ISSN NO: 2770-8608
May 2024

Use Of Ethafos Against Endophilic Flies in Conditions of Uzbekistan

Dilbar Salimovna Vakhidova
Professor of General Zootechnics and Veterinary Department of Tash.SAU
(Tashkent State University, Universitetskaya 2, Tashket district, Uzbekistan, 100140. E-mail: d.vakhidova@tdau.uz

Abstract: The correlation of phrases with linguoculture in a comparative study is a fascinating area of research within linguistics. Phrases are linguistic units that consist of two or more words whose meaning is different from the literal interpretation of the individual words. These compounds often carry cultural connotations and reflect the values, beliefs, and customs of a particular linguistic community. In a comparative study, researchers can analyze how phraseological compounds vary across different languages and cultures, shedding light on the unique ways in which each culture expresses ideas and concepts. By examining the use of phraseological compounds in various cultural contexts, researchers can gain insights into the underlying values and norms of different societies. Studying the correlation of phrases with linguoculture in a comparative framework can provide valuable insights into the intricate relationship between language and culture, enriching our understanding of both linguistic diversity and cultural identity.
Kew words: Linguoculture, phrases, phraseological compounds, comparative study, linguocultural aspects, types of phrases.

I. Introduction

More than 100 species of two-winged insects - blood-sucking and licking flies, mosquitoes, midges, gnats, horseflies, etc. - are found in the premises and on the territory of livestock farms and complexes in Uzbekistan. Among them, the most widespread are harmful flies, which are represented by more than 45 species on farms and 21 species in complexes. Most of all, livestock production suffers from house flies, during the season of mass attack of which, the weight gain of animals and milk productivity of cows decreases, growth and development of young animals slows down.

It was found that the daily decrease in average daily weight gain in beef cattle as a result of the attack of southern house flies is 0.05-0.37 kg, in piglets - 0.055-0.089 kg, the drop in average daily milk yield in cows - 0.1-0.5 liters per animal (A. Ruzimuradov, 2018).

In addition, many species of flies are mechanical, specific carriers of pathogens (bacteria, viruses, rickettsiae, eggs and larvae of helminths, protozoa) of about 130 types of human and animal diseases, including plague, cholera, tuberculosis, brucellosis, smallpox, anthrax, rye, tularemia, leukosis, trypanosomiasis, coccidiosis, stephanophilariosis, telaziosis and others. In this regard, the fight against them is now put at the level of important state socio-economic tasks and plays a role in the successful solution of providing the population with livestock products. It is known that the main measures to ensure a stable low number of flies on livestock farms is a set of sanitary and hygienic measures aimed at proper collection, timely removal and neutralization of feces and manure. The use of insecticides is considered as an additional measure, however, in some cases, the specific weight of insecticidal preparations application increases. The use of insecticides also remains one of the elements of integrated systems aimed at regulating the number of pest insect species (in the report of the WHO Expert Committee on Vector Biology and Control, Geneva, 1992).

To control zoophilic flies in animal husbandry in recent years, many researchers (A. Ruzimuradov, 2008; 2018) have tested and proposed preparations from different chemical groups with different mechanism of action - neocidol, cyodrin, dibrom, benzophosphate, phthalophos, coral, baygon, DDVF, metathion, ammonia water, carbophos, trolene, TCM-3 and others.

It is known that with prolonged use of the same drug, or several drugs from the same chemical group, insects develop resistance to these pesticides. For example, southern house flies (Musca domestica vicina, Masquart) in the conditions of Uzbekistan are resistant to chlorophos up to 40.2 times, which is a consequence of acquired resistance (A. Ruzimuradov, 2018).

ISSN NO: 2770-8608
May 2024

II.Material and methods of research

Study of phenology, ecology of zoophilic flies on livestock farms in Uzbekistan was studied by Faizildinov A.H., Vakhidova D.S. (1986) - employees of entomology laboratory of UzNIVI. They found that 45 species of flies inhabit traditional livestock farms, more than 21 species of flies inhabit livestock complexes, and more than 17 species of flies inhabit pig farms. Of these, Musca domestica vicina Masquart, 1850 (southern house fly) is the most widespread and of sanitary-epizootological and economic importance. Stomoxys calcitrans Linne, 1758 (autumn fat fly) is of epizootological importance. Flies of the genera Fannia Muscina, Drosophila, Pollenia, Calliphora, Lucilia, Ravinia, Paregle, Sepsis, Leptocera, etc. are represented by a small number of species. Represented by a small number of species, they are few in number and of no economic importance. Therefore, we present data on phenology and ecology of only the southern house fly and autumn fly in conditions of livestock farms in Uzbekistan.

