

Bee School 2026



Products of the Hive



Placing Bees in the Animal Kingdom

Phylum	Arthropod	External Skeleton, Chitinous, Segmented, Invertebrates
Class	Insecta Hexapoda	Six legged 3 major body parts, head, thorax, abdomen
Order	Hymenoptera	2 sets of joined wings connected by hooks, young develop through metamorphosis, ovipositor modified to stinger
SubOrder	Apocrita	Ants, Bees, and Wasps
SuperFamily	Apoidea	Bees
Family	Apidae	Food exchange, pollen baskets, storage of honey & pollen Over 20,000 species
SubFamily Tribe	Apini	Perennial, social colonies, highly eusocial
Genus	Apis	Honeybees 5 Species
Species		Apis florea, Apsi dorsata, Apis ceranna, Apis mellifera and Apis laboriosa (Nepal))

Products of the Hive



- Honey
- Beeswax
- Propolis
- Pollen
- Royal Jelly
- Pollination
- Bees

Honey



Honey



- **Honey** is a sweet, viscous food substance made by honey bees and some other bees. Bees produce honey from the sugary secretions of plants (floral nectar) or from secretions of other insects (such as honeydew), by regurgitation, enzymatic activity, and water

Honey



- **In simpler terms**
 - **Honey bee ingests nectar into their honey stomach**
 - **It is then mixed with enzymes**
 - **Upon returning to the hive, the nectar (70-80% moisture content) is regurgitated to another bee**
 - **The nectar is then transferred to a cell**
 - **The moisture content is reduced to about 18%**
 - **The honey is then capped off and will last a long time**

Honey Production



Production of natural honey in 2019	
Country	Production (tonnes)
China	444,100
Turkey	109,330
Canada	80,345
Argentina	78,927
Iran	75,463
United States	71,179
World	1,852,598
Source: FAOSTAT ^[38]	

Honey Production



Production of natural honey in 2022	
Country	Production (tonnes)
China	444,100
Turkey	118,297
Iran	79,535
India	74,204
Argentina	70,473
Russion	67,014
World	1,675,149
US: 56,849 (ranked 10 th in the world_ worldpopulationreivew.com	

Beeswax



Beeswax



- **Beeswax** (*cera alba*) is a natural wax produced by honey bees of the genus *Apis*. The wax is formed into scales by eight wax-producing glands in the abdominal segments of worker bees, which discard it in or at the hive. The hive workers collect and use it to form cells for honey storage and larval and pupal protection within the beehive. Chemically, beeswax consists mainly of esters of fatty acids and various long-chain alcohols.

Beeswax



- A **honeycomb** is a mass of hexagonal prismatic wax cells built by honey bees in their nests to contain their larvae and stores of honey and pollen.

Propolis



Propolis



- **Propolis** or **bee glue** is a resinous mixture that honey bees produce by mixing saliva beeswax with exudate gathered from tree buds, sap flows, or other botanical sources.

Propolis



- It is used as a sealant for unwanted open spaces in the beehive. Propolis is used for small gaps $\frac{1}{4}$ " or less, while gaps larger than the bee space (approximately $\frac{3}{8}$ ") are usually filled with burr comb. Its color varies depending on its botanical source, with dark brown as the most common. Propolis is sticky at and above 68 °F, while at lower temperatures it becomes hard and brittle.

Pollen



Plant (Bee) Pollen



- **Plant pollen**, also known as **bee bread** and **ambrosia**, is a ball or pellet of field-gathered flower pollen packed by worker honeybees, and used as the primary food source for the hive. It consists of simple sugars, protein, minerals and vitamins, fatty acids, and a small percentage of other components. Bee pollen is stored in brood cells, mixed with saliva, and sealed with a drop of honey.

Pollen



- Bee pollen is harvested as food for humans and marketed as having various, but yet unproven, health benefits.
- To harvest incoming pollen from the bees can have a detrimental effect on the production of larvae

Royal Jelly



Royal Jelly



- **Royal jelly** is a honey bee secretion that is used in the nutrition of larvae and adult queens. It is secreted from the glands in the hypopharynx of nurse bees, and fed to all larvae in the colony, regardless of sex or caste.

Royal Jelly



- Royal jelly is secreted from the glands in the heads of worker bees and is fed to all bee larvae, whether they are destined to become drones (males), workers (sterile females), or queens (fertile females). After three days, the drone and worker larvae are no longer fed with royal jelly, but queen larvae continue to be fed this special substance throughout their development.

Royal Jelly



- During the process of creating new queens, the workers construct special queen cells. The larvae in these cells are fed with copious amounts of royal jelly. This type of feeding triggers the development of queen morphology, including the fully developed ovaries needed to lay eggs.

Royal Jelly



- Royal jelly is sometimes used in alternative medicine under the category apitherapy. It is often sold as a dietary supplement for humans, but the European Food Safety Authority has concluded that current evidence does not support the claim that consuming royal jelly offers health benefits to humans. In the United States, the Food and Drug Administration has taken legal action against companies that have marketed royal jelly products using unfounded claims of health benefits.

Royal Jelly



- How is it harvested:
 - Royal jelly is harvested by **stimulating colonies with movable frame hives to produce queen bees**. Royal jelly is collected from each individual queen cell (honeycomb) when the queen larvae are about four days old.
 - Personally I think this is unnecessary and cruel to the bees

BEEES



Bees, Bees, & More Bees



- Packages from the South – BIG BUSINESS. \$159
- Nucs from the South and Locally \$229-\$249
- Queens - raised locally or nationwide \$50
- Pollination services – apples, blueberries, squashes/pumpkins, cranberries
- Community farms and gardens
- Local bee equipment suppliers
- Local bee companies