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# ABOUT THE PREVENTION OF THE DISEASES OF CALVES

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*One of the most difficult issues of animal breeding is growing a young generation without loss. This article presents specific measures to reduce and prevent infectious diseases of calves. The blood serum of heifers recovered from diseases was injected to newborn calves creating immunity to this or that disease.*

***Key words***: a newborn calf, a breeding farm, immunity, antibodies, serum, breed

**Introduction**

Nowadays the modern stage of the development of animal breeding in agriculture grows rapidly and efficiently but sometimes many different diseases of the young set serious obstacles before the developing process. In such limited areas as livestock complex farms the great number of the young which are usually sensitive to illnesses is conditioned by complicated etiology and various clinical features that contribute to the rapid development and spread of diseases. High animal morbidity leads to forced slaughter and significant loss of livestock which inhibits the normal process of young growth.

Death of young farm animals is caused by infectious diseases of digestive tract, respiratory tract, metabolic disorders and feeding and behavioral distortions that occur in almost all farms [1].

It is necessary to identify the patterns of occurence and development of the virus in time, to carry out early diagnostic activities of diseases in livestock farms, especially in supply farms, to develop and introduce explicit methods of group diagnosis of respiratory and gastrointestinal disorders and to identify the specificity and effectiveness of preventive and struggling activities.

**Conflict setting**

The survey was carried out by one of the leading farms of the Artsakh Republic "Pedigree station" CJSC for the period 2015-2018. "Pedigree Station" CJSC has been functioning since 2008 the primary goal of which is the rehabilitation of the breeding activities and improvement of the local cattle. Here such breeds of dairy and beef are growing as simmentala (fleckvieh), jersey and austrian shvits sorts, but no efforts are being made to increase the number of the latter breed in Armenia.

The task was set to study causes, clinical manifestations and pathological changes of animal diseases of animals of different age groups and breeds which cause death of calves. Seasonal manifestations of diseases and death have been studied in terms of the given years expressed in trimester percentages over the years. Seasonality was calculated by trimesters thus dividing the number of calves dead currently by the number of calves dead during the year and multiplying it by 100. Paying special attention to the seasonal manifestations of infection, receptive species are stated once again especially those carrying healthy microbes which can be established in unfavorable climatic and meteorological conditions.

Diagnosis of infectious diseases of calves was carried out at the «National Laboratory of Veterinary and Food Expertise» SNGO of the MA of Artsakh. Autopsy of dead calves, registration of pathological changes and microbial investigations were done. As a diagnostic material the fresh dead bodies, internal organs, lymph nodes and heart blood of the calves were sent to the laboratory. Creams have been made of the diagnostic material painted by Gram and Romanovsky-Gimza. The cultivation was done in the environments containing meat peptone agar, meat peptone broth, Levini, Ploskirov and blood serum. The biochemical properties of the agents have been studied in the Hissic

environment by the presence of various carbohydrates (glucose, lactose, saccharose, salicylic acid, inulin, maltose) and meat peptone gelatine [2].

We have injected blood serum from healthy heifers to newborn calves by creating immunization against the infections in the farm in November-December 2018.

**Obtaining the immune serum**

The immune serum was received by taking blood from recovered animals with a blood count of 0.5 liters per 100 kg of live weight [3, 4]. Prior to taking blood, a 10% solution of 33 ml of citric acid sodium was added to each volume of vessel. Needle thread adjusted to 1 meter sterile rode was inserted into a two-layer cap on the cover of the blood-collector. Once the needle is inserted into the vein when the blood flows, the box is slowly shaken until the required amount of blood is collected. To obtain plasma from the blood a stemmec is used followed by a plasma containing CaCl 33% solution added with a volume of 1.3 ml per 1 liter. After a good shake it should be filtered by a few slices of gauze. For perfect removal of fibrin the plasma is carried through a stemmec after 24-48 hours.

The next action is to test the serum for safety, sterility and epidemiological effectiveness. There is always danger in the production of serum due to the infection of donors with various pathogens. With the obtained serum these bacteria can cause infections in the immune system of the injected animals. Therefore, several serum vessels were tested at the thermostat for 48 hours in 37˚C and then they were used in cultivation on meat peptone agar and meat peptone broth being incubated in the thermostat for 7 days. Immunization of the immune serum has been determined by methods of influencing microbial growth immediately. If the immune serum has passed through all the stages of the expertise and has a positive rate then it is suitable for use.

**Research results**

Studies have shown that the role of infectious diseases especially escherichia, salmonelloes, streptococcus and collibacteriosis is significant in the death of the young. Death were recorded between the young of the age of 2 days to 6 months. It should be noted that pathogenic changes in studied animals at different ages were observed in the lungs and intestines.

Studies have shown that death of calves was mostly recorded during massive labour of animals. It is known that during the labour it is not possible to provide adequate veterinary and sanitary conditions, so all the preconditions are for scorching infections.

