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ТҮЙІН

Қазіргі уақытта дәстүрлі лейкозға қарсы шаралардың тиімділігін арттырудың екі жолы қолданылады - тиімді ерте диагностика әдістерін әзірлеу және селекциялық тәжірибеде тұрақты лимфоцитозға төзімділік белгісін қолдану. Осыған байланысты ең өзекті бағыт ауылшаруашылық жануарларының популяциясындағы жұқпалы ауруларға генетикалық төзімділік механизмдерін анықтау болып табылады.

Жұмыста iNOS гені бойынша ПТР-күшейтуді жүргізу шарттарын оңтайландыра отырып, әртүрлі өндірушілердің үш реакциялық қоспасын салыстырмалы бағалау нәтижелерінің деректері баяндалған. "Encyclo Plus PCR kit" ("Евроген"), "СибЭнзайм" ЖШҚ, "Алкор Био" МК ПТР қою үшін үш реакциялық қоспаны салыстырмалы бағалау нәтижесінде олардың әрқайсысы бөлінген ірі қара малдың ДНҚ-сынан арнайы ПТР өнімін жасауға мүмкіндік береді. Дегенмен алынған ПТР өнімі әртүрлі сапаға ие және бір үлгіні қоюға жұмсалған шығындар да әртүрлі. 54^0С күйдіру температурасы кезінде нуклеин қышқылының ең оңтайлы мөлшері "Encyclo Plus PCR kit" ("Евроген") өндірушінің жиынтығымен байқалады. Электрофореграммада ұзындығы 186 ж.н. болатын iNOS генінің ПТР-өнімінің жоғары өнімділігі көрінеді, шимер түзілмейді және спецификацияланбайды. Сәйкесінше ПТР- РФҰП талдауын әрі қарай жүргізу және генотиптерді анықтау үшін "Encyclo Plus PCR kit" ("Евроген") 1-ші реакциялық қоспасы ең оңтайлы болып табылады.

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ASSESSMENT OF PASTURES FOR TICK POPULATION IN THE WEST KAZAKHSTAN REGION

ANNOTATION

The article is devoted to the distribution of intermediate hosts – ticks, which are the cause of intestinal infestations among sheep. Data on the presence and distribution of ticks were carried out on different types of pastures in the West Kazakhstan region. To study the causes of the spread of ticks on various pastures in the west of the country, the authors' data and the influence of environmental factors, as well as the number of ticks on sheep, were taken into account.

We have studied steppe, semi-desert pastures, floodplain meadows, forest area, animal pens. After analyzing the data of many studies, it was found that the indicators of the population of pastures with oribatids and their infection with monesia larvae depend on climatic and weather conditions, as well as the degree of infection with monesia of grazed animals. The infection rate of ticks was up to 50% in steppe pastures and up to 66% in a pen for overexposure of sheep.

It was established that a helminthological assessment of pastures for infection with the larvae of monesias of oribatid mites can be carried out shortly after the snow cover melts. With the appearance of thawed patches on elevated areas of pastures, they come to life and when a sample is introduced into the room, the ticks begin to show activity.

A full assessment of pastures intended for grazing animals should be carried out at the end of April before their pasture. The degree of settlement intensity and the intensity of invasion of oribatid mites in pastures of different types: steppe pastures, floodplain meadows, forest and semi-desert pastures that turned out to be prosperous have been established. The soil of the pen for overexposure of sheep is most maximally populated with oribatids.

Key words: *sheep, oribatid mites, environmental factors, monesiosis, pastures*

Introduction. Sheep farming is a profitable, profitable branch of animal husbandry. But in order to grow a strong healthy flock of sheep, to prevent infection of animals with diseases, farmers must create optimal conditions for keeping, think over the diet and carry out timely veterinary and sanitary measures to prevent them on the farm [1].

Animal husbandry in the region is currently the main source of income for rural residents and accounts for 60% of the total output of the agricultural sector. Having crossed the threshold of permissible interference with nature, we have received its response, which is ahead of the level of cognized patterns inherent in biological systems. And we are once again involved in the race for leadership over nature, although the result is obviously known [2].

