

Course code: ENT304, Industrial Entomology 2(1+1)

Major honey bee species



Ghanashyam Bhandari

Entomologist (Scientist)

National Maize Research Program

PhD scholar, AFU, Rampur, Chitwan

Contact: 9845063974

Email: bhandarigb_1978@yahoo.com

Exotic and indigenous species

- Honeybees are social insects and live in colonies. Their main source of nutrition is flower nectar and pollen.
- Five honeybee species are found in the Himalayas of which four are indigenous to the region

Indigenous species

- *Apis florea* (Little honey bee)
- *Apis dorsata* (Gaint honey bee)
- *Apis laboriosa*, (Rock bee, cliff bee)
- *Apis cerana*, (Asian or indigenous hive bee)

Exotic honey bee

- *Apis mellifera* (European honeybee)
- Their major characteristics and differences are summarized below.

1. Little honeybee (*Apis florea*)

- The smallest or dwarf honey bee of the *Apis species*- wild bees of southern and southeastern Asia.
- Found in hills and plains at altitudes up to 1,200 masl
- Open nesting honeybee; builds single small comb nests under small tree branches or bushes.
- Colonies migrate frequently if the nesting site and forage area is inappropriate
- Average honey yield is 1 kg per colony per year
- Honey regarded as having high medicinal value
- Efficient pollinator of crops and natural flora in the himalayan foothills



2. Giant honeybee (*Apis dorsata*)

- Found in hills and plains at altitudes up to
- 1,000 masl
- Open nesting honeybee, prefers undisturbed nesting sites, usually on the top of tall trees, tall buildings, or water towers
- Builds single large comb nests, usually with several nests at one site
- Migrates to the hills in summer and to plains areas in winter
- Highly defensive and performs mass attacks
- They are very furious, vicious and migrate from place to place in different seasons.
- Honey production can be as high as 30–50 kg per colony per year
- Excellent pollinators of field crops, fruit, and natural flora



3. Himalayan cliff bee (*Apis laboriosa*)

- The world's largest honey bee, *Apis Laboriosa* (the giant Himalayan honey bee) is a wild bee and makes its combs cliff overhangs on rocky mountains.
- Found in hill areas from 1,200 to 3,000 masl
- Similar to *Apis dorsata* but darker and more defensive
- Prefers nesting in the open, mainly on large steep rocky cliff faces
- Builds single large comb nests, bigger than the *Apis dorsata* combs, with many colonies nesting close together at one site
- Migrate from place to place depending on the season and availability of bee flora
- Average honey production is 60 kg per colony per year
- Excellent pollinators of crops and wild flora



4. Asian or indigenous hive bee (*Apis cerana*)

- The only wild bee that can be kept in hives; traditionally managed by farmers in the region
- Found in all eight countries of the Hindu Kush Himalayan region, in plains and hills from below 300 masl up to 3,400 masl,
- The local race found in plains areas is smaller than the race found in hill areas
- A cavity nesting honeybee, which nests in hollow tree trunks, rock voids, and walls
- Builds multiple parallel combs; the number of combs depends on the colony size can be kept in log, wall, or movable frame hives and managed for commercial beekeeping



Contd.....

- A healthy colony has 25,000 to 30,000 bees
- Can produce up to 20 kg honey per hive per year, more in China
- Bees can fly up to 2 km from the hive to collect nectar, pollen, and water has frequent swarming, absconding, and robbing tendencies that complicate managed beekeeping; characteristics can be improved through continuous selection of the best colonies
- Resistant to diseases and mites (especially European foulbrood and *Varroa spp.*)
- Excellent pollinators of fruit trees, field crops, oil seeds, and wild plants; colonies can be transported to fields for crop pollination; particularly useful for pollination of high mountain crops and plants.

5. European honeybee (*Apis mellifera*)

- The only honeybee used for commercial beekeeping in most parts of the world
- Originated in Africa and spread to Europe and Asia, introduced from Europe to the Americas and other countries throughout the world
- Can be kept up to around 1,500 masl, but needs to be moved to plains areas during winter and mountain areas in summer to exploit floral resources
- All eight countries in the Hindu Kush Himalayan region have started commercial beekeeping with this bee
- Builds multiple parallel combs



Contd.....

- A healthy colony contains 60,000 to 70,000 bees
- Average recorded honey yield per colony per year: 40 kg in Nepal, 35 kg in India, 20 kg in Bangladesh and Bhutan
- Bees can travel up to 5 km from the hive in a single foraging trip to collect nectar, pollen, water, and propolis
- Swarming and absconding tendencies quite low
- Susceptible to diseases and parasites (such as brood and mites); needs special management in terms of technology, knowledge, and skills
- Migration of bee colonies can increase honey productivity
- Excellent pollinator of fruit trees, field crops, oil seeds, and other crops

Differences between *Apis cerana* and *Apis mellifera*

S.N.	<i>Apis cerana</i>	<i>Apis mellifera</i>
1	Indigenous bee in the Himalayas (Asian honeybee)	Exotic bee in the Himalayas (European bee)
2	Can be kept at higher altitudes and in remote areas	Successful in plains areas
3	Can be kept from 300 masl to around 3,400 masl	Can be kept up to around 1,500 masl, but needs to be moved to plains areas in winter
4	A healthy colony has 25,000 to 30,000 bees.	A healthy colony has 60,000 to 70,000 bees.
5	Can fly up to 2 km from the hive in a single foraging trip	Can fly up to 5 km from the hive in a single foraging trip.

S. N.	<i>Apis cerana</i>	<i>Apis mellifera</i>
6	Frequent swarming, absconding, and robbing tendencies	Swarming and absconding tendencies quite low
7	Resistant to European foulbrood and <i>Varroa mites</i> (although susceptible to Thai sac brood virus)	Susceptible to brood diseases and mites; needs special management in terms of technology, knowledge, and skills
8	Can produce up to 20 kg honey per hive per year, more in frame hives in China.	Can produce up to 100 kg honey per hive per year in the Himalayan region
9	Colonies can be caught in the wild and maintained in simple log or wall hives with a minimum of inputs, although for commercial beekeeping, it is also necessary to use a frame hive.	Colonies must be purchased from bee apiaries or a bee breeder and can only be managed in a frame hive, which requires management skills
10	Efficient pollinator throughout its entire range	In plains and lower altitude hill areas, efficient pollinator; available in the crop flowering season; easy to migrate where needed
11	Honey has a comparative advantage in terms of quality and the selling points of being generally 'organic' and 'natural'	Requires chemicals to treat diseases and parasites and these may contaminate the honey

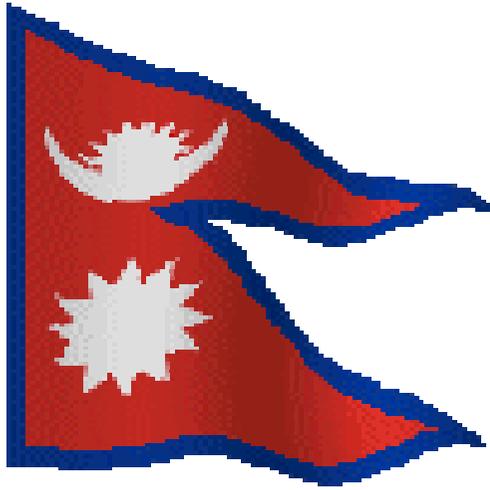
Apis cerana

Apis mellifera

Apis dorsata



5 mm



Thank you
for your attention

