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PROVIDING VETERINARY SERVICES IN BEEKEEPING

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Abstract
In order to successfully protect the bee family and beekeeping products from pests and diseases, it is necessary to regularly carry out organizational - economic and zoo-veterinary measures aimed at combating them. The purpose of this is to protect the cultivated beekeeping products from harmful species in the biocenosis, to prevent the development of bee pests and the diseases they spread, as well as to comply with all its rules if quarantine is introduced

Key words
pests, diseases, zoo-veterinary measures, equipment, chemical control method.

Introduction

When carrying out activities aimed at combating bee pests, initially protecting the bee family from many diseases (varroatosis, melenosis, senationosis, acarapidosis, nosematosis, etc.), as well as taking measures to protect beekeeping products from various pests, one cannot be approached in isolation.

It is necessary to carry out the fight against bee pests in our republic on the basis of a scientifically based system. This system includes a series of events. They can be divided into organizational-economic, zoo-veterinary, mechanical, chemical and biological, as well as preventive control and quarantine measures.

In order to successfully protect the bee family and beekeeping products from pests and diseases, these measures should be carried out regularly with a specific goal in mind. The purpose of this is to protect the cultivated beekeeping products from harmful species in the biocenosis, to prevent the development of bee pests and the diseases they spread, as well as to comply with all its rules if quarantine is introduced.

Organizational - economic and zoo-veterinary events. On the basis of organizational - economic and zoo-veterinary measures aimed at combating bee pests and diseases caused by them, an operational plan of the farm should be drawn up and the following should be taken into account.

I. Organizational and economic measures: 1. The number and duration of chemical treatment (disinfection) of areas where bee pests and diseases can spread, affected and diseased bee families and methods of combating them, quarantine areas and other objects, drugs (disinfection means) to determine the standards of spending and their total necessary amount.

2. Determining the size of all types of equipment, devices, and vehicles used against bee pests and diseases, as well as determining the need for special equipment and personal protective equipment.

3. Taking into account the value of protective equipment and expenses for each bee family and apiary sites, and their efficiency.

4. Allocating a salary fund for all types of services performed against bee pests and diseases.

5. Timely application for personal protective equipment of veterinary workers and beekeepers for all organizational measures.

6. To fight against bee pests and diseases, special groups under the leadership of veterinary experts and

provide them with the necessary equipment and personnel.
7. Ensuring that the supply and consumption of drugs used against bee pests and diseases are in compliance with sanitary safety requirements.
II. Zoo-veterinary measures: Zoo-veterinary measures to combat bee pests and diseases are mainly preventive measures. On the one hand, these measures protect the bee family from the appearance of pests to a level that does not pose a great danger, and on the other hand, it increases the resistance of the bee family to damage by various pests and diseases, increases the reaction of bees to the effects of pest attacks, and also increases the effectiveness of measures to protect bees from pests.
Zooveterinary measures to protect bees from various pests and diseases, should not contradict the rules of beekeeping and breeding technology, should be only a part of general zooveterinary measures. In the process of combating bee pests, zooveterinary measures should be based on the knowledge of the reproduction and survival of pests, as well as the economic damage they cause in beekeeping. These measures should be applied during the most frequent pest infestations. The increase in the number of bee pests requires the implementation of various zooveterinary measures against them.
Replacement of queen bees. If the queen bee is not of good quality and breed, the bee colonies will be weak and will not produce good offspring. As a result, mother bees lose their ability to lay eggs every year. Such weak bee families are quickly damaged by various pests, as a result of which various infectious diseases appear in such families. To avoid this, it is necessary to replace the queen bees every year by choosing from the families of purebred and brood bees. It is necessary to take into account the productivity of the family, the collection of honey and wax of the bee family, and the ability of the mother bees to lay eggs. It is advisable to take offspring from high-quality bee families and raise queen bees from them.
A method of mechanical control of bee pests. Mechanical pest control is the oldest method, which consists of picking and burning pests by hand. In recent years, in addition to manual picking of harmful insects, various advanced methods and equipment have been created that allow to multiply them. Bee pests can be killed at various stages of their development, but it is best to destroy their eggs as much as possible. Examples include the varroa mite, wax moth, and some dipterans.
Bee pest larvae, maggots, and adults can be removed by hand, using a variety of materials, shovels, and similar tools. And the winged insects are caught using various entomological towels, adhesive tapes, iron wire mesh handles.
Picking bee pests by hand is one of the oldest and most complicated methods. In this case, if bee-eating pests are winged, this task becomes more complicated, because they cannot be caught quickly inside the beehive. Such winged insects can only be caught using entomological towels. In addition, in the years when wild bees and wasps have disappeared, all kinds of smelly meat and fish products are placed in the apiary. When a large number of bees are found on these smelly products, they can be beaten with a broom or special devices made of hard rubber.
In recent years, various pheromone traps have been used against agricultural crop pests. Pheromone traps have been used to control bee pests in several experiments with positive results. Firstly, these traps attracted a lot of moths, moths, butterflies and bi-wings, kept them and protected the bees, and secondly, they protected the surrounding cotton and other agricultural crops from pests and diseases.
Explanation: Pheromones - biologically active substances released by insects into the environment - are sexual attractants. They attract insects and ensure that they find each other. These substances (there are some artificial ones) are used as pheromone traps in the fight against insects.
In recent years, effective methods of combating bee mites with the help of various heat chambers and the effect of electric current fields have been proposed.
It is effective to start the fight against Varroa mites with the help of heat in the spring and autumn seasons, that is, during the period when there is no open and closed breeding in the bee family, and it allows to eliminate up to 90% of mites. For this, you will need a heat chamber (thermocamera), a cassette made of fine-mesh wire mesh and a large funnel.
All the bees in the beehive are placed through a funnel into a wire cassette inside the heat chamber and heated at a temperature of +46+48° for 12-15 minutes using electric heating devices. First, the queen bees are taken and put in a separate cage. To ensure that mites fall more, the cassette is shaken 2-3 times. Special attention should be paid to the fact that the temperature should not exceed the specified level, otherwise the