The territory under study is characterized by grass-wheatgrass (wheatgrass, bekmania, foxtail), wheatgrass estuary meadows, on meadow-chestnut soils (salt marshes), represent a productive type of land. It is eaten by all kinds of animals, but preferably by sheep.

The soil cover is dominated by meadow, sometimes saline, meadow salt marshes and meadow salt marshes. There are a lot of hayfields. They belong to meadow salt marshes formed as a result of salinization of meadow soils.

In the west of the country, the main vector of reducing the number of sheep today is invasive diseases, as stated by many scientists who have proven the infection of animals to 28.8-48.7% [3].

The main causes of infection with helminthiasis in sheep are not only abiotic factors, but also their vectors. Excessive load of pastures, unjustified zoning led to the degradation of pastures, infection with helminthiasis and the death of sheep, whose number, despite a sharp decrease (by 2 times), remains quite high [4].

The greatest harm to animals is caused by ticks – they feed on blood and carry various diseases and viruses with a bite. From the point of view of the ecosystem, ixode pests are simply irreplaceable in nature, they act as a regulator of natural selection. Ixodid mites (family Ixodidae), a family of arthropods of the order Parasitiformes, are a small isolated group of obligate bloodsucking mites, highly specialized parasites of terrestrial vertebrates.

The fauna of ixodes mites in Kazakhstan includes more than 50 species representing all natural and climatic zones. According to the literature data and own observations in the ixodofauna of the western regions: Atyrau, Mangystau, Aktobe and West Kazakhstan (WKO) present up to 30 species of

ixodes ticks [5].

According to V.A. Tanitovsky, there are 20 species of ixodes mites in the territory of Western Kazakhstan, 10 of which have a relatively high number. Among them are ticks, which are carriers of invasive diseases of sheep, in particular moniesiosis [6].

Improving taxonomic identification, conducting targeted entomological monitoring will make it possible to identify new species of ixodic mites in the enzootic territory of western Kazakhstan, and identify the range of their biological hosts.

The use of modern molecular genetic diagnostic methods will make it possible to detect pathogens of naturally focal bacterial and viral infections and establish the degree of epidemic significance of each ixodid species.

It is known that all ixode mites are blood-sucking parasites, and therefore the massive defeat of ixode mites causes significant damage to animal health: fatness and immunity decrease, allergic reactions are observed [9,10].

Analyzing the data of many studies, the indicators of the population of pastures with oribatids and their infection with moniesia larvae depend on climatic and weather conditions, as well as the degree of infection with moniesia of grazed animals. In this regard, for the pasture prevention of anoplocephaliasis, including moniesiosis, it is of interest to study the intensity of encrustation of specific pastures [5, 7]

Oribatids are one of the most numerically dominant arthropod groups in the organic horizons of most soils, where their density can reach several hundred thousand individuals per square meter. The intact composition of the topsoil can easily contain about 50-100 species of shell mites, where they live with varying degrees of success.

Since shell mites have a high number, species diversity, and are quite eurybiont, but at the same time they clearly react to environmental shifts in the soil environment.

Shell mites, as a rule, have a low metabolic rate, are characterized by slow development and low fertility. In addition, it is one of the longest-lived representatives of the entire diversity of the tick-borne world (Figure1- Shell mites).

Figure1 – Shell mites

Climatic instability in the west of the country can change the vital activity of biological objects, including affecting the distribution and number of representatives of parasitic systems.

According to some authors, the number of oribatids on pastures decreases in winter and summer and increases in spring and autumn, which determines the timing of infection of sheep and goats with cestodes. The authors note a significant increase in the number of ticks in the southern regions of the region.

As a result of the socio-economic and environmental changes that have occurred in our country, as well as, in particular, in the West Kazakhstan region, the number of biotopes favorable for breeding ticks has increased, the number of oribatids has significantly increased, which has affected the deterioration of the epizootic situation for moniesiosis in both small domestic animals and farm animals. Therefore, the study of the spread of ticks is one of the essential tasks of theoretical and practical importance.

The purpose of this work was to study the contamination of pastures, the influence of environmental factors on the number of ticks, which will make it possible to predict the risks of invasive

diseases of sheep.

