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RESULTS OF CLINICAL AND LABORATORY INVESTIGATION IN PRODUCTIVE COWS WITH LARGE BELMIC ACIDISATION

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Abstract. *The article analyzes the results of clinical observations on the distribution and etiology, as well as experimental studies on the development of diagnostic and treatment-and-prophylactic measures of rumen acidosis in breeding cows in the conditions of farms of the republic.*

Key words: *acidosis, lactic acid and UYOC, large rumen fluid environment (pH), bovine chronic large rumen acidosis (BCLRA)*

Relevance of the research. Despite the fact that the high milk yield and reproductive capacity of imported cattle are the main breed indicators of our republic's cattle, zooveterinary activities are being carried out to preserve the reproductive potential, such cattle and their offspring are affected by a number of pre-gastric diseases, particularly large stomach acidosis - grows year after year. Such a circumstance necessitates the creation of early detection, group prevention, and efficient treatment strategies for big stomach acidity in productive cattle, based on the features of current types of feeds under the settings of Uzbekistan's cow breeding farms.

Despite the fact that comprehensive scientific study on big stomach acidosis illness in cows has been conducted in veterinary science and practice across the world, no single scientific conclusion on prompt diagnosis, treatment, and prevention of this disease has been obtained. Giving cows a high concentration of concentrate feeds in order to maintain high output in farms causes problems such as big stomach acidity, hepatosis, ketosis, laminitis, toxicosis, and immunodeficiency, as well as infertility and a drop in milk volume and fat. As a result, studies targeted at early identification of big stomach acidity in productive cows, successful treatment, and the development of group preventive techniques are important.

Professor Kalyuzhniy I.I proposes defining three degrees of this illness in the clinical presentation of acute acidity of the big stomach of ruminants [24; p. 21]. The light level is distinguished by a good overall condition, big abdominal hypotonia, short-term loss of appetite, diuresis stagnation, and a poor expression of the typical odor, color, and excretion of feces, as well as the absence of laminitis. In these animals, the average pH level of blood was 7.30±0.6, in big abdominal fluid 5.51±0.13, in feces 6.30±0.76, the shift of blood buffer base was 3.50±0.73 mmol/l. will be done.

Anorexia, big abdominal atony, moderate dehydration, reduced diuresis, large abdominal hypotension, tachycardia, mild laminitis, and normal body temperature are all symptoms of moderate severity. The average pH in blood is up to 7.200.17, in big abdominal fluid up to 4.560.11, in urine up to 5.830.12, in feces up to 5.790.19, and the lack of buffer bases 11 reaches 160.72 mmol/l.

During the first 5-7 days of severe acidosis, anorexia, massive abdominal atony, fluid buildup, severe dehydration of the body, raised body temperature, oligo or anuria, development of laminitis in the legs, constipation, laying down, and death were noted. In this example, the blood pH is 7.100.02, the

ascites pH is 4.440.002, the urine pH is 5.610.20, and the feces pH is 4.910.31. The blood buffer base insufficiency is average. It was 12.751.74 mmol/l.

Ruminants' huge stomachs are home to a diverse range of bacteria. Ascites contains up to 100 billion germs per milliliter (1010 bacteria, 1010 infusoria and 109 fungi). The above-mentioned author discovered that the infusoria of the genera Entodinium and Diplodinium, which generate cellulolytic enzymes, are the most abundant in the big stomach by analyzing the unique features of the kind of infusoria [2; pp. 27-31, 12; pp. 40-176].

Every year, 25-30% of high-yielding cows are afflicted with big stomach acidosis, up to 40% in certain farms, limiting their usage in farms to an average of 2.3-3.0 lactation periods. Gastric acidosis is a frequent condition in cattle and other ruminants that is distinguished by a rise in lactic acid in the vast rumen and a shift in the body's acid-alkaline balance. This is related to a high consumption of food high in digestible carbs (barley, rye, oats, sugar beets, potatoes, watermelon, etc.) and a lack of appropriate roughage. Long-term starvation of animals followed by feeding, abrupt changes in diet and feeding regime, lack of adaptation period to more grain food, transition from manual to mechanized feeding, and other technological changes were attributed to the development of acidosis [3; pp. 123-127, 4; pp. 15-16, 5 pp. 79-86].

