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## COMPARATIVE ASSESSMENT OF HONEY BEES IN UZBEKISTAN

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**Abstract:** results of comparative assessment of honey bees of different breeds bred in Tashkent region are presented. Studies were carried out on the apiary of the farm "Kodirkhujata" of the Kibrai district of Tashkent region.

**Keywords:** morphometric feature, exterior, cubital index, living mass, local population, egg production, acclimatization, aboriginal.

**Introduction.** Currently, almost every region of Uzbekistan can find bees of non-zoned breeds that cannot fully show their economically useful qualities due to climatic and medical harvesting conditions [1].

Analyzing the results of acclimatization of bees in different regions, we came to the conclusion that success depends on the bee breed and is primarily determined by the physiological possibility of bee families [2].

To date, apiaries of the republic are bred on a number of native breeds by imported Carpathian bees (*Apis mellifera carpatica*), carnica (*Apis mellifera carnica*). To this end, our task was to compare economically useful signs between local and imported honey bees in Uzbekistan. The work was carried out on the apiary farm of the Kibrai district of the Tashkent region.

**Research Methodology.** Families were evaluated by the quality of egg production, the weight of the fetal queens, as well as working bees, productivity, and exterior indicators. The daily egg production of the uterus was determined by a grid frame after 12 days according to the method of V.G. Kashkovsky (1970). When determining the mass of working individuals, 50 bees were selected from each family and weighed to the nearest 1 mg.

Exterior assessments of bees were carried out according to the method developed by professors V.V. Alpatov and V. A. Gubin (1976) [3]. Productivity was taken into account by the gross collection of honey. All honey that was selected and left in the nests for wintering was weighed to an accuracy of 100 g. Waxing of families was taken into account according to the set up framework and the cost of wax for sealing the honeycomb according to the method of V. G. Kashkovsky (1970) [4].

**Results.** The daily egg production of the uterus was determined by a  $5 \times 5$  grid, 100 pieces fit into each frame. cells, including a closed brood, a full  $5 \times 5$  frame with a closed brood is considered one  $5 \times 5$ , if 50% of the  $5 \times 5$  frame is an open and closed brood then  $0.5 + 0.5 = 1$  is considered. Local

individuals chose the Carpathian bees as the experimental groups as control groups; bee families fed 50% of them sugar syrup. Thus, the eggs were laid every 12 days for the uterus, and the results are shown in Table 1 below.

Table 1

**Daily egg production of queens, 2019**

Date of observation	n	lim	$X \pm S_x$ , pcs.	Cv, %	Live weight of queens, $X \pm S_x$ , mg
<b>Carpathian <i>Apis mellifera carpatica</i></b>					
28.03.2019	10	441-836	$638,3 \pm 9,1$	4,51	$190,3 \pm 4,1$
11.04.2019	10	559-1309	$934,2 \pm 8,4$	25,40	$200,3 \pm 5,0$
23.04.2019	10	755-1376	$1065,5 \pm 80,8$	24,0	$200,5 \pm 5,0$
04.05.2019	10	1211-1760	$1489,2 \pm 29,5$	3,01	$206,3 \pm 5,5$
16.05.2019	10	1540-1940	$1738,3 \pm 30,9$	3,21	$224,8 \pm 6,5$
28.05.2019	10	1569-2055	$1811,6 \pm 48,5$	4,31	$226,3 \pm 7,0$
10.06.2019	10	1804-2151	$1977,5 \pm 64,4$	3,30	$227,1 \pm 7,1$
22.06.2019	10	1914-2369	$2134,2 \pm 70,1$	4,16	$230,3 \pm 7,9$
<b>Local population</b>					
28.03.2019	10	289-550	$419,5 \pm 6,1$	3,42	$180,9 \pm 2,5$
11.04.2019	10	345-609	$477,2 \pm 7,0$	15,0	$189,3 \pm 3,0$
23.04.2019	10	475-876	$675,5 \pm 9,8$	17,0	$190,5 \pm 3,9$
04.05.2019	10	901-1150	$1025,5 \pm 15,5$	2,07	$196,3 \pm 4,5$
16.05.2019	10	1040-1190	$1115,3 \pm 20,9$	2,51	$198,8 \pm 5,5$
28.05.2019	10	1085-1255	$1170,6 \pm 35,3$	2,91	$200,3 \pm 5,9$
10.06.2019	10	1125-1351	$1238,2 \pm 39,8$	3,00	$207,2 \pm 6,1$
22.06.2019	10	1114-1469	$1291,5 \pm 40,3$	3,16	$208,3 \pm 6,9$

