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RESULTS OF DISPENSARY EXAMINATION OF PEDIGREE COWS UNDER ADEQUATE AND TECHNOGENICALLY EXTREME CONDITIONS OF SURXONDARYO REGION

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Abstract. This article analyzes the dynamics of herd-level syndrome indicators recorded during the dispensary examination of pedigree cows under different endemic and technogenic conditions of Surxondaryo Region. The comparative assessment shows that the clinical, productive, and reproductive parameters of cattle changed over the last three years depending on the ecological characteristics of the farm area. In the relatively adequate area, where iodine deficiency was the main endemic factor, negative changes were moderate. In the technogenically extreme area, where iodine deficiency was combined with a fluorine-related technogenic factor, the decline in productivity and the increase in metabolic and young-stock diseases were more pronounced. The results indicate the need for a scientifically grounded system of iodine supplementation and prevention of fluorine toxicosis during herd dispensary monitoring.

Keywords. pedigree cows, dispensary examination, herd syndrome indicators, technogenic factor, Surxondaryo Region, cattle, dyspepsia, bronchopneumonia, iodine deficiency, fluorine toxicosis, metabolic disorders.

Table 1. Analysis of herd syndromatics during dispensary examination

No.	Indicators	Qulpista farm			Chorvador Normo'min farm		
		2022	2023	2024	2022	2023	2024
1	Number of cattle, head	150	130	120	190	175	150
2	Average live weight of cows, kg	410	408	406	425	424	422
3	Average daily milk yield, kg	225 0 / 7.5	219 0 / 7.5	210 0 / 7.0	219 0 / 7.3	213 0 / 7.1	204 0 / 6.8
4	Annual number of calves per 100 cows,		73	71	-	74	70

	head						
5	Average live weight of newborn calves, kg	26.2	26.0	25.8	27.2	27.1	27.0
6	Calf survival rate, %	85	84	82	89	88	87
7	Daily weight gain of male young stock, kg	0.120	0.112	0.105	0.121	0.115	0.102
8	Incidence of metabolic disorders in cows, %	66.0	68.0	70.0	67.0	67.0	69.0
	Including endemic goiter, %	6.0	7.0	7.5	6.5	6.7	7.0
9	Incidence of dyspepsia in calves, %	18.0	19.0	21.0	13.0	14.0	15.0
10	Incidence of rickets in calves, %	8.0	9.0	10.0	6.0	6.0	7.0
11	Incidence of bronchopneumonia in calves, %	15.0	16.0	17.0	11.0	12.0	13.0

As shown in Table 1, the dynamics of herd-level syndrome indicators during the dispensary examination of pedigree cows changed either negatively or positively over the last three years depending on the endemic and technogenic characteristics of the area. In particular, at the Chorvador Normo'min farm in Angor district of Surxondaryo Region, which was characterized only by iodine deficiency and was considered relatively adequate for cattle, the number of cattle decreased from 190 head in 2022 to 150 head in 2024, i.e., by an average of 40 head (26.6%). The average live weight of cows decreased by 3.0 kg (0.7%), average daily milk yield by 0.5 kg (7%), the annual number of calves per 100 cows by 4 head (5.6%), the average live weight of newborn calves by 0.2 kg (0.7%), calf survival by 2%, and the daily gain of male young stock by 0.019 kg (18%).

During the same period, the incidence of metabolic disorders in cows increased from 67.0% to 69.0%; endemic goiter increased from 6.5% to 7.0%; dyspepsia in calves increased from 13.0% to 15.0%; rickets increased from 6.0% to 7.0%; and bronchopneumonia increased from 11.0% to 13.0%.

At the Qulpista farm in Sariosiyo district, where both iodine deficiency and a fluorine-related technogenic factor are present and where conditions are considered relatively extreme for cattle, the decline in productive indicators and the increase in morbidity and culling rates were even more pronounced over the last three years. The number of cattle decreased from 150 head in 2022 to 120 head in 2024, i.e., by an average of 30 head (25%). The average live weight of cows decreased by 4.0 kg (1%), average daily milk yield by 0.5 kg (7%), the annual number of calves per 100 cows by

2 head (3%), the average live weight of newborn calves by 0.4 kg (1.6%), calf survival by 3%, and the daily gain of male young stock by 0.015 kg (13%).

The incidence of metabolic disorders in cows at this farm increased from 66.0% to 70.0%; endemic goiter increased from 6.0% to 7.5%; dyspepsia in calves increased from 18.0% to 21.0%; rickets increased from 8.0% to 10.0%; and bronchopneumonia increased from 15.0% to 17.0%.

