PROSPECTS OF BEES SELECTION FOR INDUSTRIAL PRODUCTION BEE BREAD

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Abstract. Analyzed the relationship certain selection signs of bees with their pollen productivity. An prerequisites breeding bees towards production bee bread. Recommended classical breeding methods combined with technological methods dilution and retention to improve the performance of pollen bees.

Keywords: *selection, performance pollen, bee family, bee bread*

Against the background of economic, organizational and legal changes in the agricultural sector of the state, the largest share of bee farms are private sector with a comprehensive line of production. As a result, the technology for additional bee products (bee pollen, bee bread, cellular honey, bee royal jelly, etc.), given a new impetus to its development.

Developed industrial technology of bee bread and its implementation will facilitate the formation of a new direction in beekeeping manufacturing – industrial production of beer bread [3]. This can lead to the displacement of beer bread with a list of additional products to major beekeeping. The urgency of this trend is undeniable, as the broad biological properties of bee bread proven by many scientists. Bee bread is unique in its biochemical and quantitative analysis of amino acids that positions it as a valuable dietary supplement and immune-stimulant [2, 5, 6, 9]. Also, as part of bee bread revealed useful microorganisms, that contribute to the establishment of the metabolic processes in the human body [12]. The emergence of industrial technology of bee bread leads to many unsolved scientific and practical issues. They relate to the development of processing methods that are based foundations breeding and maintenance bees. In addition, it is necessary to review aspects of selection and breeding work in beekeeping and identify possible

ways to improve the genetic potential of bees in the implementation of its new production facilities in direction.

The objective of research. Analyze and summarize the prospects of breeding work aimed at improving industrial technology of bee bread.

Materials and methods research. We used an empirical-theoretical (collection, analysis and synthesis of scientific information, logical approach to forming conclusions) and theoretical (definition, description, interpretation) methods. For this use publications and teaching materials and online resources for the investigated subjects. The complex methods allow the scientific approach to the problem and provide a consistent study of the possible methods of breeding bees aimed at increasing their pollen productivity and identifying specific tasks breeding work in this direction.

Results. In beekeeping selection is carried out by classical methods - targeted screening and selecting to produce new generations of better quality. Selection is based on academic provision morphology, physiology, zoo technology, which is based methods of breeding and improvement of bees on selected lines. Increased production of beer bread possible only by increasing productivity of pollen bees. Indeed, pollen grains and bee pollen products are intermediate stages of production of beer bread in a bee's nest. Therefore, to determine the prospects of breeding aimed at getting more beer bread, should consider not only the signs of breeding bees, but also biological and technological features harvesting protein feed. Pollen productivity of bee colonies associated with the main features of selection and breeding work in beekeeping, namely with honey and wax productivity; fecundity of the queen bee; winter hardiness; bee swarms and adaptability to conditions of nectar in nature [1, 4, 11, 10].

Among the economically useful selection of signs leading place is occupied complex – the power of family and hardiness. Their improvement over the increase and conservation of the number of individuals has a positive impact on all other hereditary qualities that can be considered as independent selection feature.

Therefore, the selection work is aimed at improving the productivity of bees in harvesting pollen must necessarily be carried out with their account.

Honey productivity is the leading feature in the selection and breeding work and is determined by the gross harvest of honey family per season. It depends on the availability of food sources in nature and flight activity of bees. Activity harvesting protein feed is not related to the overall activity of taxiways family [7, 8, 11]. However, if the burden of the family a day is more than 3 kg of honey bees cease to collect protein feed on the second or third day of honey collection. However, if during the intensive collection of nectar, the family begins deficiency of protein food, it doubles the work of collecting pollen compared to the usual level of harvesting pollen [7, 8]. We can therefore conclude that the increase in protein productivity should be done breeding work aimed at making bee hives, which are characterized by mediocre collections of food (1-2 kg of honey per day). In this breeding work should be carried out under conditions of large amounts of pollen in nature and free cells which were born not least 3 generations of bees and bee bread absence in the hive [9].

Wax productivity – the number selected for the season wax. Bold wax and build cells closely associated with the presence in nature and degree of penetration into the nest of fresh nectar and pollen. Established [1], which is particularly important for the functioning of the intensity of wax glands has protein feed. Research G.F. Taranov confirmed that most developed wax glands were bees that received plenty of pollen in the diet, as opposed to individuals that were restricted in feed intake [9]. We can assume that the bee families with high performance wax, characterized genetically inherent need for consumed more protein feed, and therefore characterized most intensive harvesting pollen. Therefore, it is necessary to carry out the selection of bees wax with high performance that will improve and pollen, and as a result will get more beer bread.