According to international researchers' findings, acute, mild, and chronic acidosis are distinct. The pH of the big abdomen fluid is less than 5.2 in acute acidosis; on average, the pH is between 5.2 and 5.5 [10; pp. 303-306, 26; pp. 110-112, 90; p. 91]. This score ranges from 5.6 to 6.0 in cases of chronic acidosis of the big stomach of cows (SKQSA). In contrast to SCQSA, it was discovered that during acute metabolic acidosis, the pH can recover to normal within a few hours [6; p. 138, 7; pp. 348-356, 8; p. 133, 9; p. 830, 10; p. 80, 11; p. 5-26].

Laboratory tests were performed on cow gastric juice and blood samples. The pH indicator, the number, type, and functional activity of infusoria in big abdominal fluid, the number of erythrocytes and leukocytes in blood samples, the amount of hemoglobin, total protein, glucose, and ketone bodies were all assessed regionally [1; pp. 83-261].

The purpose of the research. Early identification of big stomach acidosis illness and associated metabolic problems in purebred cattle.

Research objects and methods. In determining the results of clinical and laboratory examination of productive cows in large stomach acidosis, during the years 2018-2021, 470 at the farm "Agro-Bravo Livestock" (farm 1), 200 at the farm "Ochilov Mahmudjon Dalasi" (farm 2), "Yangi Asir" 420 cows on the farm (farm 3) and 300 cows on the farm "Omadli Zarnigor" (farm 4) were examined in the 1st - 2nd, 4th - 5th and 7th - 8th months of lactation based on the principle of consistent dispensation.

Result and discussion. Clinical investigations were used to assess the body temperature, respiration rate, pulse rate, movement of the big abdominal wall, liver border, pain perception of the liver, condition of mucous membranes, and hunger of cows with large abdominal acidosis.

The consistency of excrement was liquid in 80% of cows during the first 1-2 months of lactation and 60% throughout the following months of lactation.

The respiration rate, heart rate, and body temperature of the dairy cows in the experimental farms were kept at a physiological level, in particular, the respiration rate of the cows in the 1st farm was 16.68±0.38 in the 1st - 2nd month of lactation, 15.4±0.57 in the 4th - 5th month, and 15.4±0.57 in the 7th - 16.0±0.41 in 8 months, respectively 12.8±1.15, 12.4±0.46 and 12.6±0.52 in cows from farm 2, 18.57 in cows from farm 3 ±2.84, 18.2±1.14 and 17.4±1.2 times, 14.6±0.34, 12.8±0.62 and 15.2±0.42 times in cows of farm 4 organized. The number of pulses was 72.4±1.72 in the 1st - 2nd month of lactation in the cows of the 1st farm, 72.12±1.66 in the 4th - 5th month, and 71.8±1.8 in the 7th - 8th month, in the cows of the 2nd farm respectively, 54.2±2.63, 54.32±2.48 and 54.16±1.78, 73.57±2.99, 72.86±2.52 and 72 in cows from farm 3, 28±2.32 samples, 58.8±1.24, 56.6±1.48 and 56.4±2.26 samples in cows of farm 4. The

