



## MILK PRODUCTIVITY OF LOCAL GOATS IN USTYURT PASTURE CONDITIONS

**Turganbayev Ruzimbai Urazbaevich**

Doctor of Agricultural Sciences, Professor. Nukus Branch of Samarkand State University of Veterinary Medicine, Animal Husbandry and Biotechnology

**Kaniyazova Fatima Ubbiniyazovna**

3rd year doctoral student.

Karakalpak Institute of Agriculture and Agrotechnologies

Article history:	Abstract:
<b>Received:</b> 8 <sup>th</sup> May 2025 <b>Accepted:</b> 6 <sup>th</sup> June 2025	This article examines the milk productivity of local goats in the pasture conditions of the Ustyurt Plateau. It analyzes the differences in milk productivity based on the age at first kidding, compares the productivity to the average indicators of local goats across all kidding ages, and determines the daily milk productivity on a monthly basis. Conclusions are drawn from these findings.
<b>Keywords:</b> Ustyurt Plateau, pasture conditions, local goats, milk productivity, age at kidding, daily milk productivity.	

**INTRODUCTION.** Currently, in the Republic of Karakalpakstan, there are insufficient scientifically-based methods for increasing productivity through selective breeding in the goat farming sector and for utilizing the natural pastures of the Ustyurt plateau. Therefore, developing breeding methods for local goats based on scientific research and recommending ways to increase their productivity through rational use of the Ustyurt plateau's pastures determines the relevance and necessity of the chosen topic.

While dairy goats can produce 800-1000 kg or more of milk during lactation, this indicator is significantly lower in local goats [6.<https://www.moloch.-produktivnost-koz>].

The Saanen, Toggenburg, and Nubian breeds have the highest milk productivity. In these breeds, the lactation period lasts 10 months, whereas in local goats it lasts only 2-3 months. Local goats typically show the highest milk productivity in the 2nd month, after which it gradually decreases in the following months [2.P. 315].

Several experiments have been conducted to increase the milk yield of local goats. High milk productivity can be achieved by following proper feeding and milking practices based on a fully balanced diet. This is accomplished by organizing milking 3-4 times a day at the beginning of lactation and thoroughly massaging the udder [5.[www.apps.fao.org](http://www.apps.fao.org)].

Modern scientific research conducted by [1.P. 123] demonstrates the high biological activity of goat milk and proves that it is closer to human milk in terms of milk composition. In agreement with this conclusion, [3.P. 10-11] emphasizes that goat's milk is easily digestible by the human body, especially for adolescents, and highlights that it is rich in essential amino acids and vitamins.

According to [2.P. 315], the fat globules in goat milk are smaller in volume compared to cow's milk, which contributes to better fat digestion. It is reported that goat milk has good anti-rachitic properties due to its content of calcium, phosphorus, cobalt, copper, selenium, magnesium, iron, manganese, and sialic acid, which are part of the body's immunological barrier structure.

**RESEARCH OBJECTIVE:** To develop and recommend methods for increasing the productivity of local goats in the pasture conditions of the Ustyurt Plateau of the Republic of Karakalpakstan.

**THE OBJECT OF THE STUDY** was the productivity and biological indicators of local goats and young kids across different reproductive age dynamics.

**THE SUBJECT OF THE RESEARCH** includes wool productivity, wool morphology, meat productivity, by-product yield, slaughter indicators, growth and development indicators, milk productivity, and the chemical composition of milk.

**RESEARCH METHODS:** In conducting the scientific research, generally accepted methods in animal husbandry were used to determine wool, meat, and milk productivity, live weight, and growth and development of goats. The methods of N.A. Plokhinsky for determining "Arithmetic mean (X), its error (Sx), and coefficient of variation (Cv) " were utilized.

**RESEARCH METHODS.** To determine milk productivity, control milkings were conducted on the experimental goats throughout their reproductive age dynamics. Milk productivity was calculated by dividing the live weight of kids from birth to 21 days of age by a coefficient of 5. For older kids, milk productivity was determined by measuring their live weight before and after suckling from mother goats. The daily milk yield per goat was then recalculated to monthly and lactation period milk productivity (VNIIOK methodology, 1998).