The results of research show that the uterus of local bees lay two times less eggs than the Carpathian. In April, the egg production of the uterus of the local population averaged from 477.2 to 675.5 pcs. since at this time the egg production of the Carpathian individuals is from 934.2 to 1065.5, respectively. in May, indices of the local population ranged from 1025.5 to 1170.6 pcs. Carpathian from 1489.2 to 1811.6 pcs. When examining the nests of the local population on a honeycomb removed from the hive, he is worried, the uterus runs along the honeycomb with bees. When smoking, the bees run away from the smoke, and then they attack the honey and drink.

A different situation with Carpathian bees is a positive reaction, a less active reaction to knocking, smoke, when examining the nest, the uterus does not run on the frame, but sits quietly on the comb. The egg production rates of uterine Carpathian bees are higher than the local population.

Table-2

**Living mass of aboriginal and acclimatized working individuals,  
July 2019**

Breed	n	lim	$X \pm S_x$ mg
Carpathian	210	107,4-110,2	$109,2 \pm 1,12$
Local population	220	103,9-107,2	$105,1 \pm 1,09$

On Table 2, the living weight of the working individual of Carpathian bees was on average 109.2 mg, the working individual weight of the local population was on average 105.1 mg, 4.1 mg less than Carpathian working individuals.

To determine the productivity of bee families, control and experimental groups were located in the sunflower field of the Kibrai district at a distance of 0.5-1 km. The results have shown in Table 3.

Table - 3

**Productivity of bee families, Kibrai district of Tashkent region, 2019**

Breed	Product, kg	
	honey	wax
Carpathian	$40,7 \pm 1,78$	$1,154 \pm 0,084$
Local population	$32,4 \pm 1,16$	$0,988 \pm 0,126$

Table 3 took into account the productivity of the Carpathian breeds and the local population. The productivity of aboriginal breeds was lower than that of Carpathian breed families. The difference is reliable.

To fully characterize the bees, we performed an external assessment of them. Morphometric indices are shown in Table 4.

Table 4.

**Exterior indicators of different breeds of bees in Tashkent region**

Signs	Breed	
	Carpathian	Local population
Proboscis length, mm	$6,72 \pm 0,01$	$5,01 \pm 0,001$
Front wing length, mm	$9,6 \pm 0,03$	$8,1 \pm 0,02$
Front wing width, mm	$3,08 \pm 0,01$	$2,86 \pm 0,002$
Qubit Index, %	$45,7 \pm 0,39$	$55,76 \pm 0,116$
Number of hooks on the rear wing, pcs	$21,38 \pm 0,19$	$18,15 \pm 0,13$

Sum of lengths 3 g and 4 g tergites, mm	2,52±0,02	2,02±0,003
	4,77±0,01	3,15±0,015
	2,20±0,02	2,00±0,001
	4,55±0,021	3,55±0,018

The findings suggest that Carpathian bees differ from local bees in terms of external traits. The length of the proboscis of Carpathian bees is 1.71 mm more, the length of the front wing is 1.5 mm more, the width of the front wing is 0.22 mm more, the number of leads is 3.23 pcs more than local populations, the cubital index in the local population is 10.06% more than the Carpathian breed.

**Conclusions.** Thus, the unsystematic import of bees of different breeds into the Republic of Uzbekistan from other regions led to the formation of variability in the local population. Comparing the economically useful signs of different breeds of honey bees, we can say that Carpathian bees are productive, the mass of the body of the fruiting uterus and working individuals is larger than local populations.

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