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The economic efficiency of health-improving anti-leukemic measures

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ABSTRACT: In these farms, the economic efficiency of health-improving anti-leukemia measures is determined, cattle leukemia causes great economic damage to livestock due to mortality, forced slaughter, reduced productivity of animals with leukemia, lack of milk and offspring, disruption of breeding work and requires very high costs for veterinary-sanitary measures, and the implementation of a complex of health-improving anti-leukemia measures helps to prevent damage and increase the economic efficiency of veterinary and sanitary measures.

Keywords: leukemia, economic effect, damage, death, milk, offspring, breeding, economy

INTRODUCTION

Calculations of the economic efficiency of the conducted health-improving anti-leukemic measures were carried out in accordance with the "Methodology for determining the economic efficiency of veterinary measures" (2012). At the same time, the degree of spread of bovine leukemia and the timing of the recovery of farms from this disease were taken into account.

Materials and methods. The economic effect was determined by subtracting the amount of costs for the implementation of recreational activities from the amount of prevented economic damage according to the formula:

$E_E = P_U - C_V$

where: P_U - economic damage prevented as a result of anti-leukemic measures, soums;

C_V - costs for veterinary and sanitary measures, sum.

The economic damage prevented as a result of the prevention and elimination of leukemia was determined by the formula:

$P_U = M K_M K_U - S_A$

where: M – number of susceptible animals, heads;

K_M - coefficient of possible morbidity;

K_D - coefficient of damage per one sick animal;

S_A - actual economic damage, soum.

At the first stage of the research, the economic damage from bovine leukemia was determined. The economic damage consisted of losses from the lack of milk and offspring, from the death and forced slaughter of cows with leukemia, and from the loss of breeding value of heifers infected with Bovine leukemia virus (BLV).

Damage from death and forced slaughter was calculated by the formula:

$U_1 = M A P - S_A$

where: M - the number of dead, forcedly killed animals or disposed of carcasses;

A - average live weight of one animal, kg;

P - purchase price of 1 kg of animal live weight, soums;

SF - proceeds from the sale of slaughter products, cadaveric raw materials, sum.

The damage from the decrease in productivity due to the disease was determined by the formula:

U_2 M_D (VZ - VB) T Z

where: M_D - the number of diseased animals, heads;

V_H - V_S - the average daily amount of products (milk) obtained, respectively, from healthy and sick animals with leukemia;

T is the average duration of overexposure of sick animals on the farm, days;

P - purchase price of 1 kg of milk, sum.

The damage from the loss of breeding value of BLV -infected heifers was determined by the formula:

$U_3 = M (CPU - CU)$

Where: M - the number of breeding heifers infected with BLV;

C_P - C_V - the average selling price of pedigree and animals that have lost their pedigree value.

The total amount of damage was calculated by summing up all components of the damage:

$U = U_1 + U_2 + \ldots U_P$

Results and discussion. The coefficient of damage per diseased animal was determined by dividing the total amount of economic damage by the number of sick animals. When calculating the economic damage, the following purchase prices were taken into account: 1 kg of milk 5.0 thousand soums; 1 kg of live weight in the commodity economy 30.0 thousand soums and 45.0 thousand soums in the breeding farm; the average live weight of one sick animal is 380.0 kg; daily loss of milk from sick animals - 2.0 kg; overexposure of animals with leukemia on the farm for an average of 50 days; the actual selling price of breeding young animals is 18 million soums; the average live weight of pedigree young stock at sale is 350.0 kg.

In general, the costs of veterinary and sanitary measures were made up of the costs of forced disinfection, diagnostic tests, the cost of spent reagents, tools, wages for wind workers and the costs of maintaining maintenance personnel in each farm. The total cost of carrying out veterinary and sanitary measures to combat bovine leukemia, according to the laboratory of economics (report of the laboratory of economics for 2020), per animal is 251.3 thousand soums.

As a result of the research, it was found that in the Adiz Bobo farm, the total economic damage from bovine leukemia amounted to 156,835 thousand soums, including from the death of sick animals - 26,620 thousand soums, from forced slaughter - 37,240 thousand soums, from a decrease in milk productivity - 3600 thousand soums. The greatest economic damage (89375 thousand soums) in the farm falls on the loss of breeding value of heifers infected with VLKRS, due to the prohibition of the sale of breeding animals. The coefficient of damage per sick animal was 7495.5 thousand soums.

The amount of prevented economic damage, as a result of the prevention and elimination of leukemia, in this economy amounted to 306,744.5 thousand soums. The total cost of carrying out veterinary and sanitary measures on the farm is 138215 thousand soums. At the same time, the economic effect from the implementation of recreational activities in this farm amounted to 168,529.5 thousand soums, and the economic efficiency per animal - 306.4 thousand soums.

Similar calculations were carried out in the farms "Khadicha", "Buston Nazar", "Ulmasbek-Rukhshona", "Romitan", "Korakir Chorvasi" and "Bohodir". It was found that the size of the economic damage and the economic efficiency of health-improving measures depended on the degree of spread of leukemia in the farms, the number of susceptible animals and the terms of recovery. So, in farms, where the incidence rate is relatively low and the number of cattle is large, the annual economic effect of recreational activities is much greater than in other farms, where the number of animals is somewhat lower and the incidence rate is higher (Table 1).

Economic efficiency of anti-leukemic measures

Table 1

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№	Name of farms	Actual damage from leukemia, thousand soums	Prevented economic damage, thousand soums	Costs for antimycotic measures, thousand soums	Economic effect, thousand soums	
					on the farm	per animal
1	“Adiz bobo” farm	156835,0	306744,5	138215,0	168529,5	306,4
2	“Khadicha” farm	133060,0	241956,0	113085,0	128871,0	286,3
3	“Buston Nazar” farm	142995,0	269715,0	125650,0	144065,0	288,1
4	“Ulmasbek Rukhshona” farm	213770,0	240778,0	75390,0	165388,0	551,2
5	“Korakir Chorvasi” farm	119430,0	959390,0	376950,0	582440,0	388,2
6	“Bohodir” farm	159555,0	1026195,0	314125,0	712070,0	569,6
Average		154274,1+-12578,64	507463,0+-181319,0	190569,+-57912,96	316893,9+-123422,89	398,3+-60,56

Thus, the economic efficiency of recreational activities for one breeding farm is on average 316893.9 thousand soums, and for one animal - 398.3 thousand soums. At the same time, the amount of economic damage from leukemia per farm amounted to an average of 154,274.1 thousand soums. And for one cash animal - 297.7 thousand soums.

Conclusions. In conclusion, it can be stated that bovine leukemia causes great economic damage to animal husbandry due to mortality, forced slaughter, reduced productivity of animals with leukemia, lack of milk and offspring, disruption of breeding work and requires very high costs for veterinary and sanitary measures. Consequently, the implementation of a complex of health-improving anti-leukemic measures helps to prevent damage and increase the economic efficiency of veterinary and sanitary measures.

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