**RESEARCH RESULTS.** The milk productivity of local goats depends on the age at kidding. Numerous literature sources indicate that milk yield increases from the first kidding up to the third or fourth kidding. During our research, we aimed to determine the relationship between milk productivity and kidding age in the pasture conditions of the Ustyurt Plateau. The data from this experiment are presented in Table 1 below.

**Table 1**  
**Relationship between milk productivity and age at calving**

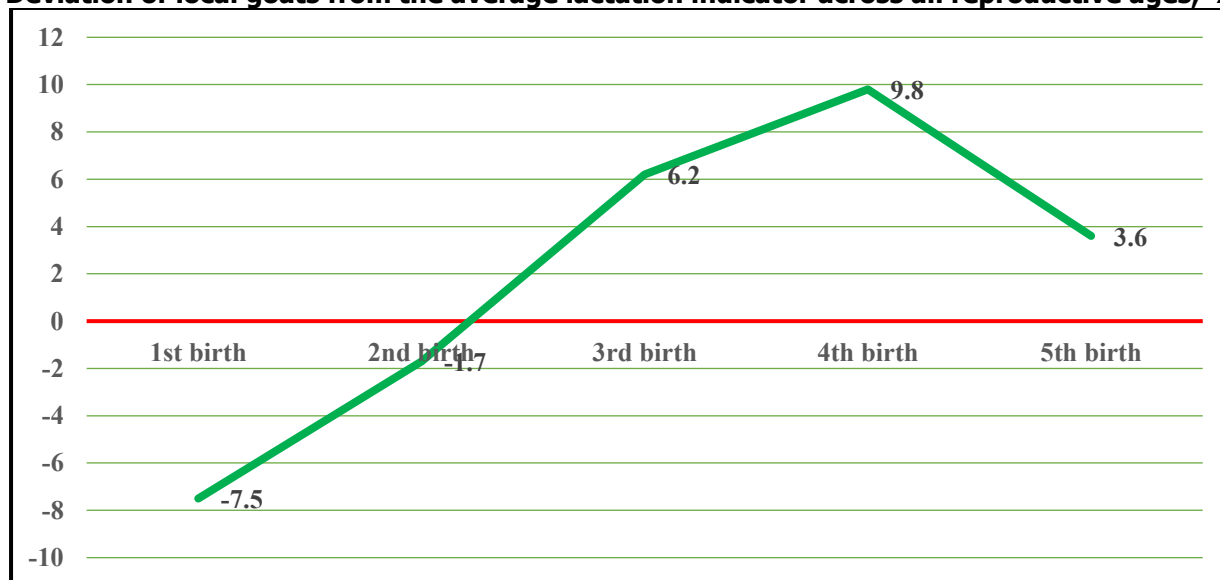
Milk productivity	Ages at childbirth				
	1st birth, n=10	2nd birth, n=10	3rd birth, n=10	4th birth, n=10	5th birth, n=10
	$\bar{X} \pm S_x$				
1st month	28,6±1,9*	29,8±2,5	33,3±3,1*	33,9±3,3	31,2±3,1
2nd month	29,7±2,4	31,5±2,9	34,6±3,3	35,7±3,4	33,4±3,2
3rd month	27,5±2,6	30,2±3,0*	32,1±3,1	33,2±2,9	32,3±2,9*
4th month	25,8±2,1	28,3±2,7	29,6±2,6	31,1±3,0	29,5±2,7
Average during lactation	27,9±2,5*	29,9±2,8	32,4±3,2*	33,5±3,2	31,6±2,9*

\* $p < 0,001$

Table 1 data shows the milk productivity of local goats during lactation by months. In the first month after the first kidding, milk yield was  $28.6 \pm 1.9$  kg, in the second month it was  $29.7 \pm 2.4$  kg, in the third month  $27.5 \pm 2.6$  kg, and in the fourth month  $25.8 \pm 2.1$  kg ( $p < 0.001$ ). An increase in milk yield was observed from the 1st to the 2nd month, and it began to decrease from the 3rd month. By the 4th month, the milk yield was 90.8% of the 3rd month of lactation ( $p < 0.001$ ). A similar pattern was observed for the second kidding. For the third kidding, the milk yield in the 1st month was  $33.3 \pm 3.1$  kg, in the 2nd month it was  $34.6 \pm 3.3$  kg, in the 3rd month  $32.1 \pm 3.1$  kg, and in the 4th month  $29.6 \pm 2.6$  kg. This trend was also observed in the 4th and 5th kiddings.