bees may evaporate (release a lot of water). Bees cleaned of mites are returned to a clean hive. (Chrust, 1970)
Chemical control methods against bee pests. Among measures to protect the bee family from pests, the chemical control method takes the leading place. In this case, the expected effect is achieved quickly and it is a very promising method. All work done by chemical method can be mechanized. This method consists in the use of various chemicals that poison insects and mites at certain stages of their development. Such substances used against insects are called insecticides, and those used against mites are called acaricides. These names are derived from the words Insectum - insect, Cida - to kill and Acarus - mite.
Insecticides and acaricides are divided into two groups depending on their use, i.e. groups that poison from the inside and from the surface. It should also be recognized that chemicals used against pests of agricultural crops cannot be used against bees. Because bees can also carry harmful insects.
When using internal chemical agents against bee pests, they are sprayed into the beehive, the bees are fed with this sweet medicine, and the pests that settle in its internal cells are killed by the effect of this medicine. But these chemicals do not have any negative effect on bees. For example, drugs such as Bipin-T, a bee mite control drug, are diluted in water and sprayed over the bee hives. Pest mites feed on this sweet liquid and die. For this, it is necessary to carefully study the feeding method of bee pests and to produce medicines based on the methods of use.
Topical insecticides against bee pests are used in most pest control. In this case, the pest is exposed to the respiratory system of insects with substances in the form of steam, liquid and gas. Such agents include sulfur dioxide, acetic acid, potassium arsenate, hydrogen sulfide, sulfuric anhydride, varroatin, phenothiazine, and many other drugs.
Liquid agents are also used against bee pests. When they get into the insect's body, they close the breathing holes. For this purpose, products such as kerosene, gasoline, diesel fuel obtained from oil are used. Special attention should be paid to the preparations used against bee pests, the inscription on the container should be clearly visible, and unknown and untested means should not be used.
When working with chemical agents, it is necessary to wear a white coat, rubber gloves and protective glasses, as well as observe all technical safety rules. When chemical preparations against bee pests are used, the air temperature should not be lower than 10-12°C and higher than 25-27°C. To check the quality of the drug, it should be tested on 2-3 bee families first. Their use should be finished in the spring, before the beginning of the honey collection season, so that the quality of the honey will not be damaged and they will be more effective, since the bee family will be free of all pests during this period, and they will develop well. In the autumn season, only the fight against mites is carried out, because the abundance of mites has a negative effect on the bee colony.
Repeated use of the same means against bee pests creates resistance to it in pest insects, resistant (resistant) species of insects appear, which are not affected by highly toxic drugs (Smirnov A.M.; Cheronv K.S. 1976; Alimukhamedov S.; Khojayev Sh. 1991).
In recent years, many successes have been achieved in the improvement of various types of insecticide and acaricide drugs recommended for the fight against bee pests, as well as the ways (methods) of pest control. Winged pests that harm bees from the outside, such as bees (wasps, pollinators, wasps, etc.) are destroyed by destroying their nests and spraying various toxic chemicals, oil products and boiling water. In Turkmenistan, sprinkling of hornets' nests with sulfur gas in the evenings, as well as placing pieces steamed in carbon sulfur in the holes of bees' nests, have given good results. (S.N. Myarseva, 1967).
Currently, more than 145 types of chemical preparations are used against bee mites. They consist of liquid, powdery, gaseous, solid substances, and destroy them by affecting the respiratory and digestive organs of pests. Such drugs include varroatin, phenothizin, thymol, formic and shavalic acids, naphthalene, folbex and similar drugs.
Phenothiazine or thiodiphenylamine (TU-84-583-74) drug is gray-green in color, colorless, with a sulfur smell. It is used in the form of powder and tablets. It is used in the fight against varroa and braula mites in beehives. When a beehive is treated with a phenothiazine tablet, phenothiazine smoke is injected into the hive through the flight holes in the beehive, where 1.5 g of the drug is inserted into the incense device, burned and smoke is produced. All holes in the beehive are closed for 20 minutes. The beehive is processed 3 times for 3 days. When working with this drug, the air temperature should not be below 15°C.
A. M. Smirnov (1974) showed that spraying phenothiazine powder over bee hives gave good results in

