



SELECTION FEATURES OF CARPATHIAN BREED BEES

M. Petko^{1,2}, V. Fedorovych²

¹Institute of Animal Breeding and Genetics named after M. V. Zubets NAAS,
Chubynske village, Boryspil district, Kyiv region, Ukraine

²Institute of Animal Biology NAAS, Lviv, Ukraine



Introduction

Among the factors that create conditions of human being life process, a significant place belongs to the selection of breeding and productive qualities of bees. A promising area of breeding work in beekeeping is hybridization and the use of interbreed hybrids, which provide a significant increase of productivity in the first generation. Given the above, the aim of our research was to study individual selection features of bees of different genealogical development of the Carpathian breed.

Material & Methods

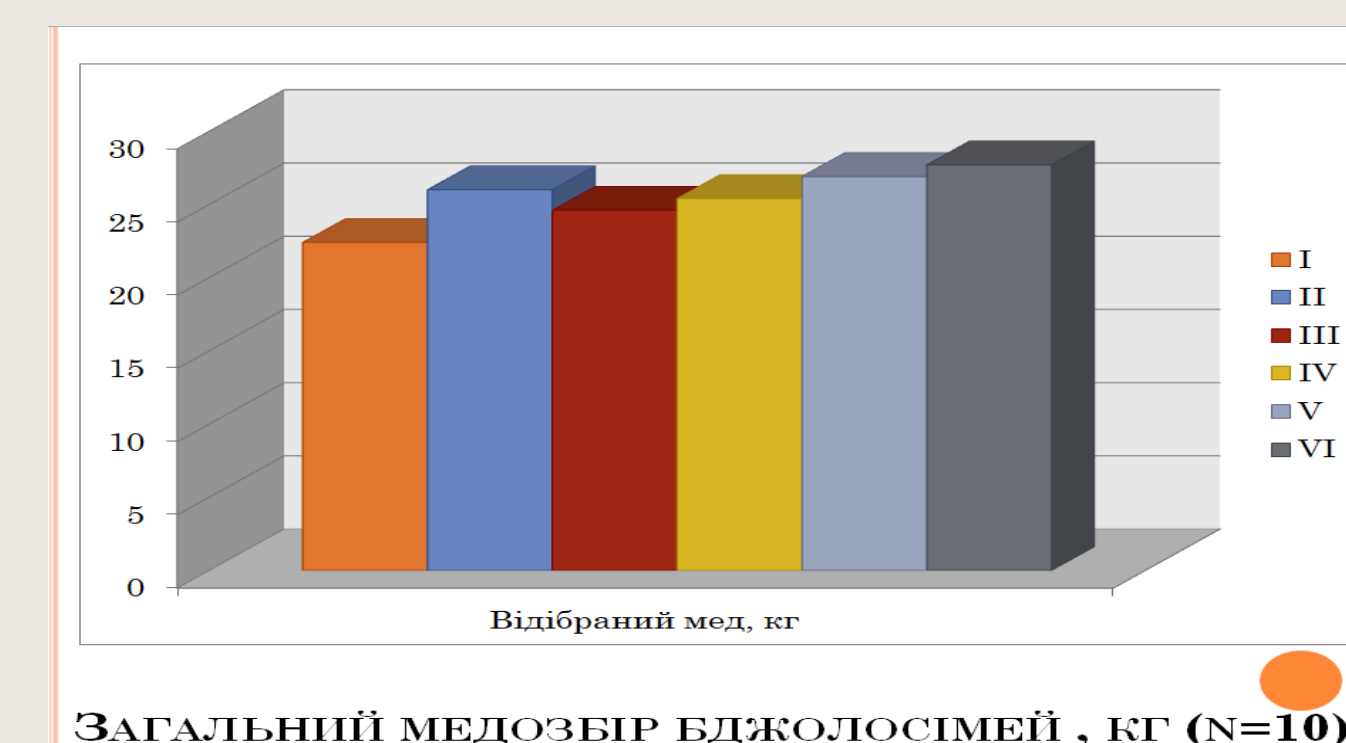
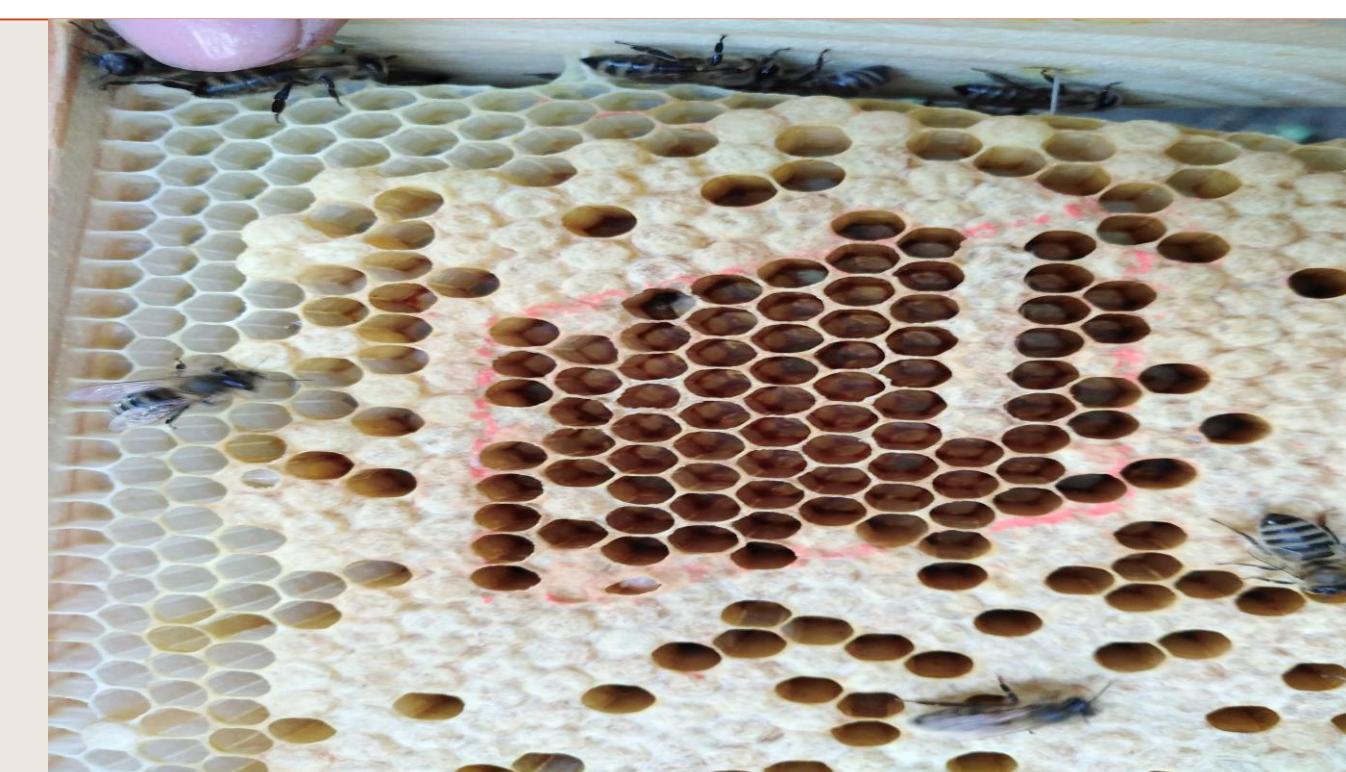
It was formed 6 groups with 10 bee families in each group: I — the control group — the type of Carpathian breed “Vuchkivsky”, 10 bee families; II — research group — the inbred group 2018 ♀ micropopulation “915” × ♂ micropopulation “915”, 11 bee families; III — the experimental group — selection cross ♀ line “Sto” × ♂ micropopulation “915”, 10 bee families; IV — the experimental group — selection cross ♀ “Vuchkivsky” × ♂ micropopulation “915”, 10 bee families; V — the experimental group — selection cross ♀ line “Troisek 07” × ♂ micropopulation “915”, 10 bee families; VI — the experimental group — selection cross ♀ micropopulation of G. Macha × ♂ micropopulation “915”, 10 bee families.