Material and methods of research. Data on the presence and distribution of ticks were carried out on different types of pastures in the West Kazakhstan region.

To study the causes of the spread of ticks on pastures in the west of the country, the authors' data and the influence of environmental factors, as well as the number of ticks on sheep, were taken into account [10,11].

We have studied steppe, semi-desert pastures, floodplain meadows, forest area, animal pens(Figure 2 - Sampling for research).

Figure 2 – Sampling for research

At the same time, standard samples were examined, which represented soil-turf monoliths with a volume of 1 dm at a depth of 5-10 cm. With a large number of plant roots, the sample was previously dug with a shovel and the roots were cut from the underside.

Then they were placed in plastic bags and delivered to the laboratory. To extract the sample, a device was used in the form of a metal device, respectively, of a square shape, the side of which is 10 cm.

To determine the species composition of ticks, they were collected from animals, as well as from individual sites of territories.

Sampling was usually carried out in the morning during the period of increased activity of oribatides. The selection of ticks was carried out by placing them in a metal funnel with a mesh embedded in it with a hole size of 1,5–2 mm

On the pastures where the animals grazed, 30 soil samples were taken from different depths. A Tulgren apparatus was used to isolate ticks from samples (soil or grass). It consists of a metal funnel mounted on a tripod and a cup. The substrate to be processed is placed in an even layer on a sieve, and the device is placed under an electric light bulb so that it is located above the center of the funnel, at a distance of 20-25 cm from the surface of the substrate.

A Tulgren apparatus was used to isolate ticks from samples (soil or grass). It consists of a metal funnel mounted on a tripod and a cup. The substrate to be processed is placed in an even layer on a sieve, and the device is placed under an electric light bulb so that it is located above the center of the funnel, at a distance of 20-25 cm from the surface of the substrate.

It took 15-18 hours to study the ticks from the substrate. After the time had elapsed, ticks were taken from the cup under the funnel under a magnifying glass with a wet brush and transferred to a storage vessel. 70% ethyl alcohol was used for fixation.

The main attention was paid to the identification of intermediate hosts of moniesias – representatives of the genera Scheloribates and Galumna.

The work of N.A.Filippova was used to determine their types [6].

Research results and discussion. During the research period of four types of pastures in the West Kazakhstan region, located near farms, the seasonal dynamics of tick population on different soils was established (Figure 3 -Seasonal dynamics of oribatid mite population in different soil types).

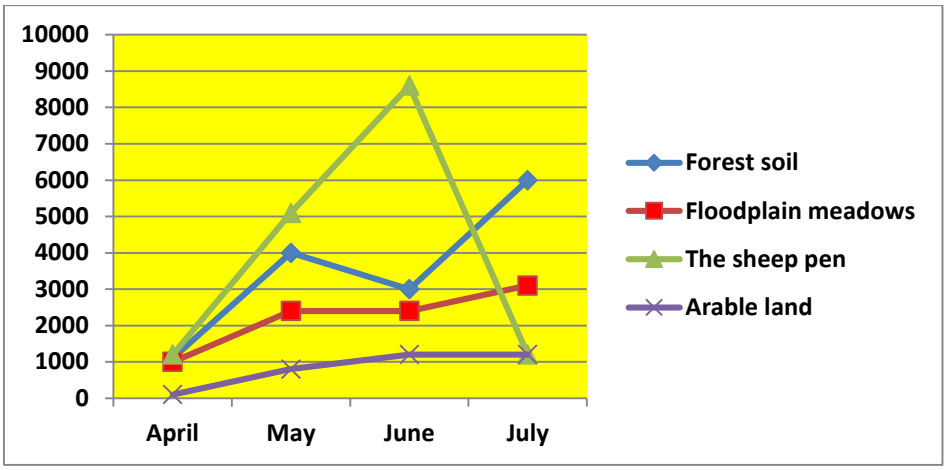

Figure 3 – Seasonal dynamics of oribatid mite population in different soil types

Figure 3 shows that the number of oribatids in soils of different types increases with the onset of warm weather and is maintained during the pasture period.