average body temperature of cows in the 1st farm was 38.10±0.28 in the 1st - 2nd months of lactation, 37.84±0.14 in the 4th - 5th months, and 37.76±0.16 in the 7th - 8th months, and the same in the cows in the 2nd farm. 38.4±0.11, 38.1±0.18 and 37.94±0.21 respectively, 38.6±0.15, 38.2±0.22 and 38.06 in cows from farm 3 ±0.13, and 38.2±0.22, 38.4±0.36 and 38.0±0.48 in cows of farm 4 (P<0.01; P<0.05). Loss of appetite and change in quality (lizukha) in cows was observed in the 1st farm, 14% in the 1st - 2nd month of lactation, 40% in the 4th - 5th month, and 60% in the 7th - 8th month, in the 2nd farm, 10%, 30% and 40%, respectively. , 16%, 45% and 70% in the 3rd farm, 12%, 34% and 42% in the 4th farm, in the animal. In farm 1, where the movement of the large abdominal wall was checked, it was on average 2.4±0.17 in the 1st - 2nd month of lactation, 1.2±0.22 in the 4th - 5th month, and 1.2±0.22 in the 7th - 8th month, 2 - 2.0±0.25, 1.4±0.14 and 1.34±0.26 respectively in farm cows, 2.14±0.18, 1.4±0.15 in farm 3 cows and 1.12±0.14, 2.2±0.44, 1.8±0.38 and 1.6±0.62 in cows of farm 4 (P<0.01).

The liver and external mucous membranes were inspected in cows from the experimental farms, and the border of the liver and the existence of discomfort were evaluated using the external immersion palpation method, as well as the color of the mucous membranes.

Enlargement of the border of the liver and the feeling of pain were examined in the 1st farm, 30% of the cows in the 1st - 2nd month of lactation, 40% in the 4th - 5th month, 45% in the 7th - 8th month, partial yellowing of the color of the external mucous membrane, 20% in the 1st - 2nd month of lactation in the 1st farm , 35% in the 4th - 5th month, 50% in the 7th - 8th month, 18%, 25% and 30% in the 2nd farm, respectively, enlargement of the border of the liver and pain in 15%, 20% and 25% of the animals, the color of the mucous membranes partial yellowing was found. In farm 3, 25%, 30%, and 45% of the animals experienced enlargement of the liver border and discomfort, while 20%, 25%, and 35% of the animals had partial yellowing of the mucous membranes. In farm 4, 15%, 20%, and 28% of the animals had enlargement of the liver border and discomfort, while 14%, 18%, and 22% of the animals had partial yellowing of the mucous membranes.

Clinical examination results revealed that acidosis of the large stomach in cows developed in accordance with the progression of lactation, and clinically, the movement of the large stomach wall decreased to 1.2 0.22-1.8 0.38 times in 2 minutes, 20 - 45% of the liver limit in the animal enlargement and pain on palpation, and yellowing of mucous membranes was observed in 15-50% of animals.

Experiments aimed at determining the morphobiochemical changes of blood during large stomach acidosis in cows in the conditions of the farm "Agro-Bravo Livestock" (farm 1) in the Okdarya district of Samarkand region. The number of erythrocytes in the blood of cows in the 1st - 2nd months of lactation is on average 4.93±0.04, 4 - 4.88±0.2 in 5 months and 4.76±0.06 mln/µl in 7-8 months, correspondingly 4.91±0 ,05, 4.84±0.02 and 4.72±0.3 million/µl, respectively 4.15±0.14 in the conditions of the farm "Yangi asr" (farm 3) in Kyziltepa district of Navoi region. , 4.12±0.2 and 4.10±0.03 million/µl, 4.94±0.08, 4.91± 4.94±0.08, 4.91± 0.05 and 4.86±0.7 million/µl (P<0.01).

The amount of hemoglobin in the blood of cows of farm 1 is 104.2±1.78 g/l in the 1st - 2nd month of lactation, 100.6±1.24 g/l in the 4th - 5th month, 99.82±1.48 in the 7th - 8th month. g/l, respectively 100.4±0.8, 98.9±1.04 and 98.4±0.6 g/l in cows of farm 2, 92.57±7 in cows of farm 3, 92, 91.9±4.52 and 91.64±5.16 g/l, 102.2±0.4, 101.3±1.14, and 97.7±0.9 g/l in cows of farm 4 (P<0,05).

