

PRACTICAL 8

COLLECTION AND PRESERVATION OF BEE PASTURE

Aim: 1) To become familiar with flora used by honey bees during different period.

2) To know importance of different flora as nectar and pollen source and their flowering period.

Honey bees collect nectar and pollen from a variety of plants which are known as bee flora or bee forage or bee pasture or nectar and pollen plants. Nectar is source of honey, meeting the carbohydrate requirements of honey bees, where as pollen is source of protein. Bee pasture can be designated as **build up, honey flow** and **dearth period flora** depending on period of availability with respect to development of bee colonies. The flora of an area is characteristic of its agro climatic conditions and as such varies from place to place. This flora is also a food base for large number of pollinators. Out of 3,52,000 species of flowering plants in the world nearly 3,08,000 species (87.5 per cent) are pollinated by animals (including insects, birds, bats, etc.). Bees pollinate a large majority of these plants. Pollination is an ecosystem service provided by the bees that is almost always taken for granted. In simple terms bees make more fruits and seeds for us by collecting nectar and pollen than the quantity of honey they make. Hence, it is essential to understand various types of bee flora and their blooming phenology in a given area to conserve bee colonies.

List of important bee flora

Sr. No.	Common name	Botanical name	Family	Flowering period (1-12 months)	Source for N-nectar P-pollen
1.	Stone and pome fruits	<i>Prunus & Pyrus spp.</i>	Rosaceae	2-4	N+P
2	Bramble	<i>Rubus ellipticus</i>	Rosaceae	2-3	N+P
3	Barberry	<i>Berberis lycium</i>	Berberidaceae	3-4	N+P
4	Honey suckle	<i>Lonicera angustifolia</i>	Caprifoliaceae	3-4	N+P
5.	Yellow clover	<i>Medicago denticulata</i>	Leguminosae	3-4	N+P
6.	White clover	<i>Trifolium repens</i>	Leguminosae	3-4	N+P
7.	Egyptian clover	<i>Trifolium alexandrinum</i>	Leguminosae	4-5	N+P
8.	Hirad	<i>Terminalia chebula</i>	Combretaceae	4-6	N
9.	Jamun	<i>Syzygium cumini</i>	Myrtaceae	4-5	N+P
10.	Eucalyptus	<i>Eucalyptus sp.</i>	Myrtaceae	3-5	N+P
11.	Bottle brush	<i>Callistemon lanceolatus</i>	Myrtaceae	4	N+P
12.	False acacia	<i>Robinia pseudoacacia</i>	Leguminosae	4	N+P
13.	Gulmohar	<i>Jacaranda mimosaeifolia</i>	Bignoniaceae	4-5	N
14.	Bird's foot treefoil	<i>Lotus corniculatus</i>	Leguminosae	4-5	N

15.	Daru	<i>Punica granatum</i>	Punicaceae	4-5	N+P
16.	Toon	<i>Toona ciliata</i>	Meliaceae	4-5	N+P
17.	Sunflower	<i>Helianthus annuus</i>	Compositae	4-7	N+P
18.	Shisham	<i>Dalbergia sissoo</i>	Leguminosae	4	N+P
19.	Wild rose	<i>Rosa moschata</i>	Rosaceae	4-6	N+P
20.	Ber	<i>Zizyphus jujuba</i>	Rhamanaceae	5-7	N
21.	Ohi	<i>Albizia chinensis</i>	Mimosaceae	5-6	N
22.	Khair	<i>Acacia catechu</i>	Mimosaceae	5-7	N
23.	Bhang	<i>Cannabis sativa</i>	Cannabaceae	7-9	P
24.	Maize	<i>Zea mays</i>	Graminae	8-9	P
25.	Shain	<i>Plectranthus rugosus</i>	Labiatae	8-10	N+P
26.	Cruciferous oil seeds	<i>Brassica spp</i>	Cruciferae	10-4	N+P
27.	Wild cherry	<i>Prunus puddum</i>	Rosaceae	10-11	N+P
28.	Rubber	<i>Hevea brasiliensis</i>	Euphorbiaceae	-	N
29.	Soapnut	<i>Sapindus spp</i>	Sapindaceae	10-12	N

Important honey flow sources in India: Flora secreting abundance of nectar and having large plantations is known as honey flow source. But to avail honey flow colonies should have peaked their population by this time. Some of important honey flow sources are: eucalyptus, brassica (sarson & toria), toon, soapnut, citrus, litchi, berseem, rubber, cotton, plectranthus, jamun, buckwheat, sunflower, shisham, acacia etc (see Fig. 8.1 to 8.6).



Figure 8.1 Bushes of *Plectranthus* in bloom (Autumn honey flow flora)



Figure 8.2 *Toona ciliata*, a summer honey flow source



Figure 8.3 *Acacia catechu*, monsoon honey flow or dearth period flora



Figure 8.4 *Brassica* sp, a winter honey flow crop



Figure 8.5 Sunflower, a summer honey flow crop



Figure 8.6 *Eucalyptus*, summer honey flow tree source

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Practical things to do:

- i. Go around apiary on a sunny day. Observe bee foragers whether they are collecting nectar (Fig. 8.7; with tongue of worker towards nectar) or pollen (Fig. 8.8; working on anthers). Note the corbiculae of pollen gatherer with pollen load. Record your observations on the flora observed and colour of pollen load.
- ii. Assignment: collection and preservation of bee forage plants.



Figure 8.7 Nectar gathering honey bee



Figure 8.8 Pollen gathering honey bee

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