Results

The highest indices of Carpathian queen bee fertility were observed in May-June. Queen bees of the selection cross ♀ line “Troisek 07” × ♂ micropopulation “915” in the period from 17 to 28 May 2020 showed the best egg production (1738.5 eggs).

It has been established that bee families did not lose much strength during the winter. The loose of bees in all groups was in the range of 0.066–0.081. At the same time, the lowest indicator bees had in the second group. Analysis of the hygienic behavior of bees showed 69.7–76.3% of the removal of damaged larvae in 12 hours after the damage of the closed cells. The second group of bees had the highest percentage of removal of damaged larvae. The sixth group of bees cleaned the least damaged cells — 69.7%, which is probably less than bees of the control group by 4.6% (P<0.05). After 24 hours of damage, the fifth group of bees had the highest percentage (92.8%), and bees in the sixth group still the lowest (90.9%). However, it should be noted that according to the above indicator, the control group was probably dominated only bees of the third group and this advantage was 1.5% (P<0.05).

Bees of the fourth group were the best in terms of resistance to varroosis. The bee families of the inbred cross of micropopulation “915” were the strongest before winter, and bee families of the sixth group were the weakest. The difference between them in this indicator was 4854 individuals (P<0.05). Most of the crosses were peaceful and only the bee families of the local Carpathian population and the cross ♀ “Vuchkivsky” × ♂ micropopulation “915” were vicious. Bees of the fourth group showed the best results of spring honey harvest — 10.5 kg, which is in 1.5 kg more than bee families of the control group. Bees of sixth group showed the highest indicator of summer honey harvest — 17.5 kg. Bee families of this group had the largest quantity of honey in the results of spring and summer honey harvest (27.7 kg).



Conclusions

The bees which were got out of the combination of the queen bee and male-bee of micropopulation “915” were characterized by the best resistance to winter, bee families of the second and fifth groups had the best hygienic activity in 12 and 24 hours after damage of the brood, queen bees of the fifth group in the period of May 17 to 28, 2020 showed the best egg production. Bee families of the sixth group (27.7 kg) were characterized by the highest indicators of spring and summer honey harvests.