

MILK PRODUCTIVITY OF MARES OF THE ADAY BREED AND LOCAL KAZAKH HORSES

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Annotation. Productive horse breeding has always been in high demand across all regions of Kazakhstan. Dairy horse breeding is considered a traditional branch of productive livestock farming.

The aim of this study was to determine the milk production performance and chemical composition of milk from local Kazakh mares and mares of the Aday breed.

The study established that the mares used in the experiment were representative of their respective breeds. Local Kazakh mares had a slightly lower height at the withers (135.5 cm) than Aday mares (139.2 cm), but had a more elongated body (145.7 cm), a larger chest girth (169.9 cm), and a slightly higher live body weight (385.2 kg) compared with Aday mares. Aday mares were characterized by a riding-horse type of conformation, whereas local Kazakh horses tended toward a meat-and-dairy type. Nevertheless, Aday horses can also be successfully used for productive purposes.

It was established that over 105 days of lactation, the milk yield of local Kazakh mares amounted to 1,617.0 L, compared with 1,413.0 L in Aday mares, while the marketable milk yield was 674.1 and 590.1 L, respectively. Thus, the milk yield of local Kazakh mares exceeded that of Aday mares by 14.2%, or 84.0 L. The milk production index, calculated per 100 kg of live body weight, was also higher in local Kazakh mares, reaching 420 kg.

The uniformity of milk secretion in mares of both groups was assessed based on average daily milk yields. The highest average daily milk yields were recorded during the second month of lactation, ranging from 13.78 to 15.65 L, and during the third month, ranging from 14.42 to 17.30 L. By the fifth and final month of lactation, the average daily milk yield decreased to 10.16–10.52 L. These findings indicate that the lactation curves of mares in both groups were relatively uniform, with a gradual decline in milk yield over the course of lactation.

Thus, under the conditions of seasonal milking at Taushyk LLP, the use of local Kazakh mares with a meat-and-dairy production type, rather than Aday horses of a riding type, makes it possible to substantially increase the milk production performance of dairy mares.

Keywords: dairy horse breeding, milk yield, marketable milk yield, lactation, local Kazakh breed, Adai horse breed.

Introduction. Horse breeding is a branch of animal husbandry concerned with the breeding and utilization of horses. Its main production areas include herd-based meat production and dairy production, particularly in regions where cattle farming is economically unprofitable.

The study of economically valuable traits of local Kazakh horses and their crossbreeds, as well as the development of effective technologies for producing mare's milk under herd management and winter grazing conditions, is of considerable scientific and practical importance [1].

Cattle, sheep, and pig production requires substantial capital and operating expenditures for production facilities, mechanization, energy, and the production and purchase of roughage and concentrated feeds. Herd-based meat production and dairy horse breeding require considerably lower expenditures of this kind and rely predominantly on local feed resources, including natural pastures and hayfields. In addition, certain lands of limited agricultural value can be used for herd

grazing, including taiga river valleys, burned forest areas, sparse woodlands, tussock wetlands, and other marginal lands. This provides opportunities for developing meat and dairy horse breeding without adversely affecting other livestock production sectors [2].

Mare's milk is considered a dietary food and is suitable for children and people with certain allergies. It has high nutritional and biological value due to its relatively high content of whey proteins and lactose. Numerous studies have shown that mare's milk contains high concentrations of vitamins and can therefore be considered a natural multivitamin product [3]. The vitamin content of mare's milk is generally highest during the summer months due to the increased vitamin content of pasture feed. Mare's milk contains essential amino acids and vitamins, particularly ascorbic acid and B-group vitamins. Its relatively high content of polyunsaturated fatty acids may contribute to inhibiting the development of tuberculosis bacteria [4].

Mare's milk is a white liquid with a slightly bluish tint and a mildly tart taste. It consists primarily of water and dissolved nutrients and biologically active compounds, including proteins, fats, carbohydrates, minerals, enzymes, vitamins, hormones, immune bodies, pigments, and gases [5].

It should be noted that Kazakh horses, like many other indigenous breeds, enter the winter period with substantial fat reserves. Together with their abundant soft hair and undercoat, these reserves provide effective thermal insulation and serve as an important energy reserve that is used economically during critical periods of winter grazing. Horses rapidly regain the body condition lost during winter in spring [6].