The number of leukocytes in the blood of cows in farm 1 is on average 9.22±0.94 thousand/ml in 1-2 months of lactation, 11.62±0.75 thousand/ml in 4-5 months and 12.82±0.94 in 7-8 months thousand/ml, respectively 8.12±0.91, 10.54±0.82 and 12.76±0.64 thousand/ml in cows of farm 2, 9.74±0 in cows of farm 3, 65, 11.32±0.94 and 13.63±0.57 thousand/ml, 8.52±0.74, 9.47±0.98 and 11.63±0.82 thousand/ml in cows of farm 4 (P<0,05).

The average quantity of glucose in the blood of cows in farm 1 is 2.330.01 mmol/l in the first - second month of lactation, 2.200.03 mmol/l in the fourth - fifth month, and 2.180.02 in the seventh - eighth month. 2.200.11, 2.190.08, and 2.160.06 mmol/l in farm 2, 2.260.05 in farm 3, 2.210.12 and

2.180.14 mmol/l on average, and 2.270.2, 2.230.14, and 2.170.09 mmol/l in farm 4 (P<0.01). The reduction in the quantity of glucose in the blood during lactation can be explained by the cows' inability to meet their energy demands during lactation.

The amount of total protein in blood serum in cows of farm 1 was 65.1±2.95 g/l on average in 1-2 months of lactation, 64.88±2.26 g/l in 4-5 months and 64.14± 64.14 in 7-8 months. 2.68 g/l, 55.18±0.64, 54.94±1.22 and 52.82±1.84 g/l in cows of farm 2, 77.25± 77.25 in farm 3 1.44, 71.66±2.14 and 69.64±2.22 g/l, 4 - farm 57.24±0.44, 55.16±0.82 and 53.32±0.74 g/l (P<0,05).

The amount of ketone bodies in the blood in cows of farm 1 is 0.06±0.007 g/l on average in 1-2 months of lactation, 0.08±0.004 g/l in 4-5 months, and 0.09±0.008 g/l in 7-8 months. , 0.05±0.004, 0.06±0.006 and 0.07±0.004 g/l in cows of the 2nd farm, 0.07±0.005, 0.08±0.004 and 0.09±0.007 in the 3rd farm. g/l, in farm 4 it was 0.04±0.008, 0.06±0.002 and 0.06±0.004 g/l (P<0,001). (Table 1).

Table 1

Results of morphobiochemical examination of blood samples in case of large ruminal acidosis of cows

Farms	Inspection time (months)		Erythrocytes, million/µl	Hemoglobin, g/l	Glucose, mmol/l	Total protein, g/l	Ketone bodies, g/l	Leukocytes, thousand/µl
Agro-Bravo Cattle farm	Gave birth 3	1-2 months of lactation	4,93±0,04	104,2±1,78	2,33±0,01	65,1±2,95	0,06±0,007	9,22±0,94
		4-5 months of lactation	4,88±0,2	100,6±1,24	2,20±0,03	64,88±2,26	0,08±0,004	11,62±0,75
		7-8 months of lactation	4,76±0,06	99,82±1,48	2,18±0,02	64,14±2,68	0,09±0,008	12,94±0,82
Achilov Mahmudjon field farm	Gave birth 2	1-2 months of lactation	4,91±0,05	100,4±0,8	2,20±0,11	55,18±0,64	0,05±0,004	8,12±0,91
		4-5 months of lactation	4,84±0,02	98,9±1,04	2,19±0,08	54,94±1,22	0,06±0,006	10,54±0,82
		7-8 months of lactation	4,72±0,3	98,4±0,6	2,16±0,06	52,82±1,84	0,07±0,004	12,76±0,64
Yangi asr farm	Gave birth 3	1-2 months of lactation	4,15±0,14	92,57±7,92	2,26±0,05	77,25±1,44	0,07±0,005	9,74±0,65
		4-5 months of lactation	4,12±0,2	91,9±4,52	2,21±0,12	71,66±2,14	0,08±0,004	11,32±0,94
		7-8 months of lactation	4,10±0,03	91,64±5,16	2,18±0,14	69,64±2,22	0,09±0,007	13,63±0,57
Omadli Zarnigor farm	Gave birth 2	1-2 months of lactation	4,94±0,08	102,2±0,4	2,27±0,2	57,24±0,44	0,04±0,008	8,52±0,74
		4-5 months of lactation	4,91±0,05	101,3±1,14	2,23±0,14	55,16±0,82	0,06±0,002	9,47±0,98

