

HONEY BEE
DISEASES AND
PESTS

Honey bee products

Honey

- Honey bees produce honey from the sugary secretions of plants (floral nectar) or other insects (aphid honeydew) through regurgitation, enzymatic activity, and water evaporation.
- Honey is a sweet viscous food substance.
- It has a unique smell and taste.
- The color of honey may vary from yellowish to white depending on the nectar and pollen of the flowers used in the making.
- Content; 20% water, 60-80% carbohydrates (32-40% fructose, 22-44% glucose, 5-10% sucrose), 2.5% protein, Vit-B (1-4 mg/100 gr.), and vit-C (0.5-5 mg/100 gr), 0.01-0.3% inorganic matter.
- pH is between 3-5, acidic.

Honey types

- Flower honey: It is made from flower nectar. For example; Clover honey, citrus fruits honey etc.
- Honeydew honey: It is made from plant sap or liquid excretes of certain insects. For example; Pine honey, Fir honey etc.

- Harmful honeys: They are also called bitter or mad honey. It is related to the nectar collected from flowers.
- When consumed too much, there is a risk of poisoning.
- However, some of them can also be used in the treatment of certain diseases.
- For example, honeys obtained from especially rhododendrons (*Rhododendron ponticum*) grew in northern forests of Turkey.
- This plant contains an effective alkaloid on the cardiovascular system.
- The poisoning is not deadly, but it is intoxicating and has a constricting effect on the veins.
- Nothing is noticed from the taste of the honey.
- Other examples are poppy honey, crowflower honey, foxglove honey, etc.

- We can split honeys into 2 groups as comb honey and centrifugal honey.
- The honey may crystallize in cold, especially due to dextrose in it.
- There is no problem in the consumption of the crystallized honey.
- When this type honey is placed in a jar in the water tank at 60°C , it will melt and become normal.
- Normally, honey is lost most of their features if it is treated directly with a temperature at 60°C or higher.
- To prevent a harvested honey from crystallizing, the honey should be kept at 0°C for 5 week after harvesting and then stored at 4°C .
- Crystallized form is also seen in the honey which is produced from sugar.
- However, when a good honey is crystallized, it solidifies homogeneously, becomes a solid molasses, the color becomes properly smooth, dull.
- When the honey produced from sugar is crystallized, the crystals accumulate as hard, transparent particles like tea sugar in honey.

- Honey is used in the nutrition of infants, young people, athletes and patients; in the respiratory tract infections; in diabetes mellitus; in gastric ulcer, in weakness; in depression; and in treatment of many diseases.
- Honey is also the food ingredient of honey bees; therefore, it is necessary to leave 15-20 kg of honey in the hive for wintering.

Royal jelly

- It is a protein-rich substance, which is prepared and placed in cells by worker bees to feed larvae.
- It has a smooth whitish and sour taste.
- Royal jelly is released by the special glands (around the mouth) of 5-15 days old young workers.
- 52% of royal jelly consists of fructose, glucose, amino acid, vitamin, and albumin.
- Larvae of workers and drones are fed with royal jelly during only first 3 days, while queen is fed during their all life.
- Royal jelly obtained from honey bee is used as drugs in many disorders such as growth retardation, tissue aging in humans.

Bee venom

- There is a venom gland and a sting attached to it in the last part of the abdomen of queens and workers.
- The poison taken from the bees is used medically in rheumatism, back and neck pains, joint and nerve inflammation, and multiple sclerosis.

Propolis

- It is a resin-like substance found in leaves and buds of some plants such as willow.
- Honey bees use the propolis in the polishing of honeycomb cells, the closing of cracks, and the narrowing of the flight hole (in winter).
- Propolis has antibacterial and antimycotic effects and is used in the treatment of ear, nose, and throat diseases.

Pollen

- It is a material created by male sex cells in the petals of flowers that serve to fertilize.
- Young workers feed the larvae with a mixture knead with the picked pollen and honey.
- Pollen is a protein-rich substance.
- The honey bees save the excess pollen in the comb cells for future use.

Maintenance of honey bees

- January-February: Control of apiary and storage.
- March: Early spring preparations, hive controls, and cleaning etc.
- Post-April: The beginning of spring works.
- May: If a swarm is requested or no, the preparations are made accordingly.
- June: Provision of honey chamber and hive equipments.
- July: Placing of honey chambers to the hives.
- End of August: Honey harvesting and the production of winter bees.
- September: Autumn care.
- October: Preparation of the apiary for winter.
- November-December: Repose, winter rest.

Spring care

- Is the queen bee exist in the hive after winter?
- Are there eggs in the cell?
- How is the worker density?
- Is there an infectious or parasitic disease?
- Is there a need to supplement emergency food?
- To give food supplements, 1/1 sugar-water mixture with vitamins and minerals are prepared.

SUMMER CARE

- How is honey production?
- Is queen bee exist in the colony?
- How is the performance of the queen bee?
- The honey chambers must be placed according to the hive capacity.
- Pests around the apiary are controlled.

Autumn care

- Honey is harvested at the beginning of this period.
- 15-20 kg. of honey should be left in the hive for the consumption of the colony during the winter period.
- The queen bee must be transported if she does not exist.
- Weak colonies should be united.
- Diseases and pests should be controlled and necessary interventions should be made.
- Varroa control should be done.
- If necessary, food supplements should be made.
- For this purpose, syrups should be prepared by mixing 1 part water and 2 parts sugar.
- Hives should be protected against winter conditions.
- Flight holes should be narrowed.