According to numerous researchers, the milk production of mares depends on breed, age, foaling date, milking period, season, type of feed, feeding technology, and housing and management conditions. Many researchers have emphasized the need for a detailed assessment of mare's milk production to obtain a more comprehensive understanding of the nutritional and therapeutic properties of *koumiss* [7].

The results of several studies indicate that relatively small-sized, broad-bodied, and low-set mares tend to have higher milk production. Horses with long legs, shortened and relatively flat bodies are generally characterized by lower milk production [8].

Materials and Methods. The study was conducted from 2018 to 2022 in the Republic of Kazakhstan. The research was carried out at Taushyk LLP, located in Tupkaragan District, Mangystau Region. The study subjects were local Kazakh horses and Aday horses. Since all experimental studies were conducted in the Republic of Kazakhstan, the official instructions and methodological guidelines for the evaluation and bonitation of local horse breeds were used.

The marketable milk yield of mares during lactation was determined using control milking conducted once a month on two consecutive days [9].

The milk production of mares should be assessed based on total milk yield, calculated as the sum of the marketable milk obtained during milking and the amount of milk consumed by the foal through suckling. Total milk production reflects the physiological productive potential of an animal and depends primarily on genotypic factors such as breed, individual characteristics, and others. Marketable milk production, in contrast, depends not only on genotypic factors but also on phenotypic factors, including milking technology, milking schedule, and milking frequency.

An important task for horse-breeding farms specializing in dairy or dairy-and-meat production is to optimize labor organization and production processes by combining *koumiss* production with the rearing of healthy and productive young stock. Such an approach makes it possible to replenish the herd with young, high-yielding mares while ensuring satisfactory weight gains in foals [10].

Results and discussion. The local Kazakh horse and the Aday breed are considered dual-purpose horse breeds and are used for both sporting and productive purposes. The local Kazakh horse is generally classified as a meat-and-dairy type. A common characteristic of both is their high adaptability to local environmental conditions and their ability to be maintained year-round on pasture. An important factor that has a significant effect on the milk production of mares is the development and shape of the udder, as well as teat length.

Table 1 – Body Measurements and Live Weight of Lactating Aday and Local Kazakh Mares

Indicators	Height at withers	Oblique body length	Girth		Live body weight, kg
			Chest	Cannon bone	
Aday breed (n = 15)					
X ± m _x	139.2 ± 0.50	141.3 ± 0.53	165.8 ±0.61	17.5 ± 0.18	371.4 ± 4.21
Lim	137 - 141	139 – 143	164 - 167	16.5 – 18.0	360 - 400
σ	5.16	5.60	5.96	0.72	15.57
C _v	3.71	3.96	3.59	4.11	4.19
Local Kazakh (n = 15)					
X ± m _x	138.5 ± 0.48	145.7 ±0.56	169.6 ±0.67	18.0 ±0.19	385.2 ±3.79
Lim	136 - 140	140 - 147	165 - 171	16.5 – 19.0	379 - 410
σ	5.28	5.95	6.11	0.83	16.87
C _v	381	4.08	3.60	4.61	4.38

The data presented in Table 1 show that the mares used in the experiment were representative of their respective breeds. Although the local Kazakh mares had a slightly lower height at the withers (135.5 cm) than the Aday mares (139.2 cm), they had a more elongated body (145.7 cm), a larger chest girth (169.9 cm), and a slightly higher live body weight (385.2 kg) compared with the Aday mares. The Aday mares were characterized by a riding-horse type of conformation, whereas the local Kazakh mares tended toward a meat-and-dairy type. Nevertheless, Aday horses can also be successfully used as productive animals. Our studies showed that the mares of the two breeds differed in milk production. Under pasture-based management conditions, local Kazakh mares demonstrated higher milk production than Aday mares [11].