		7-8 months of lactation	4,86±0,07	97,7±0,9	2,17±0,09	53,32±0,74	0,06±0,004	11,63±0,82
P<			0,01	0,05	0,01	0,05	0,001	0,01

Erythrocytes 4.10±0.03 million/µl, hemoglobin 91.64±5.16 g/l, total protein 52.82±1.84 g/l and glucose 2, decrease to 16±0.06 mmol/l, increase of ketone bodies to 0.09±0.007 g/l and leukocytes to 13.63±0.57 thousand/µl, as well as basophilia (8.4-9%), neutrophilia (1-3%), neutropenia (6-7%) and monocytosis (11-12.3%) were observed. (Table 2-3. Figure 1).

Table 2

Changes in the leucoformula of the blood of cows in the case of large stomach acidosis

Cows	**Basophils**	**Эозина-филлар**	**Neutrophils**			**Lymphocytes**	**Monocytes**
			Age	stick core	articular core		
Gave birth to 2	5,9	3,6	2,9	3,2	7,3	67,6	9,5
Gave birth to 3	8,1	3,7	2,8	3,5	4,8	66,5	10,6
Gave birth to 4	8,6	3,6	3,2	3,2	3,6	65,5	12,3

Table 3

Analysis of changes in leucoformula in large stomach acidosis

№	**Basophils**	**Eosin-philes**	**Neutrophils**			**Lymphocytes**	**Monocytes**
			Age	stick core	articular core		
Healthy cows	0 - 2%	3 - 8%	0 - 1%	2 - 5%	20 - 35%	40 - 75%	2 - 7%
Sick cows	8,4 - 9%	3,2%	1 - 3%	4 - 10%	6 - 7%	65 - 67,8%	11 - 12,3%

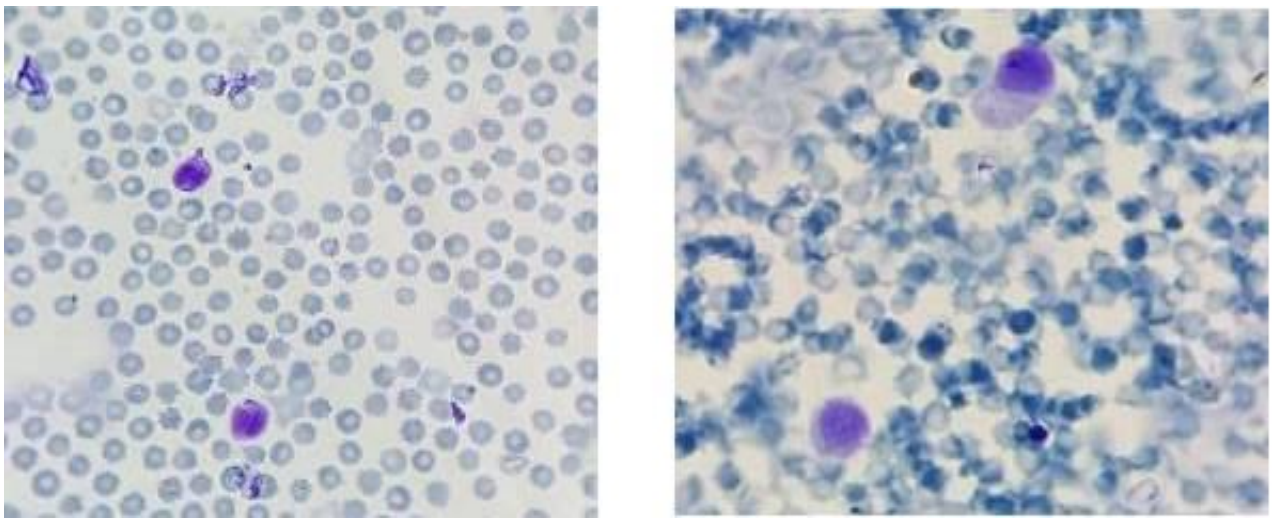

Figure 1. **Microscopic appearance of leukocytes in the determination of leukoformula in the blood of cows**