spring and autumn, when 30-40% of mites died.
B.V. Zyuman., A.Y. Kadochnikov (1983) mentioned that the phenothiazine drug did not burn completely, which had a negative effect on beekeeping products. That's why he suggested removing the reserve feed honey from the beehive during the treatment with the phenothiazine drug in the fall.
Naphthalene (DavSTi-1703-51-119) and (DavSTi-16-106-70) is a colorless solid with a specific smell, powder, solid and smoke. It has antibacterial (against bacteria) properties, so it is used in the fight against insect pests and various moths.
0.5 g of naphthalene powder is sprinkled on each frame space in the beehive, usually this work is done in the evening, after all the bees have returned to the hive. The air temperature should not be lower than 16°C during treatment with the drug.
V.S. Koptev (1976, 1977) suggests using naphthalene smoke against bee mites. For this, all the bees in the hive are caught in a special chamber, and the queen bees are put in a cage. Put 2-3 grams of naphthalene in the incense burner, light it, and send 4-6 streams of smoke to the chamber with bees. Naphthalene fumes irritate the bees and dislodge the mites from their bodies. After 5-7 minutes, this process is repeated again, it is necessary to add 2-3 grams of naphthalene to the incense, because naphthalene burns quickly and its smell spreads quickly. When treating a bee colony in this way, bees get rid of 80-90% of all kinds of mites.
Varroatin is used in the form of a liquid aerosol. Affects bees and removes mites from their bodies. It is used in spring and autumn, twice in spring and 4 times in autumn. For this, the space between the frames in the beehive is slightly expanded.
A.M. Smirnov and others (1976) studied the effect of varroatin on the bee family and found that it is completely harmless to bees and their offspring. Even when the beehive was treated with varroatin many times (up to 12 times), it found that it did not affect the production of beekeeping and the egg-laying and viability of the queen bees.
Chlorbenzilate or AKAR-338. Chlorobenzilate (ethyl-4, 4-dichlorobenzilate) is produced by the Swiss company Sibageti. 25% drug is used in the form of soaked tape-like cardboard papers. 0.4 g of drug-soaked tapes are sold under the name Folbeks and are used in the treatment of acarapidosis.
A.M. Smirnov (1974) obtained good results using folbex against various mites in beehives. For this, a piece of folbex is hung in one corner of the beehive and lit with a match. The paper catches fire and its smoke spreads throughout the nest. At this time, all openings in the beehive are closed for 30 minutes. At this time, all precautions should be taken, otherwise the heating material in the beehive may burn.
N.A. Vaskov and others (1979) used two types of chlorbenzilate, AKAR-338 and folbex, in the fight against varroatosis, and obtained positive results, based on this, they recommended their use twice in spring and autumn.
Thymol - (TU-6-09-36-64 and MRTU-6-09-56-66-68). Thymol (2-isopropyl - 5-methyl phenal) is a crystalline powder, with a characteristic odor and a bitter taste, and has alkaline properties. That is why it has antihelminthic and antimicrobial effects.
The use of thymol in the fight against bee mites has given good results. According to V.V.Mikityuk, O.F.Grobov (1978), positive results were obtained when 2.5 g of thymol was applied to each beehive over beehive frames, 3-4 times in 7 days. In particular, effective results were obtained when 10-15 g of thymol was placed in 10 x 10 cm bags, the bottom was pierced, and placed over and under the bee frames. There was no difference when working with this drug even when the air temperature was from +7°C to +40°C. Working with thymol is not complicated, it is very cheap and efficient. Timol can be used both day and night. It is only necessary to know the sources of operation.
Formic acid - its two different 86.5% and 99.7% solutions are used. A-brand DavSTi-1706-78 and B-brand DavSTi-4848-73. It is used in the fight against the varroa mite of bees. 30 x 24 cm and smaller package bags are prepared from polyethylene material, two layers of 22 x 16 cm cardboard paper are placed inside it, and 50 ml of acid is poured into it. 3-4 holes of 1-1.5 cm are opened under the prepared packages and the bees are placed on the frames, with the hole facing down. Such packages are placed in the spring and autumn, when there are no open and closed broods in the beehive. Packages should last 7-10 days and are updated every 12 days.
If formic acid has a negative effect on the bee colony, it is necessary to slightly expand the spacing of the beehive frames, or to get heating pads, or to reduce the number of holes in the package.

