure **adequate food reserves** in the hive or provide supplementary feeding to avoid starvation.

❖ **Rainy / Monsoon Season Management**

- Select an apiary site that is dry and well-drained to avoid dampness around the hives.
- Provide proper drainage facilities to prevent water stagnation during heavy rains.
- Raise hives slightly above ground level to protect them from moisture and flooding.
- During rainy periods, when bees remain confined to the hive, supply sugar syrup to meet their nutritional needs.
- Ensure good ventilation inside the hive to reduce humidity and prevent fungal diseases.

General Apiary Management Practices

i. Hive Inspection

The hive should be opened and inspected at least twice a week to check the following aspects:

- Presence of eggs, indicating active egg laying.
- Presence and condition of the queen, ensuring colony continuity.
- Availability of honey and pollen stores to assess food reserves.
- Incidence of pests, parasites, or diseases, such as wax moths, mites, and other bee enemies.

In addition, maintain a separate hive record for each colony to monitor its performance, health status, and management activities over time.

ii. Expanding Brood Nest

- Expansion of the brood nest is carried out by providing comb foundation sheets in empty frames during the honey flow period.
- This practice encourages the queen to lay more eggs, leading to an increase in brood rearing and colony strength.

Iii Sugar Syrup Feeding

- Sugar syrup is provided to bees during the dearth period when natural nectar sources are scarce.
- It is prepared by dissolving sugar in water in a 1:1 ratio and supplied to colonies to meet their energy requirements.

iv. Supering (Addition of Frames in the Super Chamber)

- Supering is carried out when all frames in the brood chamber are fully occupied by bees.

- Comb foundation sheets or already constructed combs are placed in the super chamber to provide additional space.
- This practice helps in proper honey storage and prevents overcrowding of the brood chamber.

v. Honey Extraction

- A bee escape board is placed between the brood chamber and the super chamber to drive bees away from honey combs.
- Remaining bees on the combs are gently brushed off using a soft brush.
- The sealed honey cells are uncapped with an uncapping knife before extraction.
- Honey is then extracted using a honey extractor without damaging the combs.
- After extraction, the empty combs are returned to the hive for reuse by the bee

vi. Swarm Management

- Reduce swarming tendency by removing brood frames from strong colonies and transferring them to weaker colonies.
- Destroy or pinch off queen cells during regular hive inspections to prevent swarm formation.
- Divide strong colonies into two or three units to control overcrowding and manage population pressure.
- Trap and hive the primary swarm promptly to prevent loss of bees.
- Control after-swarms by destroying remaining queen cells in the parent colony.
- Interchange the positions of strong and weak colonies so that foraging bees strengthen the weaker colony.

VII. Care of queen-less colony

A colony may become queen-less due to swarming or other reasons. In the absence of a queen, worker bees become idle, gather nectar near the hive instead of foraging actively, and within a few days their abdomen turns dark grey in colour.

Steps for Managing a Queen-less Colony

1. Introduction of Queen Cells or Caged Queen

- Transfer a brood comb containing one or two sealed queen cells into the queen-less colony.
- Alternatively, introduce a queen enclosed in a queen cage placed in an empty super chamber.
- Within a few hours, worker bees cluster around the cage, indicating acceptance of the queen, after which the queen can be safely released.

2. Direct Introduction Method

- Dip the queen in honey and place her directly into the hive using a matchbox.
- Worker bees lick off the honey, acquire the queen's scent, and gradually accept the introduced queen.

VIII. Uniting bee colonies

Methods of Uniting Colonies

a) Direct Uniting Method (Done in the Morning)

- Bring the strong and weak colonies side by side gradually by shifting them about 30 cm per day, or remove the weak colony to a place about 1 km away and bring it back after 10–15 days in the evening.
- On the following morning, when the bees are actively foraging, gently transfer the frames of both colonies into a single brood chamber of the strong colony.
- This results in the formation of one united colony.

b) Newspaper Method (Done After Dusk)

- Bring the colonies close together by shifting them 30 cm per day, or move the weak colony 1 km away and return it after 10–15 days in the evening.
- Remove the queen from the weak colony.
- Place a sheet of newspaper on top of the brood chamber of the queen-right colony.
- Open the other colony carefully and place 3–4 frames above the newspaper.