According to epidemiological and microbiological results, collibacteriosis was more registered with animals of 2-20 days old. Temporary increase of body temperature, refusing from milk, accelerated breathing, diarrhea and depression are noted in the infected animals. Pathologic changes were most commonly noted in the intestines in the form of the intestinal inflammation of the mucous membrane. A disease typical to streptococcus septicaemia has been noted in calves of 1 to 4 months old which is combined with the protea bacterias. In this case pathological changes are more expressed in lungs in the form of lung inflammation. A chronic form of disorders of respiratory system was noted in 4 – 6 months old calves and the process was accompanied by gradual rises of body temperature and the autopsy revealed lung damage.

Analytical works have been done to investigate the number of death in the given farms at different ages and breeds of calves (Fig. 1). As can be seen from the diagram, most death were observed in calves of 2-20 days old making 39.2% of the total number of dead animals during the year, 34.5% of 1 to 2 months old calves, 16.8% of 2-4 months old and 9.3% of 4-6 months old calves. Studies have shown that 4-6 months old calves were mostly infected on the first day of birth but the symptoms of the disease have disappeared as a result of various treatment. Conventional healthy animal growth has decreased, the natural immunity of the organism has been distorted and finally ill animal with symptoms of septicaemia and chronic pneumonea has died.

Thus, the period of general morbidity and death of calves can be prolonged and it is difficult to find any patterns: here the individual features of the organism are essential.

We must pay attention to the fact that seventy-seven calves from 107 dead calves were Jersey breed in 2017 which is 72% followed by 23 from fleckvieh and 7 from austrian shvits. This may be due to the fact that more jerseys were born this year, but the fact that the animals of that breed are more sensitive and hard-adaptive is of no less importance.

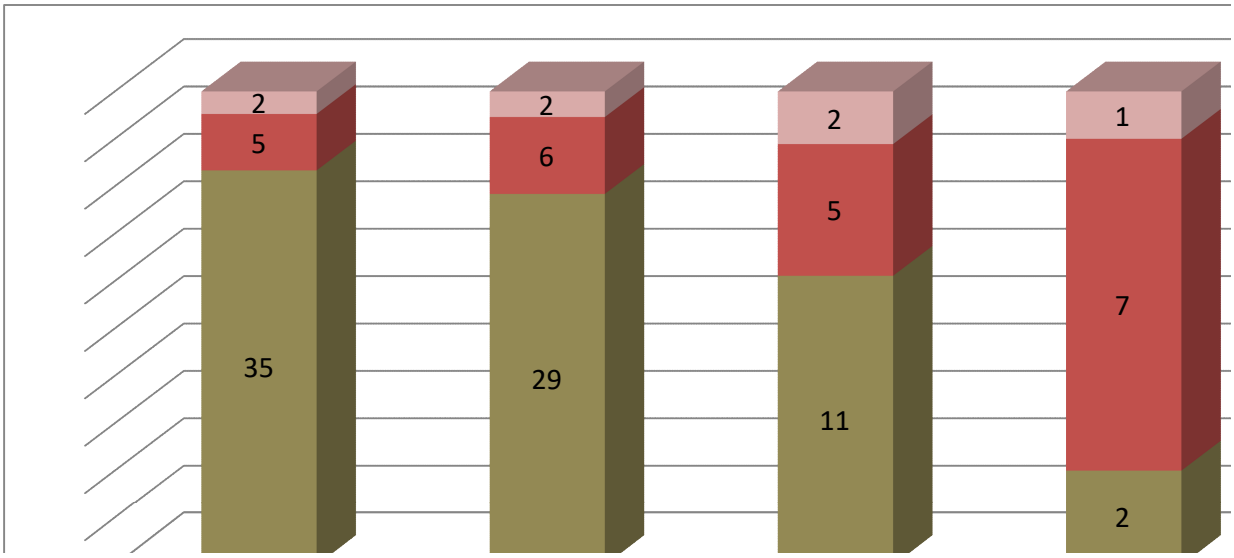


**Figure 1. Death of calves of different ages and breeds in 2017**

The number of death of calves in different seasons of the year is studied which is explained by a number of circumstances (Fig. 2).