Clinical Status of the Herd During Dispensary Examination

Table 2. Clinical status indicators of the herd during dispensary examination

No.	Indicators	Qulpista farm			Chorvador Normo'min farm		
		2022	2023	2024	2022	2023	2024
1	Number of examined animals, head	20	20	20	20	20	20
2	Decreased appetite, %	3 (15%)	4 (20%)	5 (25%)	3 (15%)	4 (20%)	4 (20%)
3	Hypotonia and atony of the forestomach compartments (OOBGA), %	4 (20%)	5 (25%)	6 (30%)	3 (15%)	4 (20%)	4 (20%)
4	Ketosis, %	6 (30%)	10 (50%)	12 (60%)	8 (40%)	8 (40%)	9 (45%)
5	Osteodystrophy, %	4 (20%)	6 (30%)	8 (40%)	5 (25%)	7 (35%)	7 (35%)
6	Polyhypovitaminosis, %	8 (40%)	10 (50%)	12 (60%)	7 (35%)	8 (40%)	8 (40%)
7	Iodine deficiency, %	5 (25%)	7 (35%)	9 (45%)	4 (20%)	4 (20%)	5 (25%)
	Including animals with oval-shaped body conformation, %	60.0	65.0	77.0	50.0	50.0	60.0
	Animals with dull hair coat, %	60.0	65.0	77.0	50.0	50.0	60.0
	Animals with alopecia, %	40.0	50.0	55.0	25.0	25.0	40.0
	Animals with so-called false mane and false forelock, %	40.0	50.0	55.0	25.0	25.0	50.0



Figure 1. Laboratory examination process shown in the original document.

As shown in Table 2, the dynamics of clinical status indicators in the herd during the dispensary examination of pedigree cows also changed over the last three years depending on the endemic and technogenic characteristics of the area. At the Chorvador Normo'min farm in Angor district, which was characterized only by iodine deficiency and was considered relatively adequate for cattle, the share of animals with decreased appetite and OOBGA averaged 15-20%. Animals with signs of ketosis accounted for 40-45%; animals with signs of osteodystrophy for 25-35%; animals with signs of polyhypovitaminosis for 35-40%; and animals with iodine deficiency pathology for 20-25%. Among these animals, those with oval-shaped body conformation and dull hair coat accounted for 50-60%, animals with alopecia for 25-40%, and animals with false mane and false forelock for 25-50%.

At the Qulpista farm in Sariosiyo district, where both iodine deficiency and a fluorine-related technogenic factor were present and where conditions were considered relatively extreme for cattle, negative changes in the clinical status of the herd became more evident over the last three years. Animals with decreased appetite and OOBGA accounted for 15-30%; animals with signs of ketosis for 30-60%; animals with osteodystrophy for 20-40%; animals with polyhypovitaminosis for 40-60%; and animals with iodine deficiency pathology for 25-45%. Among them, animals with oval-shaped body conformation and dull hair coat accounted for 60-77%, while animals with alopecia, false mane, and false forelock accounted for 40-55%.

Table 3. Results of clinical examination of cows and calves under the conditions of the Qulpista farm in Sariosiyo district of Surxondaryo Region

No.	Indicators	Age category	Number (n)	Indicator (measurement)	Note
1	Signs of iodine deficiency	Cows aged 4-6 years	80	43 animals (57.3%)	Hair thinning, false mane/forelock,

					hardening of skin folds
2	Growth retardation	Cows aged 4-6 years	80	18%	Due to iodine deficiency
3	Thyroid enlargement (palpation)	Calves up to 6 months old	45	8%	Not visual; detected by palpation
4	Thyroid length	Cows aged 4-6 years	80	5.1-5.6 cm	Mean values
5	Thyroid width	Cows aged 4-6 years	80	3.2-3.9 cm	Mean value
6	Thyroid length	Calves up to 6 months old	45	2.9-3.1 cm	Mean value
7	Thyroid width	Calves up to 6 months old	45	2.1-2.5 cm	Mean value

The data show that in 2023, signs of iodine deficiency were observed in 43 out of 80 cows aged 4-6 years (57.3%) at the Qulpista farm in Sariosiyo district of Surxondaryo Region. These signs were mainly manifested by hardening of skin folds, thinning of the hair coat, and the appearance of false forelock and false mane. As a consequence of iodine deficiency, signs of growth retardation were also identified in 18% of the animals.

When clinically assessing thyroid gland function, attention was paid to visual inspection and palpation of the head and neck region, as well as to determination of the morphometric measurements of the gland. Thyroid enlargement was detected by palpation in 8% of calves up to six months of age. In cows aged 4-6 years, thyroid length ranged from 5.1 to 5.6 cm and width from 3.2 to 3.9 cm. In calves up to six months of age, thyroid length ranged from 2.9 to 3.1 cm and width from 2.1 to 2.5 cm.

According to the results of dispensary examinations conducted in 2024, iodine deficiency signs were identified in 75 out of 150 cows aged 4-6 years (50%) at the Chorvador Normo'min farm in Angor district of Surxondaryo Region. The source text ends at this point; therefore, no additional interpretation was added beyond the available sentence.

Conclusion

Iodine deficiency of technogenic origin causes significant changes in hemomorphological, hemobiochemical, hormonal, and enzymatic parameters in cows. A decrease in erythrocyte and hemoglobin levels leads to anemia and reduced oxygen transport, while a decline in leukocyte count indicates suppression of immune activity. Changes in biochemical parameters, particularly glucose and bilirubin levels, reflect disturbances in energy and lipid metabolism. Hormonal analyses, namely increased thyroid-stimulating hormone (TSH) and decreased thyroxine (T4), clearly confirm a hypothyroid condition.

The data presented above reveal the complex pathogenesis of iodine deficiency of technogenic origin and confirm the simultaneous disruption of metabolic, endocrine, and enzymatic systems in cows. This integrative analysis shows that, in the areas of Surxondaryo Region where both iodine deficiency and fluorine toxicosis occur, the dispensary examination process must be accompanied by the development of scientific foundations for ensuring an adequate iodine supply in pedigree cattle while simultaneously preventing fluorine toxicosis.

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