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DIAGNOSIS OF HYPOVITAMINOSIS IN RABBITS

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Annotation: *This article describes the changes in clinical signs of the etiopathogenesis of hypovitaminoses in rabbits, the effects of vitamin premixes and probiotics. The importance of probiotics and their properties in rabbit hypovitaminoses, as well as the efficacy of vitamin premixes and probiotics in co-administration, have been demonstrated.*

Keywords: *Pulse, vitamin, probiotic, vitamin-premix, group, hypovitaminosis, granule feed, Max-Lac Vitalyte-V..*

Relevance of the topic. In our republic, a number of decisions have been made on the development of livestock, in particular, rabbits. In particular, the decision of the president of the Republic of Uzbekistan dated March 3, 2021 PQ 5017 "on additional measures for the further support of livestock networks by the state" can be noted. This decision provides for the strengthening of the feed base of the rabbit network by organizing new production facilities for the production of full-value, high-protein feeds for rabbits and modernizing existing ones; organizing the implementation of R & D for the widespread introduction of innovative technologies developed in the field of rabbit production and its processing.

Rabbit breeding today is one of the areas of great attention, therefore, high-satiety and high-quality feeding of Mother rabbits is important in obtaining healthy offspring from them. Feeding rabbits with low-satiety, poor-quality nutrients during the breeding season, incomplete satisfaction of the body of Mother rabbits with the needs of vitamins, macro-and microelements causes disturbances in their metabolism, as well as lagging behind the growth and development of rabbit children obtained from them, including a delay in the re-fattening of Mother rabbits. In the exchange of substances, vitamins that are part of enzymes are of great importance.

In addition to vitamin-premixes, probiotics are now increasing in the importance of preventing vitamin deficiency, which is common in rabbit farms in our country. Probiotics promote the stability of the intestinal microflora, along with the diversity and recovery of microflora. As a result of this, the problem of deficiency of certain vitamins synthesized by the intestinal microflora is solved directly by ham. Among the intestinal microflora, lactic acid bacteria *Enterococcus faecium* is considered important among lactic acid.

Enterococci-lactic acid that does not form spores and capsules gram-positive bacteria, facultative anaerobes (able to use fermentation energy and therefore live with a large and small amount of oxygen). The optimal temperature for the cultivation of enterococci is +35 ... + 37 °C. enterococci carry out fermentation-type

metabolism, producing various carbohydrates mainly lactic acid, but not gas, reducing the acidity of the environment by 4.2-4.6 pH. This is a favorable environment for the good development of intestinal microflora.

Object and methods of research. The experimental part of our scientific research work was carried out on rabbits of the White velikan breed, which are kept in vivarium on the basis of the Mega project established at the Samarkand State University of Veterinary Medicine, livestock and biotechnology. In the relevant experiment of the vivaria of our university, 20 heads of rabbits of the White velikan breed are kept, 10 heads of rabbits of the gray velikan breed. Based on the study and analysis of the cartogram of the level of metabolism in the body and the cartogram of the level of satiety of the rabbit ration with dispensary examinations in young rabbits belonging to the “Munisakhon luminous Future” Farm of the Okhdarya District of Samarkand region, the degree of satisfaction of the demand of the rabbit organism for nutritious and biologically active substances was studied in order.

Analysis of the diet of rabbits on satiety and composition was carried out in the laboratory of chemical analysis of foods of the Department of Samdvmchbu “animal genetics, mating and animal feeding technology”.

In the structure of foods when analyzed, coarse foods accounted for 15.34%, juicy foods 20.43%, concentrated foods 62.61%. Nutrient moisture was found to be 8.53% when detected in KERN DBS hardware. The carotene content of the food was found to be 1 kg/ 25 mg.

Examinations of certain indicators of blood were carried out in the Laboratory of “Veterinary Hematology”, which was organized at the Department of Animal Physiology, Biochemistry and pathological physiology. The amount of hemoglobin in blood samples taken from rabbits was determined using a Sali hemometer. And the total protein content was determined using the KFK refractometer.

With dispensary studies in rabbit farms, experiments were carried out on the University vivarium of the prevalence, causes, development characteristics of hypovitaminoses in rabbits, economic damage to farms, clinical signs, morphobiochemical changes in the blood.

From 3-month-old rabbits in the experiment, 5 heads were separated and with generally accepted clinical examination methods, the general condition, appetite, obesity rate, response to external influences, mucous membrane color, skin coating, skin and movement organ condition, body temperature, breath and pulse count of 1 minute were determined.