Table 2 – Milk Production of Aday and Local Kazakh Mares, L (n = 15)

Live weight of mares, kg	Actual milk yield		Milk production index		100 kg live weight
	Per day	Per 105 days of lactation	per day	per 105 days of lactation	
Aday breed					
371.6 ± 4.21	5.61 ± 0.14	590.1 ± 4.52	13.42 ± 0.42	1413.3 ± 28.3	380
Local Kazakh					
385.2 ±3.79	6.42 ± 0.15	674.1 ± 3.97	15.40 ± 0.35	1617.0 ± 25.7	420

The data presented in Table 2 show that over the 105-day lactation period, the total milk production of local Kazakh mares amounted to 1,617.0 L, compared with 1,413.0 L in Aday mares, while the marketable milk yield was 674.1 and 590.1 L, respectively. Thus, the milk yield of local Kazakh mares was 14.2% higher, or 84.0 L greater, than that of Aday mares. The milk production index, calculated per 100 kg of live body weight, was also higher in local Kazakh mares, reaching 420 kg.

Milk production in mares of both groups varied considerably throughout the 105-day lactation period (Table 3).

Table 3 – Changes in Mare Milk Production by Month of Lactation, L

Milk yield	Month lactation			
	May II	June III	July IV	August V
Aday breed				
per day	13.78 ± 0.26	14.42 ± 0.28	13.60 ± 0.31	10.16 ± 0.28
per month	427.18 ± 5.74	432.50 ± 4.93	421.53 ± 5.01	132.12 ± 3.39
Local Kazakh				
per day	15.65 ± 0.29	17.30 ± 0.25	15.36 ± 0.27	10.52 ± 0.23
per month	485.10 ± 4.08	518.95 ± 3.96	476.16 ± 4.86	136.79 ± 3.12

It was established that the mares demonstrated higher milk production during the second and third months of lactation, after which milk yield gradually decreased, with a more pronounced decline toward the end of lactation. During the second month of lactation, milk production in the two groups of mares amounted to 427.18 and 485.10 L, respectively; during the third month, it was 432.50 and 518.95 L; during the fourth month, 421.53 and 476.16 L; and during the fifth month, 132.12 and 136.79 L. These findings are consistent with those reported by other researchers, who have indicated that mares produce the highest quantities of milk during the second and third months of lactation. With the onset of pregnancy, milk yield decreases, particularly during the second half of gestation. The uniformity of milk secretion in mares of both groups can be assessed based on their average daily milk yields. Thus, the highest average daily milk yields during the second month of lactation ranged from 13.78 to 15.65 L, while during the third month they ranged from 14.42 to 17.30 L. By the fifth and final month of lactation, the average daily milk yield decreased to 10.16–10.52 L. These data indicate that the lactation curves of the mares in both groups were relatively uniform, with a gradual downward trend in milk yield.

Thus, under the conditions of seasonal milking at Taushyk LLP, the use of local Kazakh mares of the meat-and-dairy production type, rather than Aday horses of the riding type, can substantially increase the milk production of lactating mares.

Mare's milk from both the Aday and local Kazakh breeds had a homogeneous consistency, without sediment or flakes, and a clean, slightly sweet taste, with no foreign flavors or odors atypical of fresh natural milk. The milk was white with a bluish tint. It was established that the organoleptic characteristics of the milk from mares of both breeds complied with the requirements of GOST R 52973–2008 “Raw Mare's Milk. Specifications.” No significant differences were found between the breeds in terms of organoleptic characteristics [12].

The study of the physicochemical characteristics of mare's milk under herd-based horse-breeding conditions is of considerable importance. Natural grazing on rotational pastures with diverse vegetation contributed to an improvement in the physicochemical composition of the milk.

Determination of the mass fractions of milk protein, milk fat, and lactose is an important component of the study. The mass fraction of milk fat showed considerable variability. The studies conducted demonstrated variation in the mass fraction of milk fat depending on the season of the year [13].

Table 4 – Milk Fat Content in the Experimental Mares, %

Lactation month	Breed			
	Local Kazakh		Aday	
	$X \pm m_x$	$C_v \%$	$X \pm m_x$	$C_v \%$
I	2	3	4	5
II	1.27 ± 0.04	1.14	1.25 ± 0.03	7.2
I	2	3	4	5
III	1.35 ± 0.03	12.7	1.29 ± 0.03	9.5
IV	1.14 ± 0.04	7.1	1.34 ± 0.04	9.9
V	1.64 ± 0.03	7.9	1.58 ± 0.04	8.1

It was established that by the end of the lactation period, the milk fat content increased significantly. This pattern was associated with a substantial decrease in milk yield.