The level of sensitivity of laboratory and natural fly populations to insecticides was determined by topical application of acetone solutions of insecticides of different concentrations from a piston microdosing device to the mid-back of adult and larval flies (WHO method). Pure acetone was applied to control flies. After application of insecticides, adult flies were kept in cages, larvae - in 0.5 L glass jars (or exicators) in cow feces or moistened mixed fodder (60-70% humidity). Sugar syrup or milk was placed in the cages to feed adults. The number of dead flies and larvae was counted after 24 hours. To establish the LD50 index, experiments with a large number of drug concentrations were conducted beforehand. Subsequently, 4 concentrations were used, one of which provided 90% mortality, the second - mortality of 75% of flies, the third - mortality of less than 50% of flies and the last - not more than 10%. Each experiment was repeated three times and at least 10 females were used in each repetition. Flies were weighed before the experiment to determine the value of LD50 in µg/g weight.

The percentage of insect mortality under the influence of concentration or dose was calculated as the arithmetic mean and the error of representativeness based on the data of several repetitions.

The arithmetic mean was calculated using the formula:

$M= \Sigma V/n$, where: Σ- sum; V - % of insect mortality in each experiment; n - number of repetitions.

The error was calculated using the fraction error formula:

$m=\sqrt{((P(100-P))/n)}$,

where: P - % of insect mortality in the experiment; n - number of repetitions. Dose-effect regression lines were plotted based on the results of tests of several concentrations. On the abscissa axis were plotted the logarithms of concentrations, on the ordinate axis - probits corresponding to % mortality. The data of experiments were plotted as dots on the graph and the points were connected by a straight line. On this straight line the indices SC50, SC100 and LD50 were found.

Along with determination of LD50 value expressed in µg per fly, LD50 was calculated in µg per 1 g of insect weight using the formula:

LD50 = x/y - 1000,

where: x - LD50 in µg per 1 fly; y - weight of one fly in mg.

The Student-Fisher method was used to assess the degree of statistical reliability of the difference (t) between the mean values of the experimental and control samples from the general population:

$t=(x\ 2/2-x\ 2/1)/\sqrt{(m\ 2/1-m\ 2/2)}=d/md$,

where: t is the probability criterion; d is the difference between the averages; md is the error of difference.

If the mortality in the control was between 5 and 20%, the percentage of mortality obtained in the experiment was corrected using Abbott's formula:

(% mortality in the experiment-% mortality in the control)/(100-% mortality in the control)

Results of the study.

The first adults are found on animals in the first decade of May, and their numbers increase sharply in the second decade of July. From the third decade of July to the end of August, the intensity of insect attacks gradually decreases due to drying up of a number of brood sites. In early September, the number of attacking flies increases again. From the second decade of September, an autumnal decline is observed in the seasonal course of numbers, and in December flies are not found on animals. Only the July peak is sharply expressed in the monthly dynamics.

ISSN NO: 2770-8608
May 2024

In the desert zone insects begin to attack cattle from the third decade of March, in the irrigated zone - from the first decade of May and in the foothill zone - from the second decade of May. Increase in the number of flies attacking in the desert zone occurs in May-June, in the irrigated zone - in June-July, in the foothill zone - in June. The second increase in numbers in the desert zone occurs in October, in the irrigated zone - in September-October, in the foothill zone - in September. In August, a noticeable decrease in the number of flies was observed in all zones. The attack ends in the desert zone in the third decade of November, in the irrigated zone - in early December, in the foothill zone - in the second decade of November. House flies visit different substrates, with the preference of the substrate for feeding depending mainly on what type of substrate prevails in a given place. When meat, fruit, and feces are present at the same time, flies prefer fruit. In the absence of other nutritious substrate, they abound on meat and on boen waste, corpses. On farms and complexes flies concentrate, first of all, on pig manure and then on cow dung.