Fecundity Queen bee – an important feature selection, which determines the growth and power the family. Established [1] that bees collect pollen depends on the fertility of the queen and her physiological state. The number of eggs a direct

impact on the availability of bee bread in the hive – the more cultivated new generations, the greater the need for protein feed. Therefore, a condition forcing bees to harvest bee bread is a constant presence in the nest open bee eggs. This can be ensured by the development of specific technology solutions and operations to maintenance and breeding of bees.

For carrying out a selection of queen bees for fertility, do not forget about the biological feature of bees aimed at preserving the species, which is the basis of reproduction through the creation of new biological units. In the process of improving the breeding characteristics of family power and fertility queen may cause the opposite effect, namely, swarms of bees. A large number of bees and brood could stimulate the development of this feature. It is therefore necessary to ensure the timely and rapid expansion nest and follow the availability of sources of feed protein in nature. This is achieved by using multiple-system maintenance and organization of bee colonies uninterrupted pipeline of highly polliniferous plants.

G.D. Bilash and N.I. Kryvtsov emit dust collection efficiency of a particular type of plant as a sign of breeding and give its estimation method [1]. Using this feature will identify plant species from which the bees more readily harvested pollen. And by directing families to increase pollen productivity – provide them with these types of plants. Established, that under normal conditions of life of bees collecting pollen per day is 210-270 g. However, violations of the usual mode of replenishment bee pollen due to bad weather, pollen-collecting pollen traps, increases pollen productivity families to 400-500 g per day [9, 10]. This fact indicates a high genetic potential for bees to collect protein feed that can occur under favorable conditions.

Hence, for carrying out the selection and breeding to improve productivity of bee colonies during harvesting pollen, should consider the full range of breeding traits. In addition, you will need to create the necessary conditions and fodder.

Conclusions

In general, to increase production of bee pollen bread through increased productivity of bee colonies may be as follows.

1. To develop a breeding program to improve the productivity of pollen bees. For it is possible to perform the following steps: organizational aspects of improving the breed through pure breeding; selection by phenotype of families with the highest pollen productivity; selection by genotype; providing favorable conditions and forage base; the use of instrumental insemination to control mating; subject to receipt of a positive result, the creation of inbred lines. In preparation for the start of maintenance breeding programs should consider and provide for: mating scheme and acceptable level of inbreeding; target standard; expected economic effect; arrange a continuous flow of protein feed into the slot through the implementation pipeline polliniferous flowering plants; method of testing proceeds bee colonies.

2. Use a breed that has the highest biological ability to increase pollen harvesting. As a result of the fact that the activity of protein forage harvesting depends on the number of brood and of power of the family, which in turn provided a rapid spring build-up of new generations of bees, the main selection signs to be improved is the queen egg laying and hardiness. It is also necessary to consider the fitness of breed to nature and climatic conditions. Therefore, among the breeds of bees that are bred in the Ukraine, it is best to improve the performance of pollen is Ukrainian. Egg laying queen of this breed is 1800-2000 pcs. eggs per day, which is higher by 13,1% compared to the Carpathian, 7,9% – Russian and 28,9% Caucasian. In addition, colonies Ukrainian breed are characterized by high winter hardiness and intensively working conditions woodlands, forest-steppe, steppe [4].

3. Conduct encouraging bees to the most productive plants polliniferous as colonies exposed to the smell manageable by feeding syrup infused with inflorescences of plants. It is known that flew on the inflorescence of plants, even only for nectar, bee inadvertently contaminated with pollen grains and would have to purify them thereby form a pollen ball. In addition, technological method known as, fly and to enhance pollination in greenhouses, fed pollen in the powdered state. It is likely that the smell of training may be conducted with a view to encouraging

the bees to work on high polliniferous plants, usually combining it with full sampling cells from the slot. Directing this method, colonies on the selected vegetation may get bee bread from the predominant content of one or more botanical species polliniferous plants. One of the conditions for increasing productivity is the delivery of pollen to the array of plant families (or seeding), the pollen which has the highest biological value for bees.