During the second month of lactation, Aday mares had a 0.02% lower milk fat content than their local Kazakh counterparts; during the third month, the difference was 0.06%, and during the fourth and fifth months, it was 0.07%. Thus, the increase in milk fat content from the second to the fifth month of lactation amounted to 0.37% in local Kazakh mares and 0.33% in Aday mares.

In local Kazakh mares, the coefficient of variation (CV) of milk fat content across the months of lactation ranged from 7.1 to 12.7%, whereas in Aday mares it was somewhat lower, ranging from 8.1 to 9.9%.

Table 5 – Lactation Performance, kg

Lactation month	Breed			
	Local Kazakh		Aday	
	$\bar{X} \pm m_x$	$C_v \%$	$\bar{X} \pm m_x$	$C_v \%$
II	12.84 $\pm$ 0.17	4.19	13.45 $\pm$ 0.35	8.24
III	10.70 $\pm$ 0.27	7.87	11.23 $\pm$ 0.17	4.77
IV	10.10 $\pm$ 0.14	4.29	10.61 $\pm$ 0.22	6.65
V	7.31 $\pm$ 0.15	6.48	7.72 $\pm$ 0.16	6.61
Content of mass fraction of lactose in mares' milk, %				
Lactation month	Breed horses			
	Local Kazakh		Aday	
	$\bar{X} \pm m_x$	$C_v \%$	$\bar{X} \pm m_x$	$C_v \%$
II	6.02 $\pm$ 0.05	2.48	6.15 $\pm$ 0.05	2.37
III	6.13 $\pm$ 0.05	2.80	6.21 $\pm$ 0.04	2.05
IV	6.24 $\pm$ 0.06	2.82	6.37 $\pm$ 0.03	1.60
V	5.96 $\pm$ 0.06	3.27	6.08 $\pm$ 0.06	3.20
Dry matter content in mares' milk, %				
Lactation month	Breed			
	Local Kazakh		Aday	
	$\bar{X} \pm m_x$	$C_v \%$	$\bar{X} \pm m_x$	$C_v \%$
II	10.22 $\pm$ 0.10	3.16	10.24 $\pm$ 0.09	2.80
III	10.36 $\pm$ 0.11	3.23	10.37 $\pm$ 0.09	2.89
IV	10.38 $\pm$ 0.07	1.99	10.41 $\pm$ 0.10	3.05
V	10.68 $\pm$ 0.07	2.20	10.76 $\pm$ 0.06	1.84
SNF content in milk				
Lactation month	Breed			
	Local Kazakh		Aday	
	$\bar{X} \pm m_x$	$C_v \%$	$\bar{X} \pm m_x$	$C_v \%$
II	8.95 $\pm$ 0.08	2.85	8.96 $\pm$ 0.07	2.32
III	8.97 $\pm$ 0.08	2.96	8.97 $\pm$ 0.06	2.29
IV	8.94 $\pm$ 0.05	1.78	8.96 $\pm$ 0.07	2.40
V	8.98 $\pm$ 0.05	1.84	9.00 $\pm$ 0.06	2.02

Milk protein content also changed considerably throughout the lactation period. The highest protein content was recorded during the summer months, while the lowest was observed in autumn. In our opinion, this may be associated with feeding factors, particularly the decrease in the overall nutritional value of pasture vegetation, as well as the onset of a new pregnancy and the active fattening of animals during the autumn period. According to the study results, the decrease in milk protein content from the second to the fifth month of lactation amounted to 0.19% in local Kazakh mares and 0.09% in Aday mares. Higher coefficients of variation (CV) for protein content were observed in Aday mares, ranging from 7.25 to 8.60%, whereas in local Kazakh mares these values ranged from 6.42 to 7.78%.

When studying the productive traits of mares of different breeds, an important parameter is the lactation performance index, which reflects the total amount of milk fat and protein in milk.

Calculation of the lactation performance index showed that this value was higher in Aday mares. Their advantage over local Kazakh mares amounted to 0.61 kg in the second month of lactation, 0.53 kg in the third month, 0.51 kg in the fourth month, and 0.41 kg in the fifth month.

