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Change Of Hive Temperature And Air Humidity In Uzbekistan Conditions During Wintering Of Bees Of Local Population

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ABSTRACT

Information on fluctuations in hive temperature and humidity during bee winter in Tashkent region and feed consumption during winter. Studying all this is very important for the bees to survive and survive the winter.

KEYWORDS

Winter, endurance, energy, sumalak juice, intestines, amino acids, protein, carbon dioxide, carbohydrates, waste.

INTRODUCTION

The relevance of the topic is that in the climatic conditions of Uzbekistan during the wintering of bees, in the upper part of the bee range, in the place of accumulation of bees, the temperature and humidity of the air will be much higher. Therefore, the accumulated power of bees, gradually - slowly - the feed in

the rum captures new parts of honey and moves up. Bees located next to the bee's horns also move upwards.

Among the extreme frames in the nest there are often small bees, so, sharply lowering the temperature, they pass between neighboring

frames located near the center. If the cold falls quickly, then they cannot pass between neighboring frames, since they do not have the opportunity to warm themselves.

In order to help bees move between neighboring frames, wooden rails of 2-3 pieces (10x15mm) are placed at the top of the frames, which give good results. [2,4]

In addition, in the conditions of the Bukhara region, the discovery of small-scale holes was good so that bees could freely move from one frame to another. [3]

The winter of the bee family is also affected by air temperature. Usually, bees do not fully heat the nest in rural areas, and in the lower part of the nest the temperature is always much lower than in the center of the nest. [1]

Bees only try to maintain a normal temperature inside the accumulated layer of bees. When the air temperature decreases, the bees at the accumulated power penetrate into the force, and the bees from the inside go to the outer shell of the power layer and try to take its place. In the center of the power gang there are mainly mobile bees, the main task of which is to in the center of the power gang, heat production and temperature stabilization on one wheel.

With a decrease in temperature, the movement of bees in the power environment will increase significantly. Power decreases, it spends more feed on heat supply. With an increase in temperature, the volume of the winter burial ground increases, and the density of the power group decreases.

RESEARCH METHODOLOGY

Research work was chosen based on similarities in the colonies of the best bees entering the winter in the fall of 2019. They had the same number of feeds, as well as

family strength. To measure the temperature of the socket in December 2019, a thermal sensor (chip) was installed in the bee house. One of the thermal sensor chips was placed around the force accumulated in the socket, and the second thermal sensor was placed on the edge of the socket frames, which were obtained at the end of February and studied programmatically on a computer.

Research work was carried out in the beekeeping farm "Tashkent Bee Agro" of the Parkent district of the Tashkent region, during the wintering of beekeeping, in the bee colonies of the local population.

The results of the study showed that the thermal sensor indicators, established between strength, showed that the temperature of the house was constantly changing in the village, on October 3, 2019 the air temperature changed sharply, the bees were still not accumulated around strength, the temperature in the house changed from 00 to 300 degrees, and this process continued until December 13. During this period, bees flew on sunny days, the temperature on the field was about + 10-120 degrees.

Then, as a result of the sharp cooling of the air temperature in the field, the temperature in the socket was kept at the level of one wheel, the average 14,70 th level. This process lasted until January 17, 2020. Due to the fact that bees lay eggs for the first time, the air temperature in the house gradually increased, and until the end of February this process changed a lot.

In rural areas, the maximum temperature of 30,60 C and the lowest temperature was 3,50 C, at an average temperature of 17,10 C.

Also, this species appeared on the edge of the frame s in the house of bees. The highest

temperature on the edge of the rums 24,30 C and the lowest temperature 4,50C, the average temperature is held at about 14,40C. Also during this period, air humidity in the nest was studied.

The air humidity in the nest is also about 55.4%, which is 87.1% of the maximum power and 23.7% of the lowest. On the border of the frame - 75.7; 23.9 and 56.9 per cent on average.

The same condition can be described in Figure 1.

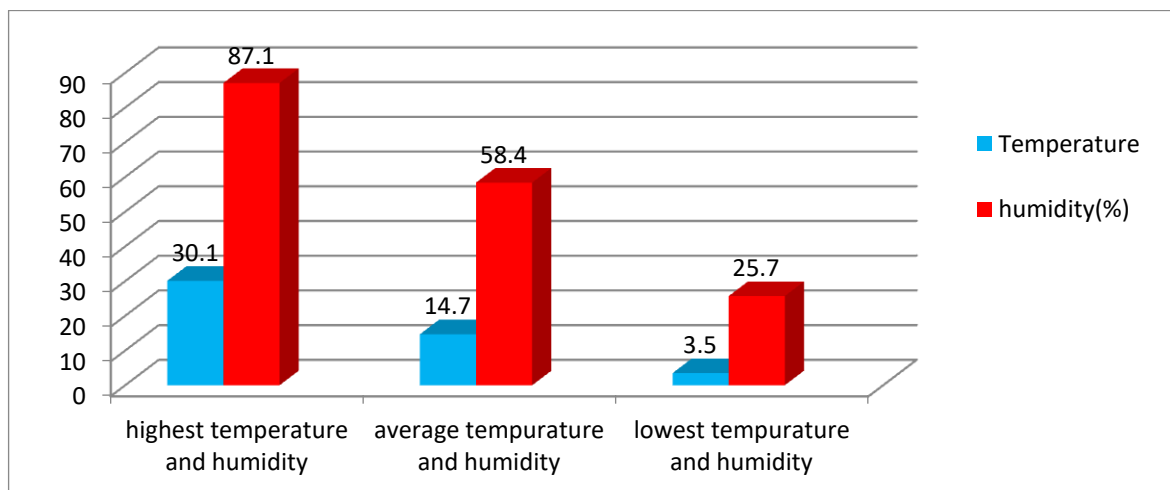


Figure 1. Dynamics of nest temperature and humidity change during wintering of bees

Diagrams of Figure - 1 show that the temperature of the socket is raised around the force accumulated in the socket, and the humidity of the air in the socket varies depending on it.