- Close the hive entrances so that the odours of both colonies mix gradually.
- By the next morning, bees chew through the newspaper and unite peacefully into one colony.
- This method is safer than direct uniting.

c) Powder Method (Done After Dusk)

- Bring the colonies together by shifting them 30 cm per day, or remove the weak colony to a distance of 1 km and bring it back after 10–15 days in the evening.
- Remove the queen from the weak colony.
- Keep the top of the brood chamber of the weaker colony open.
- Sprinkle equal amounts of powder over both colonies.
- Place the queen-less colony on top of the other colony.
- Close the entrances of both hives so that the odours mix.
- By the next morning, bees merge into a single colony in the brood chamber.

IX. Dividing the Colony (Done After Dusk)

- Place an empty nucleus box beside the mother colony that is to be divided.
- Open the mother colony gently to avoid disturbing the bees.
- Transfer 3–4 frames containing brood, bees, and sufficient food from the mother colony into the nucleus box.
- Ensure that the queen bee is transferred to the nucleus box. This operation should be carried out in the evening under favourable climatic conditions.
- Move the nucleus box to a distance of about 1.0–1.5 km during evening hours.
- Keep the nucleus colony at the new location for 10–15 days.
- After this period, bring the nucleus box back and place it at the desired site.
- Colony division is usually done when the population is at its maximum and queen cell formation has been initiated.
- Soon after division, a new queen emerges in the mother colony, restoring colony balance.

X. Precautions to Avoid Bee Stings

- When a bee stings, the odour of the venom released can quickly attract other bees.
- In such situations, the person should move away slowly from the hive, carefully remove the sting, and apply the juice of green leaves or a soothing substance to the affected area.
- Avoid using perfumes, scented powders, or strong-smelling products before hive inspection, as these may irritate bees.
- Do not wear black or dark-coloured clothing during inspection, as bees are more likely to react aggressively to such colours.

XI. Treatment for Bee Stings

1. Homoeopathic treatment: Administration of Apis mellifica is commonly used to relieve pain and swelling caused by bee stings.
2. Injection therapy: Epinephrine may be given in severe cases to manage allergic reactions.
3. Topical treatment: Application of an ointment such as Mial Selchiale on the affected area helps reduce irritation and discomfort.

Commercial Methods of Rearing (Additional Best Practices & Steps)

Additional Pre-requisites to Start Beekeeping

- Selection of suitable bee species based on local climatic conditions and floral availability.
- Availability of standard bee equipment such as hives, frames, smokers, protective clothing, and extractors.
- Basic knowledge of common bee diseases, pests, and their management.
- Awareness of seasonal management practices like honey flow, dearth, and extreme climatic periods.
- Access to local markets for honey and other hive products to ensure economic viability.

Additional Apiary Site Requirements

- Apiary should be located in a quiet area away from human disturbance, roads, and livestock.
- The site should be slightly elevated to prevent water logging during rainy seasons.

- Hives should be arranged in a systematic manner with adequate spacing to reduce drifting of bees.
- Easy access for transport of hives and honey supers, especially in commercial operations.
- Avoid areas exposed to pesticide spraying to prevent bee poisoning.

Additional Operational Steps for Commercial Rearing

- Maintain proper hive records for monitoring colony strength, honey yield, and management operations.
- Carry out regular inspection and timely supering during honey flow periods.
- Practice swarm control and colony multiplication to increase the number of colonies.
- Adopt scientific honey extraction and post-harvest handling methods to maintain quality.
- Ensure regular replacement of old queens to maintain strong and productive colonies.

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