The coefficient of variation was also higher in Aday mares, ranging from 4.77 to 8.24% across the months of lactation, compared with 4.22–7.87% in local Kazakh mares.

Lactose is known to be one of the most important components of mare's milk used in the production of *koumiss*. The obtained data indicate a relatively high lactose content in the milk of mares from both groups.

A characteristic pattern was observed in the monthly dynamics of milk sugar content. From the beginning of lactation, an increase in the lactose content of milk was observed in animals of both groups, with the maximum value recorded in the fourth month of lactation. The increase from the second to the fourth month of lactation amounted to 0.22%. From the fourth month until the end of the study, lactose concentration decreased, with the decrease amounting to 0.28% in local Kazakh mares and 0.29% in Aday mares.

Local Kazakh mares had lower lactose content than Aday mares during the second to fourth months of lactation, with differences of 0.13%, 0.08%, and 0.12% during the respective lactation periods. However, the coefficient of variation (CV) was higher in the milk of local Kazakh mares, ranging from 2.48 to 3.27% across the months of lactation, whereas in Aday mares it ranged from 2.05 to 3.20%.

Total solids are an important indicator in determining the lactation value of milk. Analysis of the seasonal dynamics of total solids content demonstrated a gradual increase up to the fifth month of lactation. The maximum total solids content in both groups of mares was recorded in the fifth month of lactation, amounting to 10.68–10.76%. Compared with the second month of lactation, the difference was 0.46 and 0.52%, respectively. Total solids content is an important indicator for characterizing the nutritional value and authenticity of milk and for assessing the productive qualities of animals [14]. While milk fat content in mare's milk is subject to substantial changes under the influence of various factors, the content of solids-not-fat (SNF) varies within a relatively narrow range. The results of our study regarding SNF content in the milk of mares from both groups are presented in the corresponding table. The data show that no significant differences in SNF content were established between the two groups, although a slight advantage was observed in the milk of Aday mares. The SNF content in the milk of both groups ranged from 8.95 to 9.00%.

Analysis of the monthly changes in SNF content showed a tendency toward a decrease up to the fourth month of lactation in both groups, followed by a slight increase in SNF content during the fifth month [15]. In all cases, the coefficient of variation (CV) during the individual months was higher than at the end of lactation, when it ranged from 1.84 to 2.02%. It is known that the biological efficiency of mares (BEM) depends on total solids content, whereas the biological value coefficient (BVC) depends on the solids-not-fat content (Table 6).

Table 6 – Biological Efficiency of Mares and Biological Value Coefficient

Lactation month	Breed			
	Local Kazakh		Aday	
	$X \pm m_x$	$C_V \%$	$X \pm m_x$	$C_V \%$
BEM	41.91 ± 0.75	5.66	42.37 ± 0.57	4.25
BVC	35.66 ± 0.63	5.56	35.96 ± 0.50	4.43

It was noted that Aday mares had higher yields of total solids and solids-not-fat (SNF) per 1 kg of live body weight. This can be explained by their higher total milk yield over the lactation period and the higher content of milk components. Thus, mares of the Mangystau type were inferior to Aday mares by 0.46% in biological efficiency and by 0.3% in the biological value coefficient.

An important technological indicator of the suitability of milk for further processing is acidity, which depends on the content of proteins, acid salts, and gases in milk. According to the requirements of GOST R 52973–2008 “Raw Mare's Milk. Specifications,” the acidity of raw milk intended for koumiss production should not exceed 6.00°T. During the lactation period, a tendency toward a decrease in milk acidity was observed in both groups of animals. No significant differences between the groups were found for this parameter (Table 7).

Mare's milk intended for processing into *koumiss* should meet the density requirements specified by the MPTV standard, which is 29–33°A. This physical parameter is determined by the chemical composition of milk and reflects the specific ratio of its components. An increase in the solids-not-fat (SNF) content leads to an increase in milk density, whereas an increase in milk fat

content, conversely, reduces its density. However, as a rule, a positive relationship exists between fat and other milk components; therefore, an increase in milk density is generally associated with improved milk quality.

