

# **Supplementary Feeding of Bee Colonies**

## Supplementary feeding of bees:

- Bees require supplementary feeding when the food stores are poor.
- Supplementing the food stores of bee colonies with sugar syrup and pollen substitute/pollen supplement is known as **supplementary feeding**.

## When do the bees need feeding?

- When the colonies do not have sufficient stores in fall for wintering
- Stimulatory feeding during spring as a stimulus to rear more brood
- When new colonies or new queens are being prepared
- During drought and even before honey flow when colonies are very strong and they may have exhausted their food stores.

## What is the best food?

- Honey is the best food for bees.
- To substitute honey stores, sugar in different forms (as syrup, dry or candy) can be fed to the needy colonies.

## Feeding methods of Honeybees

- With commercial interests in mind different hive products are harvested from bee colonies which need to be supplemented for their survival.
- Colonies are fed sugar in different forms to supplement honey and pollen substitute or supplement in place of pollen.
- Therefore, it is important to know method of preparation of different types of feeds given to bee colonies and methods of feeding.

# 1. Preparation of sugar syrup

- For **general feeding**, prepare syrup of 1 part of sugar and 1 part water (by volume), say one cup sugar and one cup water (1 : 1) (Sugar : Water)
- For preparing stimulatory feeding (**in summer**) make dilute syrup by mixing 1 part sugar with 2 parts water (1 : 2) (Sugar : Water)
- Feeding during **autumn/winter** should be with concentrated sugar syrup. To prepare **heavy sugar** feeding, dissolve 2 parts of sugar in 1 part of boiling water and add 1 tablespoon full of tartaric acid to 50 kg of sugar, so as to prevent crystallization of sugar from the syrup on cooling. (2 : 1) (Sugar : Water)

# Feeding method

- Feed the sugar syrup prepared using:
  1. Friction pail feeders
  2. Division board feeders



Division Board Feeder

For feeding sugar syrup inside the hive.



Friction pail feeder

## Friction pail feeder:

- Friction pail feeder can be any container of 2 to 3 litre capacity (may be wide mouthed bottle or can) with 4 to 5 small holes made by nail in the lid.
- Place (after filling with syrup and putting the lid tight) on the side of brood chamber with lid inverted on the bottom board if space is available.
- Otherwise place on top bars and put an empty super to cover it
- Place 2-3 small pebbles below the lid so that bees have sufficient space to feed on drops of syrup which comes out when bees are feeding through the holes



## Division board feeder:

- Division board feeder is of the shape of frame having sufficient capacity for 2-3 litre syrup.
- Fill it with syrup.
- A wooden float in the feeder provides surface for bees landing and take up syrup by sitting on it.
- This feeder is placed on the extreme side of the hive where space is available



Division Board Feeder

For feeding sugar syrup inside the hive.



# Feeding method

- The syrup can also be fed by filling in empty combs. Giving these to the needy colonies
- Some beekeepers use community feeder in the bee yard by placing syrup in open in a large capacity tank and bees take syrup from it.
- But this should be discouraged as it may initiate robbing and weak colonies are victim of this type of feeding.

## 2. Dry sugar feeding:

- Dry sugar can also be fed to the colonies.
- Sugar can be provided on the inner cover with its hole open.



### Preparation of sugar candy:

- Dissolve **7.5kg cane sugar** (table sugar) and **1.5 kg glucose** in **4 cups of water** by stirring and boiling mixture until temperature of syrup rises to  $116^{\circ}\text{C}$
- Let the syrup cool to  $82^{\circ}\text{C}$  and then beat until thick
- Pour the candy in to mould lined with wax paper and let it cool
- Candy is ready to be fed to the colonies.

# Feeding method

- Place cake of sugar candy on small strips of wood above cluster of bees and place an empty super hive over the hive body.

## Precautions:

- Feeding of colonies requires special attention of the beekeeper.
- Take all the steps to **prevent robbing**
- **Avoid spillage** near the bee colonies
- **Feed** the colonies **in the evening**



# Feeding method

- Type of feeding given to bees depends on season and give the recommended type of feeding
  - **Heavy sugar** feeding in autumn and fall when the colonies do not have sufficient stores for wintering.
  - **Dilute** stimulatory **feeding** during spring as a stimulus to rear more brood.
  - **Dry sugar** is to be fed during monsoon
  - **Sugar candy** in winter when food stores fall (avoid feeding sugar syrup during winter to prevent initiation of brood rearing).

## Pollen substitute and pollen supplement:

- In addition to honey, bees also need pollen to meet their **protein requirements** and rearing of brood.
- If pollen stores are not sufficient and fresh pollen is not available, colonies can be given pollen substitute/pollen supplement.



## Supplementary feeding of bees:

- **Pollen Substitute:** This is a food to supplement pollen stores to which no pollen is added
- **Pollen Supplement:** Pollen supplement in addition to other components also contains pollen. It is readily accepted by bees.
- **Precaution:** Pollen substitute or supplement should be fed only during dearth period when pollen is not available or during spring when colony demand for pollen is more for brood rearing as compared to available pollen.

# How to prepare Pollen substitute???

Sr. No.	Ingredients	Quantity	Recipe
1	Mix defatted soy flour (DSF)	150 g	• Mix equal parts of both flours
2	Wheat flour	150 g	
3	Deactivated yeast (Killed at 60°C for half an hour)	100 g (Three parts of above mixture)	• To three parts of above mixture add one part of deactivated yeast
4	Heavy Sugar Sugar: Water (2 : 1)	400 ml (Amount equal to above mixture)	• Mix the above mixture with equal amount of heavy sugar
• Keep the kneaded pollen substitute overnight for proper penetration of sugar in the mixture			
• Fill 400g of this substitute in the frame and give one frame each to needy colony using frame feeding method			
• Also try feeding this substitute by wrapping it in butter paper and placing on top bars after making few punctures in the butter paper			

# How to prepare Pollen supplement???

➤ To prepare pollen supplement:

- Mix 1 part of pollen in
- 3 parts of fat free soy flour and
- 2 parts of sugar syrup (**Sugar: Water, 2 : 1**).
- This is fed to the bees in a similar manner as described for pollen substitute.





**Pollen substitute patty wrapped in butter paper and top bar feeding method**



**Figure 12.4 Frame feeding method of pollen substitute**