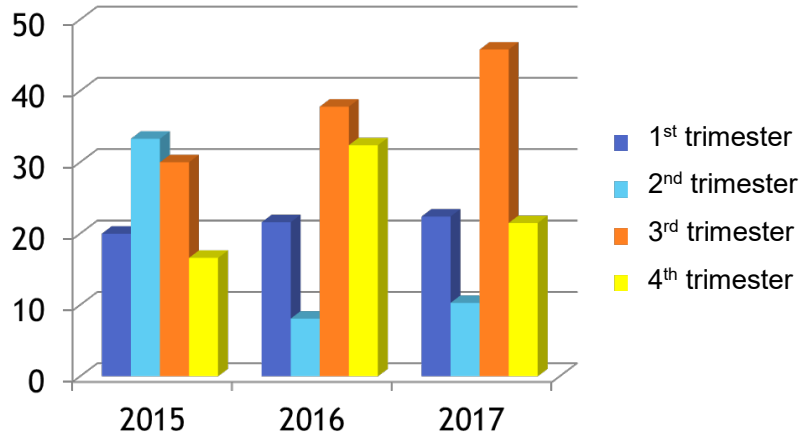


**Figure 2. The seasonal manifestations of death of calves**

It is clear from the data in the diagram that the death of the calves has been recorded in all months of the year. However, most of them are recorded along with weather warming, so, the cases of death prevaled in the second (33.3%) and third (30%) trimesters in 2015 and in the third (37.8%) and in the fourth (32.4%) trimesters in 2016. The cases of calf death prevaled in July, August and September in 2017 (the same in 2016) making 45.8%. The increase in the number of diseases and death is due to the accumulation and circulation of pathogenic microbes in barns with favorable conditions for their development as well as poor veterinary and sanitary conditions for livestock care

and growth [5]. It is likely that during that period a large amount of animal labour had occurred coinciding with wet weather conditions, delay of manure removal and the lack of vitamins and minerals in the feed for pregnant animals which led to the weakening of the natural immune system of new born and young animals. That is why animals of different age groups are infected with conditional pathogens including streptococcus, diclococcus and enterobacteriaceae.

We suggested and implemented passive immunization of newborn calves as a preventative measure. The blood serum, received from 6 conventionally healthy heifers which had respiratory and digestive diseases but had been treated currently, was injected into 12 newborn calves with a 1.5 mL dose to 1 kg of live weight. Then after 15 days the mentioned dose was reinjected to the calves.

It should be noted that, according to the economy registry, donor cows have been ill with various diseases of the lung and intestinal tract, but symptom treatment was carried by injecting anti-bacterial, sulphanilamid preparations, glucose and so on. Taking into account the fact that the heifers that have been infected and treated afterwards and have gained immunity, it is not excluded that the blood serum of these animals contains antibodies to microbial and viral diseases. After the injection of the blood serum from these heifers to ill and weak calves with diarrhea, there was no death in the livestock any more which indicates the effectiveness of the vaccine. Meanwhile, in the same group of animals kept in the same conditions of feeding, care and behavior which was reported as checking, the death of sick calves was observed. Reports were prepared on the cases of death in the farms and the pathological samples were sent to the laboratory for microbiological analyses.

Hence, joint discussions with the veterinary surgeons were held and appropriate measurements have been organized to prevent calf death. The fight against diseases should be started with preventive activities that should be directed first to the care and feeding of pregnant cows and then implementing and maintaining zoo and hygienic rules and vaccination against infectious diseases.

**Conclusion**

Over the recent four years studies have shown that conventional pathogenic microbes such as enterobacteriaceae and also diplo-streptococcus and salmonellosis which are isolated from the internal organs of the dead calves play a significant role in the morbidity and death of calves.

The use of blood serum was implementd in order to increase the immunity of newborn calves which has had a positive result: there was no death in experimented animals group.

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## ՀՈՐԹԵՐԻ ՀԻՎԱՆԴՈՒԹՅՈՒՆՆԵՐԻ ԿԱՆԽԱՐԳԵԼՄԱՆ ՄԱՍԻՆ

**Ֆ.Ռ.Իսկանդարյան, Վ.Վ. Ղազարյան, Ն.Ա. Սաֆարյան**
*Շուշիի տեխնոլոգիական համալսարան*

Անասնաբուծության հրատապ խնդիրներից է մատղաշի աճեցումն ու անկորուստ պահպանումը: Սույն հոդվածում ներկայացված է հորթերի անկման պատճառ հանդիսացող վարակիչ հիվանդությունների դեմ պայքարի և կանխարգելման յուրահատուկ միջոցառումները: Հիվանդությունից առողջացած երինջներից ստացված արյան շիճուկը ներարկվել է նորածին հորթերին, նրանց մոտ առաջացնելով անվարակելիություն ֆերմայում առկա հիվանդությունների նկատմամբ:

***Բանալի բառեր.*** նորածին հորթ, տոհմային կայան, իմունիտետ, հակամարմին, սիճուկ, ցեղ:

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## О ПРОФИЛАКТИКЕ ЗАБОЛЕВАНИЙ ТЕЛЯТ

**Ф.Р.Искандарян, В.В. Газарян, Н.А. Сафарян**
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Одна из сложнейших проблем животноводства является выращивание молодняка без потерь. В этой статье представлены конкретные меры по борьбе и профилактики инфекционных

заболеваний телят. Сыворотка крови телок, выздровленных от заболеваний, вводилась новорожденным телятам, создавая иммунитет к тому или иному заболеванию.

***Ключевые слова*:** новорожденный телёнок, племенное хозяйство, иммунитет, антитела, сыворотка, порода.

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