In Uzbekistan, flies of this species overwinter mainly in the pupal and adult phases. In some cases, single hibernating larvae of stage 3 and pre-pupae are found. Adults may remain in anabiosis for 5-6 months (November-April).

As for diurnal activity, both in barns and pigsties the years and the attack of flies on animals begins at dawn and continues throughout the daylight hours. There is no clear synchronization of the attack, depending on the time of day and air temperature. Intensive attack of flies on animals occurs from 10 to 16 hours. At air temperatures of 18-30° (June-September), the number of attacking flies is somewhat lower in the early morning (6.00 h) and late evening (20.00 h), while during other hours the number of attacking flies remains almost the same with slight fluctuations. At air temperatures of 18-24° (May-October), the number of attacking flies is highest from 9.30 to 12.00 h with a minimum in the morning and evening. At temperatures below 11°, flies do not attack animals. Thus, the most favorable temperature for insect attack is 18-30°.

Polyphagy and ecological plasticity of the species provides its wide migration through habitats (pigsty, barn, calf house, vivaria, human dwelling, etc.). Significant numbers of flies are found in fodder kitchens; at dairy stations; in feeders; in carts with substrate; on animal fodder - silage, mixed fodder, obrata, etc. The optimum room for the development of juvenile flies is the room in which they live. The optimal temperature for the development of southern house flies is 28-36°. In this case, embryonic, larval development in the egg is completed within 16-18 and 9-10 hours, larval development - for 8-10 and 4-5 days, pupae - for 8-12 and 5-8 days. As the temperature gradient increases or decreases, the development of all phases slows down. No development occurs at temperatures below 13° and above 43°.

Larval development in cow and pig manure on farms and complexes is mainly observed from May through October, and in some years through November. Larvae of stages I and II gradually migrate in the middle layers of manure (up to 10 cm and more) and as they develop up to stage 3, they settle at a depth of 1-5 cm, from where they crawl to the surface in search of a place for pupation. Larval-infested substrates are usually more liquid than larval-free layers. The larvae of houseflies do not develop in dry, old manure and in manure with humidity above 80°. Under natural conditions, at air temperatures above 24° and substrate temperatures of 36-46°, the bulk of larvae are found in the surface layers of manure (0.5-6.5 cm). Manure layers deeper than 5-6 cm are unfavorable for their habitat. At air temperatures of 20°, larvae were found at a depth of 4-10 cm, at 15-16° - 15-18 cm, if the temperature of the substrate layer did not exceed 52°. The optimum substrate humidity for larvae is 65-68%. Pupariae inhabit manure layers with 16-18% humidity and 37-38° temperature.Direct sunlight is destructive to isolated larvae of all stages. In livestock farms, the main places where flies breed are open areas of transverse manure channels near the premises, piles of manure near the curtain for summer housing of animals, manure in the manure storage, and in the premises, manure residues, feed residues in feeders, etc. Therefore, timely cleaning and disposal of manure and other organic manure from the premises and from the territory of farms is one of the main steps in fly control.

Autumn fat fly - S. calcitrans. Ectoparasite - a typical endophilic species, obligate bloodsucker, known everywhere in Palearctic. Autumn fatflies are found in all zones and regions of the Republic of Uzbekistan. Flies of this species are widespread in livestock buildings of irrigated zone (79%), in desert, foothill and mountain zones - few in number. Cattle mainly suffer from attacks of these bloodsuckers. The specific weight of fat flies among flies attacking cows in the barn is 15%. Of the total number of flies found on calves indoors, 14% were of this species. Pigs are less affected (0.48%). In the desert zone, the first adults of fat flies appear in barns in the second decade of March, in the irrigated zone - in the third decade of February,