Table 7 – Milk Acidity by Season of the Year, °T

Lactation month	Breed			
	Local Kazakh		Aday	
	$X \pm m_x$	$C_V \%$	$X \pm m_x$	$C_V \%$
Summer	6.0 ± 0.20	10.64	6.1 ± 0.19	9.86
Autumn	5.5 ± 0.16	9.02	5.6 ± 0.16	9.13

The density of mare's milk from both groups was measured throughout the lactation period.

It was established that the milk density of mares from both groups complied with the standard adopted in the Republic of Kazakhstan for milk intended for *koumiss* processing, namely 29–33°A. Throughout the entire lactation period, milk from local Kazakh mares had a slightly higher density (31.36–32.88°A) than that of Aday mares (31.29–32.60°A). At the same time, the milk of mares from both groups differed only slightly in density, which ranged from 31.29 to 32.88°A throughout lactation.

Discussion. Under the conditions of seasonal milking at Taushyk LLP, the selection of local Kazakh mares of the meat-and-dairy production type, rather than Aday horses of the riding type, can substantially increase the milk production of lactating mares. These findings are consistent with the conclusions of a number of other researchers who consider the second and third months of lactation to be the period of maximum milk production in mares. With the onset of pregnancy, milk yield decreases, particularly during the second half of gestation.

The uniformity of milk secretion in mares of both groups can be assessed based on their average daily milk yields. Thus, the highest average daily milk yields during the second month of lactation ranged from 13.78 to 15.65 L, during the third month from 14.42 to 17.30 L, and during the fifth and final month of lactation from 10.16 to 10.52 L. These findings indicate that the lactation curves of mares in both groups were relatively uniform, with a gradual downward trend in milk yield.

Conclusions.

1. Under the conditions of the seasonal *koumiss* farm at Taushyk LLP, the milk production of mares of the local Kazakh and Aday breeds differed. Local Kazakh mares demonstrated higher milk production (1,617.0 L) compared with Aday mares (1,413.0 L). The milk production index was also higher in local Kazakh mares (420 kg) than in Aday mares (380 kg).

2. During the 105-day lactation period, mares of both groups demonstrated the highest productivity during the second and third months of lactation, after which milk yield gradually decreased, with a more pronounced decline toward the end of lactation. During the second month of lactation, milk production amounted to 427.18 and 485.10 L, during the third month to 432.50 and 518.95 L, during the fourth month to 421.53 and 476.16 L, and during the fifth month to only 132.12 and 136.79 L, respectively.

3. In terms of milk fat, protein, and solids-not-fat (SNF) content over the 105-day lactation period, local Kazakh mares differed from Aday mares. The difference in milk fat content between the two groups was approximately 0.8% in favor of local Kazakh mares.

4. The breeding of local Kazakh and Aday horses under year-round pasture-based management provides an opportunity to increase the efficiency of horse-meat production and achieve profitability levels of 74.4–70.1%.

5. Under the conditions of seasonal *koumiss* production at Taushyk LLP, 674 L of milk was obtained from local Kazakh mares and 590 L from Aday mares over the 105-day lactation period. The production cost of 1 L of *koumiss* amounted to 395 and 385 KZT, respectively, while net profit was 55 and 65 KZT per liter, with profitability reaching 13.9 and 16.9%, respectively.

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АДАЙ ТҰҚЫМЫ БИЕЛЕРІНІҢ ЖӘНЕ ЖЕРГІЛІКТІ ҚАЗАҚ ЖЫЛҚЫЛАРЫНЫҢ СҮТ ӨНІМДІЛІГІ

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Аңдатпа. Өнімді жылқы шаруашылығы Қазақстан аумағында әрдайым жоғары сұраныста болды. Сүтті жылқы шаруашылығы өнімді жылқы шаруашылығының дәстүрлі тармағы болып саналады.

Зерттеу мақсаты – жергілікті қазақ жылқы тұқымдарының және адай жылқыларының сүт өнімділігін және сүттің химиялық құрамын анықтау.

Зерттеу барысында анықтағанымыздай тәжірибиде қолданылған биелер өз тұқымдарының өкілдері болды. Жергілікті қазақ жылқыларында бойлары аласа (135,5 см) адай биелерімен салыстырғанда (139,2 см), алайда олар адай биелеріне қарағанда тұрқы ұзындығы (145,7 см), көкірек орамы (169,9 см) және шамалы тірілей салмақ (385,2 кг) басымдылығы болды. Адай жылқы тұқымдары биелері конституциясы бойынша мініс жылқысы типіне ие болса, жергілікті қазақ жылқылары етті – сүтті типіне сәйкес келеді деді.

