

Biological and Productivity Characteristics of One-Humped Camels in the Conditions of Ustyurt

¹A. K. Tleumuratov, ²R. U. Turganbaev

axil1980@mail.ru.

¹ Doctoral student of the Nukus Branch of the Samarkand State University of Veterinary Medicine,
Animal Husbandry and Biotechnology

turganbaev19643@mail.ru.

² Scientific supervisor, doctor of agricultural sciences, professor

Abstract: This article shows ways to improve the productivity of camels and fully use their genetic potential, create productive lines, and increase their productivity. Determination and development of optimal methods of meat production depending on the constitution, growth indicators of one-humped camels are determined and conclusions are given. It was determined that the structure of the udder of one-humped camels depends on their milk yield, and the cup-shaped udder structure is superior to the animals with a round udder structure by 0,65 liters per day. It is recommended to use camels over 3 years of age to determine the degree of obesity by the size of the withers. Recommendations for determining the degree of obesity based on the size of the waist are given.

Key words: One-humped camels, sex, constitution, productivity, growth, wool, meat, wool morphology, lines, age dynamics, pasture types, fatness level

Introduction.

Today, Afghanistan, Namibia, South African Republic, Australia, Argentina, and Mongolia are among the main camel breeding countries in the world. In these countries, a number of scientific studies have been conducted to increase the productivity of camels and improve their breeding characteristics.

In our independent Republic of Uzbekistan, camel breeding is mainly done in the northern red-sand regions of the Republic of Karakalpakstan. Currently, the total number of camels in all categories of farms in the Republic of Karakalpakstan is 4859.

It is important to improve the productivity of camels and use their genetic potential, create productive lines, and develop effective methods to increase their productivity. However, scientifically based methods for increasing the productivity of camel breeding in the Republic of Karakalpakstan based on camel selection are not enough. Therefore, it is necessary to carry out selection works based on scientific research.

Breeding-selection work in the field of camel breeding in the Republic is insufficient at present. Highly productive lines of camels have not been created for camel breeding. However, the demand for expensive camel milk, wool products and meat products in the food industry is increasing in our domestic markets.

Therefore, the production of cheap and healthy camel milk, valuable wool products and cheap camel meat in the suitable and optimal conditions for camel breeding in the Republic of Karakalpakstan is an urgent issue that cannot be delayed today.

The purpose of the study.

The main goal of the scientific work is to study the biological and productivity characteristics of one-humped camels in the conditions of Ustyurt, Republic of Karakalpakstan.

To achieve this goal, it is necessary to perform the following tasks.

The tasks of the research are as follows.

Determining the milk yield of one-humped camels depending on the dynamics of age, constitution, pasture types, and udder structure.

Determining wool productivity and wool morphology in camels with a single scaly.

Determination of meat productivity of camels depending on age, sex, constitution and development of optimal methods of meat production.

Determination of indicators of growth and development of one-humped camels.

Research object. Productivity indicators in cross-section of age dynamics of dromedary camels of different sexes.

Research subject. Study of milk yield, chemical composition of milk, meat yield, slaughter parameters, scythe size, growth and development indicators, udder structure indicators.

Research methods. Generally accepted rules of zootechnical, biological and statistical analysis were used in carrying out research work and economic efficiency was determined.

The main part. Camels have their own biological characteristics, which distinguish them from other domestic animals, including the duration of the lactation period of 350-450 days, the ability to graze on pastures and milk throughout the year. Mother dromedary camels (pure-bred one-humped camels) and their hybrid offspring (nar, kurt, koshmaq) are fatter than Bactrian mothers (pure-bred two-humped camels) [2;88-b], [6;34-b].

Compared to other animals, camels are late-maturing animals. They reach sexual maturity at the age of 2,5-3 years. During this period, it is necessary to separate the male camels from the females. Otherwise, they will stop growing and developing in pairs. Accordingly, female camels mate for the first time at 3-4 years of age, and males at 4-5 years of age. This period is the most favorable for one-humped camels.

The indicators describing the main biological characteristics of camels are their body sizes (exterior indicators).

Body sizes of camels are the main biological indicators that determine their growth. The gender differential in the age section of the body sizes of one-humped camels is as follows (listed in Table 1).