ISSN NO: 2770-8608
May 2024

in the foothill zone - in the second decade of May. They disappear in the desert zone in the second decade of November and in the foothill zone in the first decade of November. In the irrigated zone no flies were recorded in the third decade of December and January. Maximum number of flies in the desert zone is observed in May and October, in the irrigated zone - in May and November, in the foothill zone - in May and October. In July-August and in the first decade of September in the desert zone, in the second and third decades of August in the irrigated zone, from the third decade of July to the third decade of August in the foothill zone insects are not found indoors, i.e. there is summer depression of the species due to drying up of breeding sites. The maximum number of parasitizing barn owls reached 100 specimens in the third decade of May and 115 specimens in the first decade of November. Autumn barnacles are active up to 280 days a year. In heated premises, flies are sometimes found in considerable numbers in winter (December-January), however, the main number of flies dies out during winter, and in this connection, the spring rise in numbers is much less than the fall one. Wintering of the species is noted both in pupal and adult stages. In the desert zone, the first spring generation - few in number - is observed in March-April, the second - numerous in May, the third in September and the largest - in November; in the irrigated zone, the following can be noted: February generation - emergence from overwintering pupae, March and April - the first spring generations, the largest - in May, few in number - in July, the most numerous October generation. In the foothill zone we can note two clearly pronounced generations - May and large October.

The beginning of the activity of adults of the autumn fatflies is observed at the beginning of the season, i.e. in the third decade of March. At the same time, in the irrigated zone, in cowsheds the bloodsuckers attack only at 13-14 hours of the day in single specimens at air temperature in cowsheds 18-24°, fatflies attack animals from 7 a.m., activity is high from 9 to 16 hours. In the season of the second increase in numbers (September), in barns, the beginning of the attack of flies on animals was noted from 6 a.m., at air temperature 18°, and it was completed at 20 p.m. The flies attacked the animals from 6 a.m., at an air temperature of 18°. In the open air in March, April, November, December at temperatures of 8-17°, no flies attacked animals. In May, at air temperatures of 20-29° in barns and at 24.5-28° outdoors, and in September at 19.5-24° in barns and at 20-26.5° outdoors, the number of autumn fatflies is maximum and these temperature regimes are optimal for the species. The main places for blood sucking of flies are skin areas below the carpal and tarsal joints. Feeding occurs periodically. Duration of blood sucking is at 25-30° - 5-10 min. and at 16-20° - 15-30 min., after which flies leave animals and settle on walls, poles, etc. Autumn flies develop well in cow feces or manure with admixture of hay and straw residues, as well as in wet mixed fodder. After feeding on cow's blood, oviposition occurs in 12-22 hours. In July, at air temperature 24-29°, larvae hatch from eggs in 1-2 days, metamorphosis of flies is completed in 16-26 days. Outdoors, at air temperatures of 33-37°, larvae emerge from eggs in 2 days, and full development to adults is completed in 24-28 days.

Larvae of the Autumn Longhorned Beetle are found in the substrate in the greatest number in June-July, September-October, pupae are found all the year round. The main number of larvae is located in the manure layer of 2-4 cm, at substrate temperature of 40-42°, pupae - in superficial layers. Deeper than 4 cm pupae, 10 cm larvae are not found. Most often pupae can be found on the territory of farms, in soil near walls of premises and fences in summer in darkened places; in spring, autumn and winter - in lighted places. Larvae are almost never found in fresh manure and in large piles of manure. When organizing and carrying out control it is necessary to take into account these ecological peculiarities of preimaginal phases of the autumn fly. The level of sensitivity to chlorophos was also determined in the natural fly population.

The Insecticidal activity of the preparations was studied by contacting flies with tests treated with different concentrations of aqueous emulsions or suspensions of insecticide. Test objects are plates (10x10 cm) made of their building materials, which are most often used on livestock farms: iron, glass, brick, wood. Liquid-free test surfaces (iron, glass) were treated with the drug at a normal flow rate of 25-50 mL/m2. In experiments, the method of forced contact of southern indoor flies (10 copies in one experiment) with an exposure meter for 10 minutes with the treated surface of test objects was used. For the first 7 days after treatment, the experiments were performed daily, then once every 7-10 days. Control flies were contacted with test objects treated with water.

The results of the experiments were recorded after 24 hours, counting the number of dead flies and calculating the effectiveness of the insecticide. Each experiment was performed in triplicate. Contact was carried out until the insecticidal action disappeared. A total of 95 experiments were carried out in the laboratory, 2850 insects