Лактацияның 105 күнінде жергілікті қазақ тұқымды биелердің сүттілігі 1617,0 л, адай тұқымы биелерінде 1413 л, ал сәйкесінше тауарлық өнімділік 674,1 және 590,1, осылайша, жергілікті қазақ жылқыларында 14,2% немесе 84,0 л адай тұқымдарынан басым көрсеткіштерге ие болды. Биелердің сүттілік индексі бойынша (100 кг тірі салмаққа есептегенде) жергілікті қазақ биелерінде де (420 кг) жоғары көрсеткіштер болды.

Екі топтағы биелерде сүттің біркелкі бөлінуінің көрсеткіштері орташа тәуліктік сүттің деректері болып табылады. Сонымен, лактацияның екінші айындағы ең үлкен орташа тәуліктік сүт мөлшері 13,78–15,65 л, үшінші айда – 14,42–17,30 л, ал лактацияның соңғы бесінші айында – 10,16–10,52 л болды. бұл деректер екі топты таңдау арқылы биелердегі сауу қисығы біркелкі екенін көрсетеді, оның төмендеу үрдісі біртіндеп байқалады.

Осылайша, "Таушық" ЖШС – де биелерді маусымдық сауу кезінде жоғары бағыттағы Адай жылқыларына қарағанда өнімділіктің ет-сүт бағытындағы жергілікті қазақ биелерін іріктеу есебінен сауын биелердің сүт өнімділігін айтарлықтай арттыру қисынды.

Тірек сөздер: сүтті жылқы шаруашылығы, сүт шығымы, тауарлы сүт, лактация, жергілікті қазақ жылқылары, адай жылқылары.

МОЛОЧНАЯ ПРОДУКТИВНОСТЬ КОБЫЛ АДАЙСКОЙ ПОРОДЫ И МЕСТНЫХ КАЗАХСКИХ ЛОШАДЕЙ

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Аннотация. Продуктивное коневодства на территории Казахстана всегда пользовалось высоким спросом во всех регионах. Молочного коневодства считается традиционной подотраслью продуктивного животноводства. Цель исследования – определить молочную продуктивность и химический состав молока: местных казахских лошадей и адайского породы.

Было установлено что, кобылы использованные в опыте были представителями своих пород. Животные местной казахской породы имея немного меньший рост (135,5 см) адайские кобылы (139,2 см) имели более удлиненное туловище (145,7 см), большой обхват груди (169,9 см) и несколько высокую живую массу (385,2 кг) в сравнение с кобылами адайской породы. Адайские кобылы, имели

тип конституции верховых лошадей, а местные казахские лошади склонялись к мясо – молочному типу. Не смотря на это, адайские лошади с успехом используются в производстве и как продуктивные животные.

Установили что за 105 дней лактации молочность кобыл местной казахской породы составило 1617,0 л, адайская порода 1413 л, а товарный составил соответственно 674,1 и 590,1 таким образом, удой кобыл местной казахской породы превышает на 14,2% или на 84,0 л чем у животных адайской породы. По индексу молочности (в расчете на 100 кг живой массы) кобыл высокие показатели также оказались у местных казахских кобыл (420 кг).

Показателям равномерности выделения молока у кобыл обеих групп являются данные среднесуточных надоев. Так, наибольшие среднесуточные удои во втором месяце лактации были 13,78–15,65 л, на третьем месяце – 14,42–17,30 л, а на последнем пятом месяце лактации – 10,16–10,52 л. Эти данные свидетельствуют о том, что кривая удоев у кобыл за счет отбора обеих групп равномерна, тенденция к ее спаду наблюдается постепенно.

Таким образом, при сезонном доении кобыл в ТОО «Таушык» за счет отбора местных казахских кобыл мясо – молочного направления продуктивности нежеле адайских лошадей верхового направления логично значительно повысить молочную продуктивность дойных кобыл.

Ключевые слова: молочное коневодства, удой молока, товарный удой, лактация, лошады местной казахской породы, адайская порода лошадей.