

Insects as a source of income

Insects offer direct and indirect livelihood opportunities to millions through farming, foraging, and value-added processing.

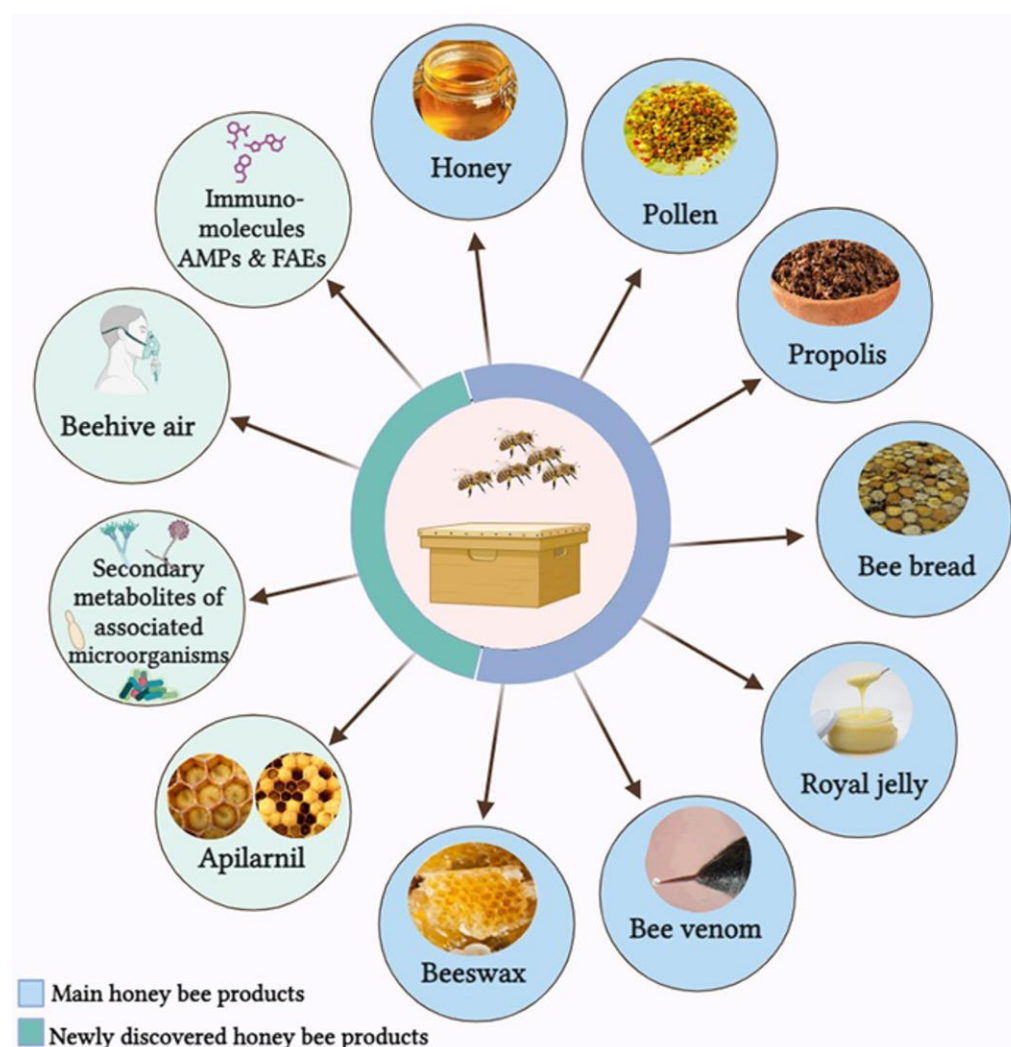
1. Beekeeping and Hive Products

Beekeeping is a major sustainable rural enterprise, particularly in India, Africa, and Europe. The Global honey market is estimated to be over USD 9 billion.

Bee products

- Honey – Used as food, medicine, and in cosmetics
- Beeswax – For candles, polishes, and cosmetics
- Propolis – Resinous substance with antimicrobial properties; used in traditional medicine
- Royal Jelly – Rich in nutrients; marketed as a health tonic and cosmetic ingredient
- Pollen – Collected for its protein and micronutrient content

Beekeeping supports crop pollination, increasing farm yields (especially for apples, almonds, and mustard).



2. Lac Insects (*Kerria lacca*)

- Lac insects are cultivated on host trees like *Butea monosperma* (Palas), *Ziziphus mauritiana* (Ber), and *Schleichera oleosa* (Kusum). in India, Bangladesh, and Thailand.
- Lac resin is used to make shellac, a natural plastic and varnish. It also has applications in pharmaceuticals, food coating, and electronics as insulating material. Other by products are lac dye (red pigment) and lac wax.
- India is the largest producer of lac, especially in Jharkhand, Chhattisgarh, and West Bengal.



<https://v2.india.gov.in/explore-india/odop/details/lac-lac-products>

Lac bangles

3. Edible Insects

Rural communities in Asia, Africa, and Latin America collect or farm insects for food and income. The global edible insect market is expected to reach over USD 8 billion by 2030.

4. Insects as Collectors' Items

Collectors pay premium prices for rare and exotic insect specimens. Some rare specimens fetch hundreds to thousands of dollars.

The groups that are commonly traded and collected are Butterflies (*Morpho*, *Papilio*, *Ornithoptera*), Beetles (*Goliathus*, *Dynastes*, Jewel beetles), Stick insects, dragonflies, and moths.

5. Caterpillar Fungus (*Ophiocordyceps sinensis*)

Also known as Yarsagumba (Himalayan Viagra), it is a parasitic fungus infecting caterpillar in the Himalayas. It is found in Nepal, Bhutan, and North Indian states (Uttarakhand, Sikkim). It is highly valued in Traditional Chinese Medicine. Market price can reach ₹5 to ₹20 lakh/kg (USD 6,000 to 25,000). The problems with this trade are the overharvesting which threatens sustainability and conflicts over collection rights in mountain communities.



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Caterpillars with emerging *Ophiocordyceps sinensis*