ISSN NO: 2770-8608
May 2024

were used. Production tests of insecticidal effectiveness of preparations were carried out in the premises of livestock complexes in the presence and absence of animals in them. Before treatment, the number of flies in control and test rooms was recorded by counting the number of insects per 1 m2 of surface (at least 5 counts) or by trapping them on sticky paper. Then, continuous treatment of the room was carried out by spraying internal walls, partitions, pillars and other places of the concentration of flies with the effective concentration of the preparation established during laboratory experiments, the consumption rate of working suspensions (emulsions) was 25-50 ml/m2 when treating non-absorbent surfaces. After a day and then daily, for 10-15 days or more, the treatment efficiency was recorded by counting the number of insects in the treated and control rooms. A total of 55 objects with a total area of 379400 m2 were processed. 330 accounts were carried out. The study of the duration of insecticide degradation in livestock premises was carried out by gas-liquid chromatography (GLC), which is set out in the "Methodological Guidelines for the Determination of Pesticide Microquality in Food, Feed and Environment." After 1,5,15 treatments of the premises with drugs, samples (scrapings) were taken from the surfaces of walls, wooden objects and iron materials, which were examined for the detection of drug residues. A total of 25 samples were studied, 25 analyzes were carried out.

Determination of the concentration of insecticides in the air after disinsection of livestock premises was also carried out by HPLC. To do this, after 1.5.15 spraying of the room (barn, calf), after 1.2.3.4.5.6.24.48 hours, air samples were taken using an aspirator until the MAC was established (i.e., until the concentration of drugs in the air was reduced to 0.1 mg/m3.

Insecticidal and alvicidal activity of etaphos for southern house flies.

Physicochemical properties and application of etaphos.

Etaphos is a domestic organophosphorus compound synthesized in VNIIHSZR.

Oily liquid with an unpleasant smell, so-called bales. 150-153 ° C

at a ≈ of 80 Pa (0.6 mm Hg). Solubility in water ≈ 10 mg/l, is highly soluble in many organic solvents. Stable in neutral medium, relatively quickly hydrolyzes at pH more than 2. Available as 50% emulsifiable concentrate and 30% wettable powder.

LD50 for mice 250-300 mg/kg. Precautions - as with medium-toxic pesticides. It is necessary to exclude contact with open areas of skin and mucous membranes. Rinse immediately with soap and water when exposed to the skin. The maximum permissible concentration (MPC) in the air of the working zone is 0.1 mg/m3. CrStorage

recommended without moisture access in metal containers with special anticorrosive coating. The residual amount was determined by HPLC (Melnikov et al., 1985).

Laboratory results.

Sensitivity of laboratory culture of southern indoor flies to etaphos.

The level of sensitivity of the natural population of southern indoor flies to chlorophos was studied. Flies were collected at the Uzbekistan livestock farm in the Akdarya district, in the Ulugbek livestock farm in the Samarkand district. In all these farms, cattle and their premises, as well as their territory, are constantly treated with a 1-2% solution of chlorophos against ixodic mites and flies. We studied the sensitivity of chlorophos-resistant populations of indoor flies collected by BSF "Ulugbek" to etaphos. It was established that the sensitivity of the natural population of flies to etafos was 3.1 times lower in the Uzbekistan farm than in the Ulugbek farm - 1.4 times lower than in the laboratory culture. This indicates the presence of cross-resistance in flies to etaphos. However, the sustainability indicator is small. According to A. Brown's interpretation (1999), exceeding the normal level of sensitivity by 2-4 times is defined as "tolerance" or "emergence of resistance"; an excess of 5-10 times - as "resistance." When analyzing our data, we can establish that the natural population of southern indoor flies to etaphos is tolerant. This makes it possible to recommend etaphos as an insecticide to combat chlorophos-resistant populations.

Ethaphos insecticidal activity for southern
indoor flies when insects come into contact
with machined surfaces.

We studied the acute insecticidal activity of aqueous suspensions and aqueous emulsions of etafos applied to different types of surfaces, as well as the duration of preservation of the residual effect of drugs on treated surfaces.

