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Abstract: *This article provides information about some biological, and epigenetic characteristics of the bee family raised in the Fergana Valley.*

Keywords: *bee milk, bee glue, bee venom, nectar, pollen, wax, larvae, uterine bees, working bees, male bees*

Annotation: *Beekeeping is an important branch of agriculture. Bees produce honey, which is useful for human health, and products such as honey, bee glue, and bee venom, which are widely used in the economy. That is why our people call beekeeping one of the seven treasures. Bees are also important in pollinating crops and increasing their productivity. Beekeeping requires a lot of knowledge, especially about the bee family and biology. Therefore, during research, the study focused on the characteristics of the family of bees raised in the regions of the Fergana Valley. This article introduces some of them. Fergana Valley has its own physical and geographical climate, flora and fauna. This feature is also reflected in the biology of bees.*

Bees live as a family. A family consists of one mother, several hundred males, and 30-80 thousand worker bees in a family. A family of bees has been observed to consist of workers of several different forms, which are uniquely formed. For example: several hundreds (there are relatively fewer hairs on the body, more aggressive), guards, room ventilators (wings are twice as long as worker bees), babysitters (nannies), those who look after the mother bee, house cleaners (cleaners) and others.

The aim of reserach is to study such epigenetic, specific bioecological features (for the first time in the conditions of the Valley). The reasons why the family increases and decreases depending on the seasons are being researched. It was observed that in spring and autumn, there are at least 15-20 thousand bees in the family, and in summer the number of bees reaches 60-70, sometimes up to 80 thousand. (Fergana. 2017-2018).

Worker bees make up the majority of the bees in the apiary. They are female bees and have underdeveloped genitalia and ovaries, so they cannot mate with male bees. In a typical family with a mother wasp, they do not lay eggs but do the general work of the family. In some cases, they were observed to lay eggs, from which only male bees developed.

Worker bees clean the hive, guard it, moderate the air in the house, build a dense nest, feed the larvae, collect sap and pollen, process the sap, i.e. turn it into honey, raise and lower the temperature, and control the air humidity. specialized in providing, and

bringing water and propolis to the hive. All worker bees in the hive can be divided into two classes. Somewhat younger (14-20 days old) bees make up the class of bees that perform work in the hive, while bees older than 14-20 days make up the class of flying bees. Worker bees fly out in the middle of the day on good weather days to empty their hindguts and familiarize themselves with their hive surroundings. The worker bees, who make up the second class, also go out of the field on good weather days to transport nectar and pollen. Worker bees bred in spring and summer can live for 35-45 days on average, and those bred in autumn can live for 4-6 months until the next spring, that is until the young bees hatch.

The body length of worker bees is 12-14 mm, the average weight is 0.1 g, that is, there are 10,000 worker bees in 1 kg. Their brain is well developed compared to that of the mother bee. Since worker bees perform various tasks in the family, the mother and male bees play a major role in the formation of economic and genetic traits.

The bee hatching from the ovary is divided into 3 periods:

Spawning period - 3 days

The feeding period of worms is 6 days.

Pechat (ghumbak) period — 12 days.

During the larval period - in 6 days, feeding bees visit 8 thousand times, and their weight increases 1300 times. The weight of male worms increases 3500 times in 7 days.

The digestive tract of bees consists of the large intestine, midgut and hindgut:

The large intestine is the function of receiving and temporarily storing food.

The midgut has the function of digesting and digesting food.

The hind intestine collects the indigestible part of the food.

Bees have three pairs of salivary glands:

It is a gland of the upper jaw, which produces substances that are part of the "royal milk" needed to feed the maggots.

The throat produces substances necessary to turn nectar into honey.

The lower lip produces saliva, which is necessary to moisten the tongue and digest food.

The wax glands of bees are of the apocrine type, they are located in the bee's abdomen, and they leak out through pores. Bees copy the wax plates with the help of special claws on their middle legs. 1kg of wax contains 4 million plates. There are 50 plates per bee cell and 120 plates per male bee cell. Wax secretion increases mainly in 12-18-day-old bees. And in flying bees, the wax glands stop.

Bees' feathers tend to shed as they age. The oldest bees have almost no hair left. Such bees are considered the most aggressive bees and often act as guards.

Work inside and outside the hive –is done in a certain order depending on the age of the bees. For example, bees work in the hive for up to 3 days after hatching. Adults up to 7 days old are attracted to the work of feeding larger worms with food consisting of honey mixed with pollen. From 8 to 18 days of age, they provide eggs with "bee milk".

