

erhielt die höchste Bewertung Verkostung, die entsprechenden neuen Produkte nach GOST 33817-2016.

Bei der Verarbeitung von Stammzichorie in Alkohol entsteht eine Wegführung (Schlempe), die auf das Futter des Viehs, als Bio-Dünger, in der Kosmetik- und Pharmaindustrie verwendet werden kann. Die Zichorieschlempe behält den speziellen bitteren Geschmack, der den Kornblumen der Zichorie zusteht. Dieser Beigeschmack wird durch die Anwesenheit in der Glukozidschlempe, der Intibine, verursacht.

Intibin wurde aus physiologischer Sicht von Oswald Schmideberg untersucht, der bewies, dass die Intibine keine schadhafte Wirkung auf den Körper von Mensch und Tier hat [4].

Durch die Analyse der Zichorieschlempeprobe wurde festgestellt, dass der Gehalt (% pro trockener Stoff) des Stickstoffs 2,07% lag, der Phosphor 1,12%, Kalium 1,68%. Die zwischenzeitliche Auswertung der Zichorieschlempe gibt den Grund, sie als Bio-Dünger zu nutzen.

Destillate auf der Basis von Zichorie, mit verschiedenen quantitativen und qualitativen Zusammensetzung von Verunreinigungen erhalten, können für die Herstellung von Spirituosen, einschließlich Spirituosen verwendet werden. Die Getränke, die auf Basis von Destillaten aus Zichorie zubereitet wurden, hatten einen weichen Duft und eine feine Nachspeise von Zichorie. Die Proben der Produkte erhielten hohe organoleptische Noten. Die Forschungsergebnisse bestätigen die Zukunftsfähigkeit der Verwendung von Destillaten aus Zichorie für die Herstellung von Originalgetränken. Die zwischenzeitliche Auswertung der Zichorieschlempe gibt den Grund, sie als Bio-Dünger zu nutzen.

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GONADOTROPIN'S EFFECT ON THE REPRODUCTIVE QUALITIES OF QUEEN BEES AND PRODUCTIVE INDICATORS OF BEE COLONIES

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Abstract: The article is devoted to the development of the scientific basis for improving the reproductive qualities of queen bees, productive indicators and

economically useful traits of honey bee populations. Therefore, scientific research is of high relevance today, since it is devoted to solving the fundamental problem in the biology of the bee colony and its reproductive qualities.

Keywords: *collapse of bee colonies, gonadotropic hormones, pituitary injections, reproductive qualities of queen bees.*

Relevance. Bees play a crucial role in human economic life, being both pollinators of entomophilous crops and producers of livestock products [2].

Today, the beekeeping industry is faced with many problems such as the collapse of bee colonies and the death of bees as a result of poisoning or infection. That is why one of the urgent tasks is to determine the factors and methods for increasing the reproductive qualities of queen bees [1].

In agriculture, in particular industries such as fish farming and pig farming, gonadotropic hormones have been actively used for many years to stimulate the development of sex products. Pituitary gonadotropin injections allow you to synchronize the reproductive cycles of animals in production, as well as increase the efficiency of their reproduction [5, 3].

Presumably, the use of gonadotropic drugs in beekeeping will significantly improve the reproductive qualities of queen bees.

The goals and objectives of the study. The purpose of the study is to optimize production technology and increase the reproductive qualities of queen bees and productive indicators of bee colonies.

To achieve the goal, the research objectives were set:

1. Determine the species-specificity of gonadotropic hormones of different animal species and the possibility of their use in beekeeping;
2. Establish doses of hormones that are safe for bees;
3. Identify ways of administering hormonal drugs;
4. To study the reproductive qualities of queen bees in bee colonies of the Central Russian breed after the use of hormonal preparations;
5. To determine the productive indicators of bee colonies, whose uterus was subjected to hormonal stimulation;
6. To evaluate the reproductive qualities of young uterus obtained from bees that have undergone pituitary injections.