ISSN NO: 2770-8608
May 2024

Duration of Residual Insecticidal Effect of Ethaphos Aqueous Suspensions (0.3% c) When Treating Different Surface Types (Fly Contact Method)

Aqueous suspensions were studied in concentrations from 0.01 to 1% at a dosage of 0.017-1.7 g of DV per 1 m2. The working suspension consumption rate was 50 ml/m2 when treating the iron plate. When processing bricks and wood - 200 ml/m2, since it is known that the adsorption properties of different materials are different. Acute insecticidal action - 100% death of flies in the first day after treatment was ensured by all the studied dosages, however, the duration of residual insecticidal action in the treated surfaces varied greatly. Thus, on the iron plate, the dosage of 0.017-0.170 g of DV per square meter did not provide residual effect, the dosage of 0.3 g/m2 maintained high insecticidal activity (100% death of flies) for 6 days, the dosage of 0.5 and 1.0 g/m2 - 8 and 20 days, respectively. When treating absorbent surfaces (brick, wood) of dosage 0.3-0.5, 1.0 g/m2, high insecticidal activity was maintained on the treated surfaces for 3-4-5 days, respectively. When testing aqueous emulsions of etafos, it was found that 0.01; 0.05 and 0.10% of the product concentration (0.017-0.1 g/m2) were destructive for flies on the surface of building materials for up to one day. 0.3% aqueous emulsion of the preparation provided 100% death of southern indoor flies when applied to the surface of an iron plate for 2 days, brick and wood - 1 day. After 4.3 and 2 days, the residual effect of the drug was not preserved on the surface of iron, wood and brick. 0.5% Ethaphos aqueous emulsion maintained 100% residual insecticide for flies on the surface of iron for 2 days, brick and wood for 2 days. Insecticide in treated surfaces disappeared after 5.3 days, respectively. 1% aqueous emulsion of the preparation was detrimental to insects for up to 4 days on the surface of the iron plate (1 g/m2), on the surface of brick and wood (4 g/m2) - 3 days.

CONCLUSION

The need to study new insecticides to combat endophilic flies was due to the interests of increasing the efficiency of agricultural production. Among the diverse groups of diptera insects on livestock farms and complexes in Uzbekistan, southern house flies (M. domestica vicina) are widespread and cause great economic damage, which intensively attack animals on many farms, disturb animals, as a result of which they reduce their productivity.

The largest number of southern indoor flies is recorded in those livestock farms and complexes where a large amount of manure accumulates and is stored for a long time in manure storage facilities that do not fully meet sanitary requirements. The widespread use of chlorophos for several years contributed to the development of resistance in the southern subspecies of indoor flies to this drug. The question of finding effective insecticides continues to be relevant in modern conditions.

We have studied the domestic insecticide etafos in the form of formulations: 50% emulsifiable concentrate and 30% wettable powder.

As a result of a complex of laboratory studies, the spectrum of insecticidal action of etafos was established.

When the drug is dosed on female southern indoor flies of laboratory culture, the insecticidal properties of etaphos exceed those of chlorophos by 10 times: when flies come into contact with surfaces of different types treated with etaphos, the insecticidal activity of etaphos is also higher than that of chlorophos (by 3-4 times).

Etaphos can be used as intestinal venom in insecticidal lures. So, according to our data, decoys containing 0.3% etafos and 5% sugar ensured the death of more than 90% of flies. The use of insecticidal baits is the most promising method of controlling flies in the studied objects, since this method reduces the scale of the use of insecticides and reduces the degree of contamination of the environment with pesticides.

However, the study of the effectiveness of decoys in production conditions showed that their use without simultaneous delarvation of manure and disinsection of the surrounding area is ineffective and does not lead to a noticeable decrease in the number of southern indoor flies in the premises, since there is a constant flight of flies from the environment. It is most appropriate to use lures in combination with other measures. We believe that the development of this method for the use of insecticides in the conditions of livestock farms in Uzbekistan should continue.

0.3% aqueous emulsion (suspension) of etafos is effective as a alvicide and is recommended by us for manure treatment, at a consumption rate of 1-5 l/m2.

Production experiments conducted by us in livestock farms of various types confirmed the effectiveness and possibility of using etaphos as an insecticide in order to combat zoophilic ones primarily with the southern room fly, as a species dominant in the territory of farms and complexes

ISSN NO: 2770-8608
May 2024

It was found that the treatment of surfaces with 0.3% aqueous suspensions (emulsions) of etafos ensures the absence of flies for the next 5-6 days, subsequently, in the case of mass production of flies on the territory of farms, their number increases and re-treatment is required. With a limited flight of flies, treatments can be repeated once every 10-12 days.

We have found that the effectiveness of treatments depends on the form of use of insecticides, the relative humidity of the air. Thus, aqueous suspensions are more effective in treating absorbent surfaces than aqueous emulsions. With low relative humidity (less than 40%), the residual insecticidal effect of the preparations on the treated surfaces also decreases.