Max-Lac is a supplement that is supplied with water. Ingredients: mainly lactic acid bacteria *Enterococcus faecium*, *Lactobacillus plantarum*; *Lactobacillus paraplantarum*; *Lactobacillus acidophilus*; *podiococcus pentosacaucus*; *weissella viridescens*; *propionibacterium freudenreichii*; *Bifidobacterium animalis*; *saccharomyces cerevisiae* skimmed cow's milk.

Recommendations for use: Max-Lac probiotics improve and enrich the quality of intestinal microflora, improve the digestion and absorption of nutritious substances, prevent and treat various bacterial diseases of animals and are

recommended for use in increasing the productivity of agricultural animals and poultry.

The Max-Lac probiotic nutrient supplement is applied daily in an individual or group method mixed with pure water.

Recommended doses: 3 gr per 100 liters of water per newborn calves, pigs, foals, furry animal; 3 gr per 30 liters for adult cattle, horses for 10 days; it is recommended to give 1 gr per 10 liters of water to restore microflora in young animals.

Granular feed is vitamin and enriched with minerals, its composition consists of Mecca grain 20%, wheat bran 30%, barley Groats 20%, 10% wheat grain, 8% soy Shrot, 10% alfalfa grass and 2% vitamin mineral supplements. "Granular enriched omuxta feed" is produced and coated in granule form based on maxus technologies. This granule feed differs from other omnivorous feeds in that it has a 20% higher level of digestion, with the content of vitamins and minerals and other biologically active substances evenly distributed over all of the granule feed. The widespread use of omuxta baits in the form of enriched granular feed in animal husbandry prevents excessive costs, increases productivity. It also fully satisfies the body's needs in relation to nutritious and biologically active substances.

Vitalyte - v (vitamin - mineral premix) - vitamins for rabbits are a mixture of macro-and microelements and amino acids, with the help of which the immunity of rabbits is stimulated. The biological properties of vitalyte-V are due to the presence of vitamins of Group a, D3, E, B in nova Marx, which normalize metabolism.

Minerals contained in hemoglobin participate in the synthesis of hematopoiesis, necessary for the reproductive function of rabbits. All components are composed based on the daily vitamin and mineral needs of rabbits. The biological properties are as follows:

1. Improve the growth and development of rabbits.
2. Increase immunity and improve the overall health of rabbits.
3. Drinking water nutrients and toxins from the external muck increase the body's resistance to toxic substances.

The course of the experiment. The first experimental control group was fed into the farm diet (granulaliem), Group 2 into the farm diet+vitalyte premixes, Group 3 into the farm diet (granular feed)+ Max-Lac-3 with gr/ 100L of water, Group 4 into the experimental group enriched with Max - lac+Vitalyte vitamin-mineral premixes, the control group was fed into the farm diet (granular feed). Clinical and hematological examinations were carried out in experimental rabbits. Through the clinical examination of rabbits, the generally accepted clinical examination methods revealed the general condition, appetite, obesity rate, response to external influences, mucous membranes, skin coating, skin and movement organ condition, body temperature, pulse and breath count in 1 minute.

According to the results of clinical examinations of rabbits every 10 days during the experiment, the body temperature of rabbits in all experimental groups was at the limit of physiological norms at the beginning of the experiments, there was a decrease in appetite, pallor of mucous membranes, obesity rates below the middle, a

decrease in the response reaction to external influences in rabbits, During the experiments, these changes were noted to be positive in the experimental groups, while in the control group it was observed that the symptoms detected at the beginning of the experiment were repeated. It can be seen from this that disorders of the metabolism in rabbits have been observed to deepen.

Table 1.

Clinical indications of rabbits in the experiment (n=20)

Experimental groups	Examination Time	Body temperature, °C	Pulse number, 1 minute	Breath number, 1 minute
In moderation	days	38,5-39,5	120-200	50-60
Control group (farm ration)	10	39,0±0,01	147,7±4,3	51,5±0,05
	20	38,4±0,01	143,1±4,8	52,2±0,06
	30	38,1±0,03	139,2±3,9	50,3±0,02
2-experimental group on the farm diet+vitalyte	10	38,5±0,02	152,9±4,3	58,1±0,4
	20	39,1±0,01	148,6±4,4	56,4±0,2
	30	39,3±0,01	149,3±1,2	55,2±0,3
Experiment group 3 Max-lac probiotics	10	39,0±0,01	153,2±4,0	59,6±0,10
	20	38,3±0,03	158,8±3,2	58,5±0,09
	30	38,6±0,03	160,7±4,8	56,3±0,03
Experiment group 4 Max-lac+Vitalyte	10	38,7±0,02	149,6±4,3	56,4±0,6
	20	38,5±0,03	150,7±4,6	55,2±0,05
	30	38,9±0,04	144,9±4,7	55,2±0,04