In the organoleptic tests of samples of rumen fluid taken from cows in experimental farms, it was found that the smell of rumen fluid is close to the normal level (bitter), color is brown, and the consistency is liquid. The average pH of the environment was 5.44±0.2 in the cows of the 1st farm, 5.52±0.1 in the 2nd farm, 5.38±0.1 in the 3rd farm, and 5.48±0.3 in the 4th farm. (P<0,05).

In 4-5 months of lactation, it was found that the smell of large abdominal liquid is partially putrid, the color is partially brown, and the consistency is changing to a porridge-like form. The average pH of the environment was 5.76±0.4 in the cows of the 1st farm, 5.85±0.2 in the 2nd farm, 5.7±0.34 in the 3rd farm, and 5.72±0.6 in the 4th farm. (P<0,05).

In the 7-8th month of lactation, it was found that the smell of the large abdominal liquid is partially putrid, the color is brown, and the consistency is porridge-like. The average pH of the environment was 5.88±0.3 in the cows of the 1st farm, 5.97±0.5 in the 2nd farm, 5.8±0.4 in the 3rd farm, and 5.88±0.2 in the 4th farm. (P<0,05).

The amount of lactic acid in the rumen fluid in the cows of the farm "Agro-Bravo Livestock" (farm 1) in the 1st - 2nd months of lactation, the amount of lactic acid in the rumen fluid was 6±0.62 mmol/l on average, and 9±0 in the 4th - 5th months. .5 mmol/l and 12±0.37 mmol/l in 7-8 months (1.5-5.0 mmol/l in healthy animals), respectively, in cows of the farm "Ochilov Mahmudjon field" (farm 2) 7.0±0.75, 10±0.62, and 14±0.5 mmol/l, 7.0±0.75, 9.0±1 ,0 and 11±0.62 mmol/l, 5.0±0.58, 8.0±0.46 and 11±0.63 mmol/l in the farm "Omadli Zarnigor" (farm 4) (P <0.05). (Figure 2).