Repeated treatment of the rooms after expelling 0.3% of the animals with an aqueous suspension (emulsion) of etafos caused minor clinical, hematological and biochemical shifts in the animals, which were then in the treated rooms. These shifts were within statistical error.

The materials of our research provide an opportunity to determine scientifically based deadlines and methods of controlling flies.

Based on our research, we propose the following tactics for the use of etaphos in livestock farms in Uzbekistan.

Based on the data on the biology and phenology of southern indoor flies in the conditions of Uzbekistan, 0.3% of aqueous emulsions (or suspensions) of etafos should be used in the irrigation zone (depending on the meteorological conditions of the year) with an interval of 6-7 days, inclusive, until the first decade of November; in the desert zone - from the first decade of May, inclusive, to the third decade of October; in the mountain zone - from the III decade of May, inclusive, to the I decade of November.

On average, the number of manure treatments during the active flight of flies is 22 treatments, based on the data obtained by us, the residual alvicidal effect of 0.3% of the aqueous emulsion (aqueous suspension) of etafos is 6-7 days. To kill adults of southern indoor flies, it is necessary to treat the premises (after the animals are removed) 0.3% an aqueous suspension (emulsion) of etafos in the irrigation zone from the III decade of April, inclusive to the III decade of November; in the foothill zone - from the first decade of May, inclusive, to the third decade of November; in the desert zone - from the II decade of April, inclusive, to the III decade of November. These terms and frequency of treatments are determined by us for farms where systematic selection and removal of faeces and manure in manure storage facilities is carried out. We consider the use of insecticides here as an additional measure.

Thus, based on this, the duration of the residual action of etaphos on treated surfaces is 6-7 days, the total number of treatments is about 22 per season of active flight of southern indoor flies.

Since etaphos belongs to the FOS group (organophosphorus compound) and it is possible to increase resistance to it in southern indoor flies, it is necessary to regularly (2 times a season) conduct studies of the level of sensitivity of flies to the drug in order to be able to correctly and timely change the tactics of controlling flies.

CONCLUSIONS.

1. In the premises and on the territory of livestock farms of Uzbekistan, they are widespread and have sanitary and epizootological, as well as economic importance, mainly southern indoor flies - Musca domestica vicina, Masquart, 1850. The number of flies reaches 190 copies on calves, cows - 300 copies per animal.

2. a new domestic organophosphorus insecticide - etafos has a pronounced insecticidal effect on both sensitive and chlorophos-resistant populations of southern indoor flies. The efficacy of the drug for insecticide-sensitive flies is 10.7 times higher than that of chlorophos (LD50).

3. It has been established that southern indoor flies in the conditions of livestock farms in Uzbekistan have, although not high (1.4-3.1 times), cross-resistance to etafos (at the level of tolerance).

4. To control southern indoor flies and other endophilic species, 0.3% aqueous suspension and etafos emulsion are effective in treating livestock premises and their territories at a flow rate of 50-200 ml/m2, depending on the type of surface. The residual insecticidal effect of the preparation on the treated surfaces is 5-7 days. Aqueous suspensions are more effective in treating surfaces, even water emulsions. Aqueous emulsions are suitably used to treat fly production sites.

5. Treatment of livestock premises against endophilic flies with 0.3% aqueous emulsion of etafos in the presence of animals in them does not cause noticeable negative (hematological, biochemical, physiological) changes in their body. However, in the milk of cows, in the meat and internal organs of animals located at the time of spraying in the room, traces of the drug are found. Therefore, disinsection of livestock premises

ISSN NO: 2770-8608
May 2024

should be carried out after the removal of animals from them. Wet treatment of premises in the absence of animals is harmless and does not cause contamination of their milk, meat and internal organs with insecticide (with subsequent keeping of animals there).
6. To combat the preimaginal phases of southern indoor flies, treatment of manure and other places of production with 0.3% water emulsion of etafos is effective at a rate of 1-1.5 l/m2 per semi-liquid: 2-5 l/m2 is a solid substrate. Treatments should be carried out once every 6-7 days in June-September, 4-5 days - in May and October-November.
7. After delarvation of 0.3% water emulsion of etafos, the main amount of the product is destroyed within 7 days, completely - within 14 days. Manure treated with 0.3% aqueous ethaphos emulsion can be used for fertilization 7 days after delarvation.
8. The tactics of using etaphos (terms, multiplicity and volume) in livestock farms in Uzbekistan are determined by the type of farm, sanitary and hygienic conditions of farms, the climatic zone in which the farms are located.