The working order of bees can also change depending on the conditions. It is observed that 6-day-old bees begin to fly, and in the absence of young bees, maggots are fed by old bees. 25-day-old bees make comb and wax when there is no more comb and wax in the nest.

With the direct efforts of worker bees, the heat in the hive is maintained at 15-25 degrees even in autumn and winter.

As soon as the first warm days of spring begin and the air warms to 14-15 degrees, bees fly out and clean their intestines. The mother bee also returns to the egg-laying area after cleaning her intestines. In winter, queen bees are fed with winter honey and other bees, like other bees. (In spring and summer, they are fed only with "bee milk").

In the first days of spring, the worker bees will heat up the area to 35-40 degrees, and the mother bees will lay eggs in as many places as possible.

The body length of the queen bee is 20-25 mm, the weight is 200-250 mg. From spring to autumn, she lays eggs and manages the family. The wing covers half of the body and differs in the absence of nectar and pollen-collecting apparatus. The reproductive organs of the queen bee are developed. Lives up to 5 years. The reproduction of the family also depends on external environmental factors.

The queen bee mates in the air. The bee returns to the apiary in 16-20 minutes when mating with a bee, and 6-10 minutes when not mating.

Usually, on the seventh day after leaving the hive, when the temperature is above 19 degrees Celsius, on warm days from 12:00 to 17:00 hours, they fly out of the nests to join the male bees and mate. This temperature has been observed in the Fergana Valley for the last ten days of February. (20.02.2017). One queen bee will mate with 6-10 male bees. The male bees that have mated with the queen will die. The sperm in the sperm of the queen will reach 7-9 million eggs.

A queen bee loses her ability to mate if she does not lay eggs for 15 days after leaving the hive.

The mother bee starts laying eggs from mid-February when the weather is good (2017, 2019 Fergana). Egg laying starts at 150 per day and increases as the day gets warmer. The weight of 1500 eggs is equal to the weight of a queen bee. A queen bee can lay 2,000 or more eggs in one night, which are equivalent to her own weight. The number of eggs laid by a bee can reach 150-200 thousand eggs in a year. For example: from the beginning to the end of April, the number of eggs laid per day is from 200 to 500, in May from 1000 to 1400 eggs. (Fergana, Avval village, April 3-5, 2018) The most egg-laying period is June, the mother bee lays 1,500 to 2,000 eggs in one night. From the following months, ovulation will decrease. From 1000 to 500 in July, from 300 to 200 in August, from 200 to 150 in September (2017, Fergana, Logon village)

The laying of eggs by the queen bee largely depends on the proximity of the place prepared in the frames. Because it takes 36 seconds to lay 1 egg. When the queen bee lays

16 to 40 eggs, she rests for 10-15 minutes →, during which time the nurse bees feed the queen.

When autumn comes unfavorable, egg-laying stops at the beginning of September, and in a favorable year, queen bees lay eggs until the beginning of November. (Fergana, Logan, November 5, 2019).

On average, 1200-1500 eggs are laid per day, so up to 7-9 thousand worms grow in one meal.

Egg-laying of queen bees lasts up to 6-7 months in mountainous areas, up to 9 months in cultural landscapes. It is expected that if the queen bees and bees overwinter badly in the winter, the queen bees will die in the spring. (observed in the spring of 2017 in the village of Vodil)

Male bees reproduce in the spring and summer months when good conditions are created in the family. It is easy to distinguish the male bee from the worker bee, because it is larger than the worker bee, and its weight is on average 0.2 g, which is 2 times heavier than the worker bee. Male bees do not do any work in the family. Their task is only to tame the mother bee. Therefore, in spring and summer, each bee colony produces several hundred male bees. However, on average, 6-8 of them mate with the queen bee. They are fed with ready-made honey or worker bees feed them with their own horn. The purpose of breeding large numbers of male bees is to quickly find a male bee when the queen flies out to swarm and to have the conditions to mate with the strongest one, to lay the groundwork for the production of strong, healthy offspring in the future. Male bees live for about 2 months. In the fall, when the natural sap stops flowing, the worker bees drive the male bees out of the hive. Only in a family, if there is no queen bee or if there is a queen that has not hatched, then the male bees will overwinter. Honey is placed in the hive of the male bee, but no pollen is deposited. Male bees become sexually mature when they are 12-14 days old. 1 male bee larva consumes enough food for 5 worker bee larvae.

At least 2000 male bees come out in one family. If they live for 60 days, more than 12 kilograms of honey will be lost.

Male bees fly up to 40 km in search of queen bees to join other swarms. A stray swarm of bees can fly up to 50 km.

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