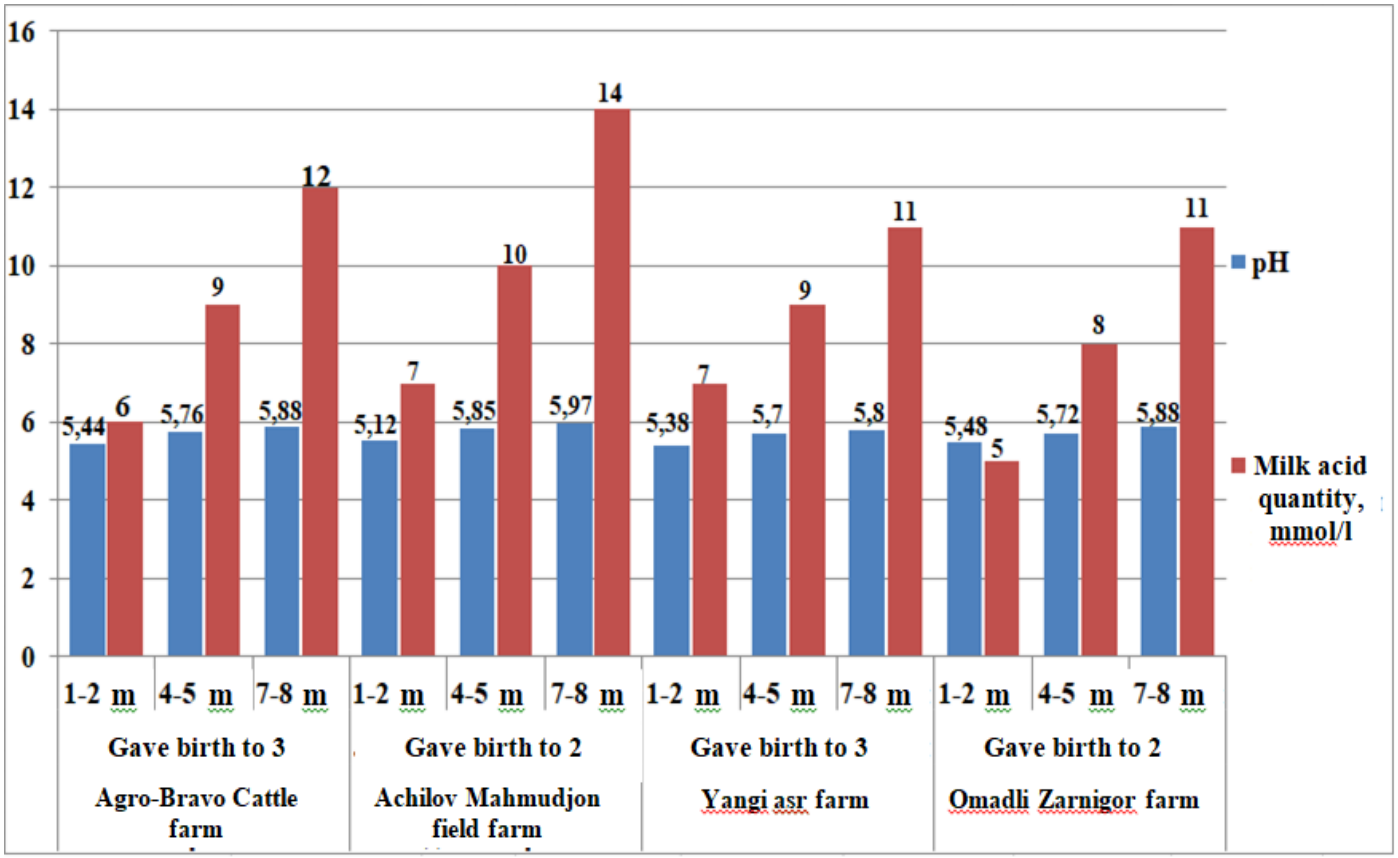

Figure 2. **Results of physicochemical examination of large rumen fluid samples of cows**

The pH indicator in huge korin fluid climbed to 5.97, and the amount of lactic acid increased to 14 mmol/l, according to the findings of physico-chemical analysis.

Conclusion.

1. As a result of short-term and strong effects of etiological factors, acute acidosis develops, and as a result of their chronic and weak effects, chronic acidosis of the large abdomen develops, and in both cases, the disease is characterized by a decrease in appetite due to hypo and atony of the pre-gastric sections in 15-35% of cases, and in severe cases, its loss. , as well as various degrees of swelling of the large abdomen, acceleration of the pulse and breathing, and in chronic cases, in addition to these, yellowing of the mucous membranes, enlargement of the border of the liver, and signs of pain on deep palpation.

2. In productive cows with ruminal acidosis, the ruminal fluid's environment becomes acidic (decreasing in pH to 5.38–5.88), the amount of lactic acid in it rises to an average of 14 mmol/l, and the liquid exhibits a pungent odor, a brown color, and a porridge-like consistency.

3. The following abnormalities are seen: hypohemoglobinemia (91.64 g/l), erythropenia (4.10 million/l), hypoglycemia (2.16 mmol/l), hypoproteinemia (52.82 g/l), leukocytosis (13.63 thousand/l), ketonemia (up to 0.09 g/l), basophilia, leftward shift of neutrophil nucleus, signs of monocytosis, and changes indicating

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