However, in a pen where vegetation is knocked out, it decreases sharply in dry weather. When examining soil samples from different places in April after snowmelt, from 6 to 22 species of oribatids were found, of which mites of the genus Scheloribates made up 8%, and the genus Galumna 5% of the total composition of mites.

At the same time, the total population of pastures and paddocks with oribatid mites in early spring amounted to 1000-1100 oribatids per 1 m^2. The infestation of ticks of the above-mentioned genera during the preliminary examination of samples from intensively used floodplain meadow pasture was in the range of 23-41%.

This indicates the possibility of a pasture survey in order to assess early spring even before the appearance of a grass stand suitable for grazing animals.

These results make it possible to assume a high degree of infection of animals with monies, plan its prevention and natural disinfection of pastures.

This phenomenon was explained by a significant difference in habitat conditions, primarily by the food supply (plant species composition), temperature, humidity, and aeration of the habitable layer.

At the end of the last week of July, an additional survey of pastures was carried out in order to clarify the population of ticks and their invasion by monies larvae after rains and cloudy days (table 1 - Indicators of the population of pastures with oribatid mites and their infection with monesia larvae).

Table 1 – Indicators of the population of pastures with oribatid mites and their infection with monesia larvae

Type of pasture	The total number of oribatids, specimen/m^2	Number of Scheloribates and Galumna, specimen /dm^2	Infected, ex.	Intensity of invasion Scheloribates and Galumna, %
Steppe pastures	2000±200	400±40	200±20	50±5
Floodplain meadows	5000±500	800±80	400±40	50±5
Overexposure pen for sheep	10000±1000	1800±180	1200±120	66±6
Semi-desert pastures	700±70	100±10	0	0

It can be seen from table 1 that, upon repeated examination, the animal enclosure turned out to be the most densely covered, where the number of ticks was 10000 ± 1000 specimen / m^2. Floodplain meadows were in second place in terms of their number – 5000± 500 specimens and on steppe pastures – 2000 ± 200 specimen / m^2.

Semi–desert pastures turned out to be harmless for animal infection - 700 ± 75 copies. in the absence of invasive ticks.

The infection rate of ticks was 50% in steppe pastures and 66% in a pen for overexposure of sheep.

Helminthological assessment of pastures for infection with the larvae of monesias of oribatid mites can be carried out shortly after the snowfall. With the appearance of thawed patches on elevated areas of pastures, they come to life and when a sample is introduced into the room, the ticks begin to show activity.

A full assessment of pastures intended for grazing animals should be carried out at the end of April before their carriage.

The degree of settlement intensity and the intensity of invasion of oribatid mites in pastures of different types: steppe pastures, floodplain meadows, forest and semi-desert pastures that turned out to be prosperous have been established. The soil of the pen for overexposure of sheep is most populated by oribatids.

Oribatides were found in all samples at all sites. The occurrence of soil mites is 100%. The distribution of oribatides over the studied sites was different. The largest number of them were found in the soil from pastures where sheep had been kept and grazed for a long time.

In addition, the changing climate on Earth (global warming) It makes its own adjustments to the distribution and number of ticks, which requires constant monitoring of their populations.

Thus, the research data obtained indicate the need to carry out sanitation and pasture hygiene in parallel with preventive measures, annually carry out the reclamation of seasonal pastures, the installation of electric shepherds, which will further preserve a healthy sheep population. To fully rehabilitate the pasture territory, fight against intermediate owners, which includes rotation and processing of pastures.

Conclusion: The most densely populated oribatid mites turned out to be an animal enclosure, where the number of ticks was over 10,000 copies / m^2. In second place in terms of their number were floodplain meadows in large numbers – more than 5,000 copies. and on steppe pastures of more than 2000 copies/ m^2. Semi-desert pastures of about 700 copies/m^2 turned out to be harmless for animal infection, in the absence of invasive ticks.

These data confirm the need for a helminthological assessment of pastures, which will make it possible to predict invasive diseases that are important in the development of rational veterinary and sanitary measures. The forecast makes it possible to establish a possible expansion or narrowing of the disease area, to anticipate the timing of infection and the degree of development of helminthiasis, to justify the planning of production and distribution of control agents.