This indicates the relationship between the temperature of the nest and the humidity of the air in the nest during the wintering of their colonies in the local population.

During the experiments, thermal sensors were used to study the temperature and humidity of the nest. During the wintering of bees in the mountain "steppes" of the Tashkent region, the lowest temperature was observed in the center of the power gang + 3.5°C. This is the most surprising case in beekeeping, below which bees can die from cold. With the

increase in temperature, a revival began in the family, bees in the center of the power gang were actively moving. During this period, many feeds for heat production were observed. In the experimental months, the temperature rose very quickly and reached + 30.6°C. During this period, the bees in the family became much calmer and for a certain period no heat was produced, and the temperature at power remained in uniform norms. Thus, the temperature in the power unit first sharply, and then gradually decreased. This process continued until the body approached the temperature. The change in nest temperature during bee wintering is shown in table - 1 below.

Table - 1

Change in nest temperature during bee wintering.

Month	n	lim	$X \pm S_x$	Cv, %
December	3	22,2-39,1°	30,6±0,04	10,53
January	3	8,8-20,6°	17,1±0,01	5,10
February	3	15,4-39,5°	27,4±0,03	7,40

From the data of table - 1 it follows that in practice during the wintering of beekeeping in the local population, quite high temperatures were maintained within the power group, which led to a significant decrease in feed consumption and heat. The lower the temperature around, the more bees produced heat. During the experiments, the external temperature was - 0°C, the bees were inside the nest, the average temperature during the winter kept at + 17.1°C. In late January and early February, when young individuals

appeared in the family, the temperature rose to + 32°C - 34°C, and the lowest - up to + 30°C. Even in winter, when the temperature was at the level of -10°, the average temperature inside the power plant ranged from + 17.1°C to + 27.4°C.

During the experiment, during the wintering period, the bees violated the ninth, raising the temperature inside the power group and ensuring its high level during the day.

For example, during the winter season, the temperature changes in the nest (highest and lowest) and the air humidity level in the nest are shown in table-2 below.

Table - 2

The level of temperature and humidity in the village.

The temperature of winter period.	Temperature around the force in the hive (O-C°)	Air humidity (%)	Temperature within the frame in the hive (O-C°)	Air humidity (%)
Highest	30,6°-	87,1	24,3°-	75,7
Average	17,1°-	58,4	13,8°-	56,9
Lowest	3,5°-	25,7	4,5°-	23,9

From the data of table - 2 it can be seen that throughout the village the temperature of the house changed. The highest temperature around the bees was + 30.70 degrees, and the lowest temperature was about + 3.50 degrees. The average temperature was + 17.10 degrees.

The humidity in the same nest has changed slightly. Air humidity around the nest was 87.1%, and the lowest humidity was 25.7%. The average humidity in the hive was about 58.4%. Also, the highest air humidity in the hives, on the outskirts of the frames was 75.7%, and the

lowest air humidity was 23.9%. Average air humidity is maintained in the range of 56.9%.

It has been established that in the climatic conditions of the Tashkent region, the wintering of colonies of strong and weak bees is very different from each other. In units of live weight (1 kg of bees), colonies of strong bees spent less feed than colonies of homeless bees.

Feed losses in colonies of strong and barren bees in rural areas are shown in table - 3.

Table - 3

Feed consumption during wintering of bees.

Indicators	n	Feed flow rate (kg)	Feed flow per bee corridor (kg)	Ratio to strong and weak colonies, %
Strong colonies between 4.5-5 frame	10	10,7	2,6±0,09	-
Colonies without strength, between 2-3 frame	10	12,8	4,3±0,13	119,6

The data of table - 3 showed that studies conducted in the Tashkent region showed that during wintering, bees of the local population develop as colonies of bees with a minimum strength of 4.5-5.0 kg of bees with a corridor between 1.0-1.2 frame, healthy winter and a good family. On average, they spent 10.7 kg of feed. However, it was found that colonies of invertebrate bees, having 0.3-0.6 kg of bees between 2-3 frames, often die in a

favorable village, without leaving healthy until spring.

During the wintering of bee colonies, 2.6 kg of feed was used per corridor, and in colonies of homeless bees - 4.3 kg of feed, or in these strong colonies, the consumption of feed was 1.7 kg, or 60.7% less feed than in disadvantaged colonies.

CONCLUSION

During our experiments conducted in the mountain "steppes" of the Parkent district of the Tashkent region, it was found that during the peaceful winter of the bee family, in strong colonies, the average temperature is not higher than + 17.1°C, heat is maintained in the same norm. It was also found that in colonies of strong bees the temperature loss will be less, and at the end of the village, with the advent of a young breed, the temperature inside the house increased to + 35°C, and in dysfunctional colonies this indicator will be within + 32°C degrees.

This indicates a constant change in temperature, as well as a sharp dependence on ambient air temperature in rural power bees in their colonies of local populations.

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