LIST OF USED REFERENCES:

1. ABDULLAEV U. Biology of the autumn burner (Stomoxys calcitrans L.) in the conditions of the Tashkent region. Cand. diss., Tashkent, 1999
2. ABRAROV Z. S., AVANESOV R. Kh., GAIBOV N. Uzbek Soviet Socialist Republic. Ed. "Uzbekistan," 1997: 22-31.
3. ALEKSEEV A.P. The systemic effect of judfidophos on ixodic ticks - In book: Vet. entomology and acarology. - M., 2003:288.
4. ALEKSEEV A.P., ABBASOV T. G. Dynamics of accumulation of sulfidophos residues in the body of cattle when processing them against ixodic mites. - In Prince. entomology and acarology - M., 1993:290.
5. ANDREEV K.P. On measures to combat gnus. "Veterinary," 4, 1984: 63-69
6. ANDROSOV F. Z., KARAVASHKOVA A. I., LAPIDUS S. S., KHODOVA O. Ya. Fight against flies in the livestock pavilions of the All-Union Agricultural Exhibition. "Veterinary," 5, 1985:72.
7. ANDREEV K.P. Organization and procedure for disinsection on farms. "Veterinary," 5, 1964: 94-97.
8. ANDREEV K.P., VRANCHAN Z.Z. Application of DDT aerosol and hexochlorane for fly extermination in livestock premises. "Veterinary," 8, 1988.
9. BIRYUKOVA N.P. Difos. Results of state pesticide tests by veterinary research institutions in 1974 M., 1995: 28-34.
10. BONDAREV I.A., ZHOGOV I.F. The effectiveness of cyodrine against indoor flies, autumn roasters and pasture flies. "Vet. entomology and acarology, "M.,2003:156.
11. BUTYRINA E. S., SMIRNOVA S. N., GVOZDEVA I.V. Comparative effectiveness of insecticidal bait for indoor flies. In book: Theory and practice of disinsection and sterilization. - Collection of scientific works. M., 2003: 58-63.
12. Vakhidova D.S. Use of biological preparations against endofilnқkh flies, Collection of works of practical and scientific conference Barnaul 2005
13. D.S. Vakhidova. Blood test of the animals processed by insecticides against экто parasites Barnaul 2006. 16. GADZhEY E. T. Specific structure and ecological features of synanthropic flies and the recommendation about fight against them in different high-rise zones of the Tajik SSR. "Scientific тр. on parasitology", Dushanbe, 2005: 145-146.
14. GVOZDEVA I. B. Application of a new insecticide trolena-THM-3 for fight against larvae of flies in the city of Tashkent and Yangiyule. "Medical magazine of Uzbekistan", 1., Tashkent, 1999: 79-80.
15. RUZIMURADOV A. Organization of events against zoofilny flies. "Veterinary science", 1, 20018: 34-36.
16. BALLEY D. L., LA BRECQUE G. C., MHITTIELD T. L. Insecticides applied as low-volume and conventional sprays to control larvae of the house fly in poultry houses "J. Econ. Entomol.", 63, No. 3, 1990: 891-893.
17. BALLEY D. L., LA BRECQUE G. C., BISHOP P. M. Residual sprays for the control of house flies Musca domestica vicina Masq. in dairy barns. "Fla Entomol.", 50, No. 3, 2017: 161-163.

ISSN NO: 2770-8608
May 2024

18. BADESCU of C. Some odservations concerting the insecticidel action of thicorbamide and other chemical of house flies in Romania. Wiad. parazytol., 28, I, 20020: 231-235.
19. OWN of A. Restiance des arthropods des insecticides, Geneva, 2019.
20. CHRISTENSEN C. N. 1976 Insect control on lactating dairy cows-Univ of Kentucky College of Agric., I, 2019: 1-3.
21. KEIDING J. Resistance to fenitrotion in Danish house – flies Musca domestica, J. Hug. Epid. Microb. Jmmunol., 20, 2020: 171-185.