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ТҮЙІН

Мақалада қойлар арасында ішек инвазиясының себебі болып табылатын аралық кене иелерінің таралуы туралы айтылады. Кенелердің таралуының негізгі факторлары табиғи-климаттық жағдайлары, оның ішінде жайылымдардың ботаникалық құрамы және лимандары екендігі дәлелденді. Мониезиоз және басқа да аноплоцефалатоздар кезінде жайылымдарды гельминтологиялық бағалауды жүргізу мүмкіндігі мен орындылығы анықталды. Кенелердің

болуы және таралуы туралы мәліметтер Батыс Қазақстан облысының жайылымдарының әртүрлі түрлерінде жүргізілді.

Елдің батысындағы әртүрлі жайылымдарда кенелердің таралу себептерін зерттеу үшін авторлардың деректері мен қоршаған орта факторларының әсері, сондай-ақ қойлардағы кенелердің саны ескерілді. Біз дала, жартылай шөлді жайылымдарды, жайылмалы шалғындарды, орман алқаптарын, жануарларға арналған уақытша тұру орындарын зерттедік. Көптеген жұмыстардың деректерін талдай отырып, жайылымдардың орибатидтермен қоныстануы және олардың мониезия личинкаларымен ластануы климаттық және ауа-райының жағдайына, сондай-ақ жайылымдағы жануарлардың мониезиямен жұқтыру дәрежесіне байланысты екендігі анықталды.

Кенелердің зақымдануы дала жайылымдарында 50% – ға дейін және қойларды уақытша тұруға арналған орындарда 66% - ға дейін құрады. Қар жамылғысы ерігеннен кейін көп ұзамай орибатидті кенелердің мониезия балқұрттарымен зақымдану үшін жайылымдарды гельминтологиялық бағалауды жүргізуге болатындығы анықталды. Жайылымдардың биік жерлерінде еріген қарлар мұзға айналады, бірақ сынаманы жылы жерге кіргізген соң, еру нәтижесінде ондағы кенелер белсенділік таныта бастайды.

Мал жаюға арналған жайылымдарды толық бағалау сәуір айының соңында олардың қыстаққа тұрғызғанға дейін жүргізілуі керек. Әртүрлі типтегі жайылымдарда: дала жайылымдарында, жайылмалы шалғындарда, орманды және гүлденген шөлейт жайылымдарда орибатидті кенелердің қоныстану қарқындылығы мен зақымдану қарқындылығы анықталды. Ең көп таралған орибатидтер жері қойларды уақытша ұстау орны болды.

АННОТАЦИЯ

Статья посвящена вопросам распространения промежуточных хозяев – клещей, которые являются причиной возникновения кишечных инвазий среди овец. Данные по наличию и распространению клещей проводили на разных типах пастбищ Западно-Казахстанской области. Для изучения причин распространения клещей на различных пастбищах на западе страны учитывали данные авторов и влияние факторов окружающей среды, также численность клещей на овцах.

Нами были исследованы степные, полупустынные пастбища, пойменные луга, лесная зона, загоны для животных. Проведя анализ данных многих работ установили что, показатели заселенности орибатидами пастбищ и зараженности их личинками мониезий находятся в зависимости от климатических и погодных условий, а также степени зараженности мониезиями выпасаемых животных. Зараженность клещей составила до 50 % на степных пастбищах и до 66 % – в загоне для передержки овец.

Установили что, гельминтологическую оценку пастбищ на зараженность личинками мониезий орибатидных клещей можно проводить вскоре после схода снежного покрова. С появлением проталин на возвышенных участках пастбищ они оживают и при внесении пробы в помещение клещи начинают проявлять активность.

Полноценную оценку пастбищ, предназначенных для выпаса животных, надо проводить в конце апреле до их выгона. Установлены степень интенсивности заселения и интенсивность инвазированности орибатидных клещей на пастбищах разных типов: степных пастбищах, пойменных лугах, лесных и, оказавшихся благополучными полупустынных пастбищах. Наиболее максимально заселена орибатидами почва загона для передержки овец.

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