Since formic acid is dangerous, it is necessary to strictly follow the rules of technical safety when working with it. It is necessary to wear protective clothing, rubber gloves for the hands, protective glasses to protect the eyes, and a face mask to protect the respiratory system.

When a beehive is treated with formic acid, the acid has a negative effect on beekeeping products, the quality of honey, comb and wax deteriorates, and the medicinal and merchandising properties of honey decrease somewhat. Therefore, this method has not been used in the fight against the varroa mite in recent years.

Shovalic acid - (DavSTi 22180-76, TU 6-14-1047-79) white powder, soluble in water. 2% solution is used in the fight against the varroa mite of bees. To prepare a 2% solution of shovalic acid, the acid powder is dissolved in plain or distilled hot water and sprinkled with special sprayers over the frames of the beehive infested with varroa mites. 10-12 ml of solution is used for one bee rum interval. A beehive is processed 3-4 times in one season. It is held for the first time in spring, then in summer and autumn. Especially ready-made honey is processed twice every 12 days after it has been extracted. But during processing, the air temperature should not be below +16°C.

According to V. G. Stepenashvili (1983), as the air temperature increased, the level of usefulness of shavulic acid increased, for example, at a temperature of +19°C - 65%, and at +28°C it was effective up to 90%.

When working with acid, it is necessary to strictly observe the technical safety rules, work with protective goggles, rubber gloves, drink water and eat food while working.

Lactic acid is a colorless or slightly yellowish liquid with a sour taste and a peculiar smell.

Its 10% solution is used in the fight against bee mites. The solution is prepared in boiled water at 30°C before use, and 8-10 ml of the solution is used for each bee frame. Treatment with lactic acid is carried out 4 times in one season: 2 times every 10 days in spring, twice in summer and autumn.

S.N. Lugansky and others (1987) used lactic acid in the fight against the varroa mite of bees, showing that a 10% solution was the most effective and killed up to 80% of mites.

There are more than 145 drugs used in the fight against bee mites: central, amitrose, mavrak, nearon, chemovar, tactic, coumaphos, perizin, varrofen, varroxen, bipin-T, all of which are used to destroy mites in the beehive.

But all these preparations are produced by the chemical industry, and they are harmful in certain quantities and spoil the food products. Therefore, at present, efforts are being made to find cheap, high-quality and plant-based drugs against bee pests that do not harm bee products. Because in the conditions of the current market economy, conducting such research remains the demand of the time.

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