The scientific novelty of the research will be determined by the improvement of methods for increasing the reproductive qualities of queen bees using gonadotropic hormones affecting economically useful signs of bee colonies.

Place, conditions and design of experiments. Object of study - honey bees of the Central Russian breed *Apis mellifera mellifera* (Linnaeus, 1758).

Bees of the Central Russian breed are resistant to long and cold wintering and its diseases, are capable of intensive honey collection, are prone to swarming, and are aggressive. The breed in the process of evolution was formed in a typical forest land [4].

Subject of research - gonadotropic hormones of various animal species. In fish farms of the Russian Federation, pituitary injections are widely used to accelerate the maturation of fish producers (Fig. 1). In this case, the action of the gonadotropin

hormone contained in the pituitary glands of fish is used on the final period of the development of germ cells, obtaining a mature one capable of fertilization and development of eggs in females and motile spermatozoa in males. Thanks to pituitary injections, plant breeding of carp and carp is possible, artificial breeding of herbivorous, sturgeon and other types of fish [5]. Methods of regulating the sexual cycle in pigs are based on the synchronization of hunting and ovulation using gonadotropic drugs. Stimulation of hunting and ovulation in repair pigs with the help of gonadotropins helps to increase their arrival in hunting by 25-33% during the sexual cycle and multiple pregnancy – 0.5-0.9 pigs in comparison with the control [3].

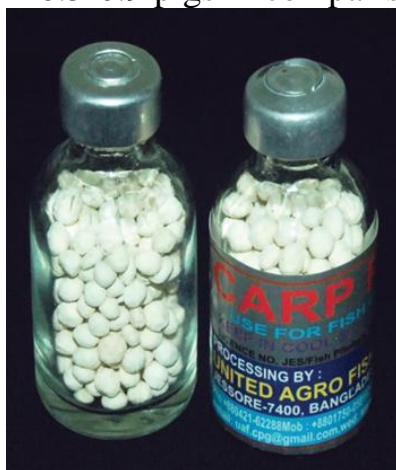


Fig. 1. Subject of research – carp’s gonadotropic hormones

Conducting experiments on the topic of the dissertation is supposed to be on the honey-commodity apiary (Fig. 2) of the Novoduginsky district of the Smolensk region, which has more than 25 colonies of bees of the Central Russian breed.



Fig. 2. Honey Commodity Apiary

The biological rationale for the dose of hormonal preparations of bees safe for life will be studied on a group of queen bees.

To conduct the experiments, we will form the experimental and control groups of bee colonies by selecting pairs of analogues that are equal in basic indicators. 1 group - control. Bee families of the 1st group will not be treated with hormonal drugs.

The general experimental design is presented in table.

Table

General experimental design

Groups	Processing method	Taken into account indicators
1	control	<ul style="list-style-type: none"> • strength growth and development of bee colonies: <ul style="list-style-type: none"> - the strength of bee colonies determined in the streets and the mass of the colony; - indicators of average daily egg production of bees; - print brood dynamics; - mass of working bees; • biochemical parameters of queen bees after pituitary injections (the content of fat, nitrogen, glycogen in the body of the uterus); • the content of egg tubules in the ovaries of the infertile and fetal queen bees after pituitary injections; • economically useful signs of families after the autumn flyby: the strength of families, the amount of feed, the mass of working bees; catalase activity in rectal glands; the content of opportunistic and normal microflora in the intestines of working bees; • winter hardiness indicators: feed consumption, winter weakening of families, catalase activity; the pace of spring development.
2	Pituitary gland (carp) intraperitoneally	
3	Pituitary gland (carp) orally	
4	Chorigonin intraperitoneally	
5	Chorigonin intraperitoneally	
6	ecdysteroid intraperitoneally	
7	ecdysteroid intraperitoneally	

Expected results. The scientific basis for improving the reproductive qualities of queen bees, productive indicators and economically useful traits of honey bee populations will be developed.

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