Differences were observed in the average lactation indicators of local goats across all kidding ages, and these data are presented in Figure 1 below.

**Figure 1**  
**Deviation of local goats from the average lactation indicator across all reproductive ages, %**



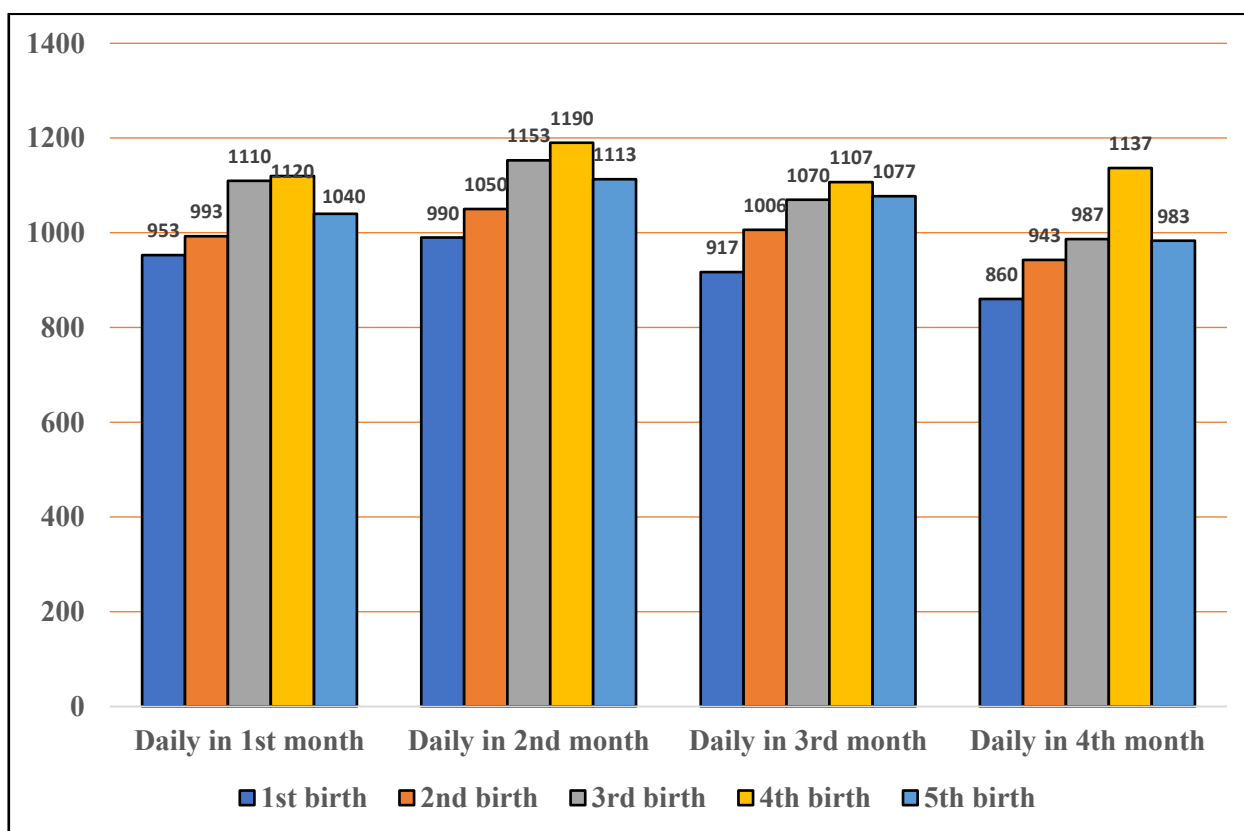
Analysis of the data in Figure 1 shows that if the total milk yield during the entire lactation period is taken as 100%, then the milk productivity of young goats in their 1st kidding was 7.5% lower, and in goats in their 2nd kidding, it was 1.7% lower. From the 3rd kidding onwards, an increase in milk yield was observed, with a 6.2% increase, and by the 4th kidding, the milk yield increased by 9.8%. By the 5th kidding, the milk yield began to decrease.