A study of clinical indicators of rabbits in the experiment showed that in Experiment 1, the body temperature averaged 38.5 ± 0.02 °C at the beginning of the experiment, rising to 39.1 ± 0.010 °C by mid - experiment, and rising to 39.3 ± 0.010 °C by the end of the experiment. Group 2 had 39.0 ± 0.010 °C, 38.3 ± 0.030 °C and 38.6 ± 0.030 °C respectively, experiment 3 had 38.7 ± 0.020 °C, 38.5 ± 0.03 °C and 38.9 ± 0.040 °C respectively. The control group was 39.0 ± 0.01 °C, 38.4 ± 0.010 °C and 38.1 ± 0.03 °C. Compared to all groups, experience 4 showed better performance in Group rabbits.

Table 2

The effect of probiotics and Vitamin premixes on the amount of hemoglobin in the blood of rabbits

Experimental groups	Hemoglobin content g/l			
	At the beginning of the experiment	At 10 days	at 20 days	at 30 days
Control group (farm ration)	97,3±2,6	101,2±2,9	103,4±4,1	112,1±3.1
2-experimental group on the farm diet+vitalyte	101,8±1,8	108,1±2,1	111,3±2.9	115 ,5±2.8
Experiment group 3 Max-lac probiotics	105,1±2,8	111,6±2,6	115.2±2,43	121,4±2.1
Experiment group 4 Max-lac+Vitalyte	102,7±2,6	114,4±2,5	120,3±2,6	125,6±1.7

The pulse count in 1 minute was 152.9 ± 4.3 times the average (120-200 times the normal) at the beginning of the experiment in Group 1, 148.6 ± 4.4 times between the experiment and 149.3 ± 1.2 times at the end. Correspondingly, in Group 2, 153.2 ± 4.0 , 158.8 ± 3.2 and 160.7 ± 4.8 times, in Group 3, the average was 149.6 ± 4.3 ,

150.7±4.6 and 144.9±4.7 times, in the control group was 147.7±4.3, 143.1±4.8 and 139.2±3.9 times. In Experimental Group 2, The Pulse number was found to be better manifested compared to other groups.

The number of breaths in 1 minute (the norm is 50-60 times in 1 minute) averaged 57.1±0.4 times at the beginning of the experiment in Group 1, 55.4±0.2 times between and 53.2±0.3 times at the end. Group 2 averaged 58.6±0.10, 57.5±0.09 and 54.3±0.03 Times, Group 3 averaged 55.4±0.6, 54.2±0.05 and 53.2±0.04 times, and control group averaged 52.5±0.05, 50.2±0.06 and 51.3±0.02 times.

During the experiment, rabbits of Experiment 2 increased hemoglobin levels by 11.9% compared to at the beginning of the experiment, rabbits of experiment 3 increased hemoglobin levels by 14.43% compared to at the beginning of the experiment, and rabbits of experiment 4 increased hemoglobin levels by 18.3% compared to at the beginning of the experiment. Also the hemoglobin content of 4th experimental group rabbits was found to be 10.75% higher at the end of the experiment compared to that of control group rabbits.

Table 3

Effect of probiotic and vitamin premixes on total serum protein levels

Experimental groups	Total protein content g/l			
	At the beginning of the experiment	At 10 days	at 20 days	at 30 days
Control group (farm ration)	52.3±2.3	53.5±2.8	53.8±4.2	54.2±3.8
2-experimental group on the farm diet+vitalyte	54.6±3.1	54.9±2,9	55.2±2.3	55.7±2.6
Experiment group 3 Max-lac probiotics	51.7±2.7	53,8±2,4	55.4±1.9	56,5±2.4
Experiment group 4 Max-lac+Vitalyte	52.6±2.2	53.7±2.7	57.8±2.2	59.7±3.1

During the experiment, the total protein content of the blood of Experimental Group 2 rabbits increased by 2% compared to the beginning of the experiment, the total protein content of the blood of Experimental Group 3 rabbits increased by 8.5% compared to the beginning of the experiment, and the total protein content of the blood of Experimental Group 4 rabbits increased by 11.9 % It was also found that the total protein content of the 4th experimental group rabbit blood was 9.22% higher at the end of the experiment compared to that of the control group rabbits.

Conclusions. The results obtained show that the effect of probiotics on the growth and development of young rabbits and on clinical and hemoto-physiological indicators was found to be positive.

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**XUSUSIYATLARI. AGROBIOTEKNOLOGIYA VA VETERINARIYA TIBBIYOTI
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