In our experimental work, the milk productivity of goats was determined every 10 days, and the monthly milk yield was calculated based on these results. Daily milk yield was calculated by dividing the monthly milk yield by the number of days. This calculated daily milk yield is summarized in Figure 2 below.

The results of the experiments presented in Figure 2 show that the daily milk yield in the 1st month of the 1st lactation was 953 g, in the 1st month of the 2nd lactation - 993 g, in the 1st month of the 3rd lactation - 1110 g, in the 1st month of the 4th lactation - 1120 g, and in the 1st month of the 5th lactation - 1040 g. From the 2nd lactation onwards, an increase in milk yield was observed, with daily milk yield peaking in the 3rd lactation. In conclusion, it can be said that the daily milk yield is also related to daily feed intake. A decrease in daily milk yield indicates a reduction in fodder

reserves in these pasture types. In such cases, measures are taken to relocate the animals to new pastures. Maintaining stable milk productivity in goats is crucial because the growth and development of kids, especially in their early age, are linked to their mother's milk.

**Figure 2**  
**Daily milk yield of goats by kidding age and months, g**



The milk productivity of local goats is directly related to pasture areas and is closely linked to the productivity and density of the pasture flora. The increase in milk productivity of goats kept in fertile pastures also affects their level of fatness. Among the pasture zones of the Ustyurt Plateau, the northern zone is characterized by the long-term preservation of annual plants and higher precipitation compared to the island zone and southern regions [80.P.17-21]. In our experimental work, we aimed to determine and analyze the milk productivity of local goats kept in the 3 main pasture areas of the Ustyurt plateau, and the obtained experimental data are summarized in Table 2.

Based on the data presented in Table 2, it can be concluded that the daily milk yield of high-fat goats kept in the northern region of Ustyurt was  $1184.6 \pm 98.6$  g, while in medium-fat goats it averaged  $1035.4 \pm 78.5$  g ( $p < 0.001$ ). In goats with below-average fatness, it was  $987.9 \pm 83.1$  g. In the southern areas of these pastures, the daily milk yield of high-fat goats was  $1108.8 \pm 103.1$  g, and in medium-fat goats it averaged  $1011.8 \pm 97.5$  g ( $p < 0.001$ ).

In goats with below-average fatness, it was  $907.3 \pm 72.1$  g. Goats kept in the Aral Sea region occupied an intermediate position in this indicator.

**Table 2**  
**Dependence of daily milk yield on pasture types and fatness level**

Regions	Number of heads	Milk productivity, g/X $\pm$ Sx		
		High obesity, n=10	Moderate obesity, n=10	Below moderate obesity, n=10
Northern Ustyurt region	10	1184,6 $\pm$ 98,6*	1035,4 $\pm$ 78,5	987,9 $\pm$ 83,1*
Aral Sea area	10	1073,9 $\pm$ 93,8*	998,3 $\pm$ 84,7	875,4 $\pm$ 75,3*
Southern Ustyurt region	10	1108,8 $\pm$ 103,1*	1011,8 $\pm$ 97,5	907,3 $\pm$ 72,1
Average across all regions	30	1122,4 $\pm$ 98,5	1015,2 $\pm$ 86,9	923,5 $\pm$ 76,8

\* $p < 0,001$

**IN CONCLUSION**, it can be stated that daily milk yield is dependent on pasture areas. Goats kept in the northern region of Ustyurt demonstrated superior milk productivity. Additionally, it was proven that goats with higher body fat produced greater quantities of milk.

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