Table 1Changes in body size of one-humped camels by age and sex, cm

			Body dimensions
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Age of camels	sex	n	Height at the withers	Oblique body length	Chest girth	Pastern girth
At the time of birth.	♂	14	107,1±0,36	70,8±0,40	82,1±0,48	10,9±0,14
	♀	17	104,2±0,30	68,9±0,34	81,5±0,39	10,4±0,12
in a period of 6 months	♂	14	134,0±0,56	94,1±0,51	137,1±0,79*	13,9±0,19
	♀	16	130,1±0,48	92,4±0,44	135,1±0,74	13,4±0,16
1,5 years	♂	13	153,3±0,71	118,4±0,54	164,2±0,71	14,9±0,21
old	♀	15	149,5±0,68	114,7±0,49	163,1±0,63	14,6±0,20
2,5 years	♂	12	162,4±0,71	123,4±0,54	173,1±1,07	17,0±0,42
old	♀	14	158,2±0,68	121,8±0,48	170,5±0,91	16,4±0,39
3,5 years	♂	12	171,5±0,78*	141,7±0,91	183,1±1,01	19,1±0,38
old	♀	13	168,1±0,62	139,4±0,84	181,7±0,98	18,7±0,34
5 years	♂	10	181,3±0,81	159,3±1,05	204,1±1,11	19,3±0,27
old	♀	11	179,5±0,74	158,5±0,98	202,0±1,07	19,1±0,34

*P<0,05

Analysis of the data in Table 1 shows that the difference between male and female camels is preserved in their age group. This difference was 2,9 cm at birth and 1,8 cm by the age of 5 years. It can be said that by the age of 5 years there is a convergence between the sexes in terms of body size and height. If the height of the body is taken as 100% at the time of birth, it is 25,2% at the age of 6 months, 42,9% at the age of 1,5 years, and 51,8% at the age of 2,5 years, it can be seen that it increased by 60,3% at the age of 3,5 years, and by 69,4% at the age of 5 years. Correspondingly, the length of the wrist circumference increased by 27,5% at the age of 6 months, by 36,7% at the age of 1,5 years, by 55,9% at the age of 2,5 years, and by 74,4% at the age of 3,5 years. It can be seen that it increased by 75,2% during the 5-year period.

The absolute and daily growth rate of young camels is directly related to their nutrition. In most cases, young camels are kept in special pens for camels. Therefore, it is necessary to feed the babies with mother's milk. For the winter months, it is prepared mainly from leguminous plants as a feed reserve and is the main coarse feed for young animals [1; 10-64-b], [5; 35-p].

The indicators for determining the growth rate in our research work are presented in Table 2 below.

The analysis of the data in Table 2 shows that young camels, mainly under the age of 3,5 years, experienced rapid growth in male herds (absolute growth 386,1 kg). This indicator was equal to 382,9±2,76 kg in female calves. There was a gender difference of 3,2 kg (P<0,01) in live weight indicators.

Table 2 Absolute and daily growth rates from birth to 5 years.

		Growth indicators
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Age of camels	sex	X±Sx	
		Absolute growth	Daily growth
At the time of birth.	♂	33,4±0,27	-
	♀	30,5±0,19	-
in a period of 6 months	♂	86,1±0,56	480,0±2,21
	♀	82,9±0,51	460,0±2,27
1,5 years old	♂	228,0±1,17*	422,0±2,31
	♀	224,3±1,56	415,0±2,37
2,5 years old	♂	304,7±2,01	338,5±2,67
	♀	297,0±2,11	330,0±2,74
3,5 years old	♂	386,1±2,96	306,4±2,91
	♀	382,9±2,76**	303,8±2,47
5 years old	♂	501,7±3,11	287,7±1,96
	♀	497,9±3,47	276,6±1,86

*P<0,01., **P<0,05

Today, in the Republic of Karakalpakstan, it is necessary to study the structure of the udder to increase the milk yield of dromedary camels in the Republic of Karakalpakstan. The scientific research works carried out in the selection work on the structure of the udder and in the creation of a herd of dairy camels, in the provision of healing camel milk, have a certain issue. Therefore, it is necessary to open new opportunities in the field of camel breeding and increase milk productivity as much as possible (see Figure 1).

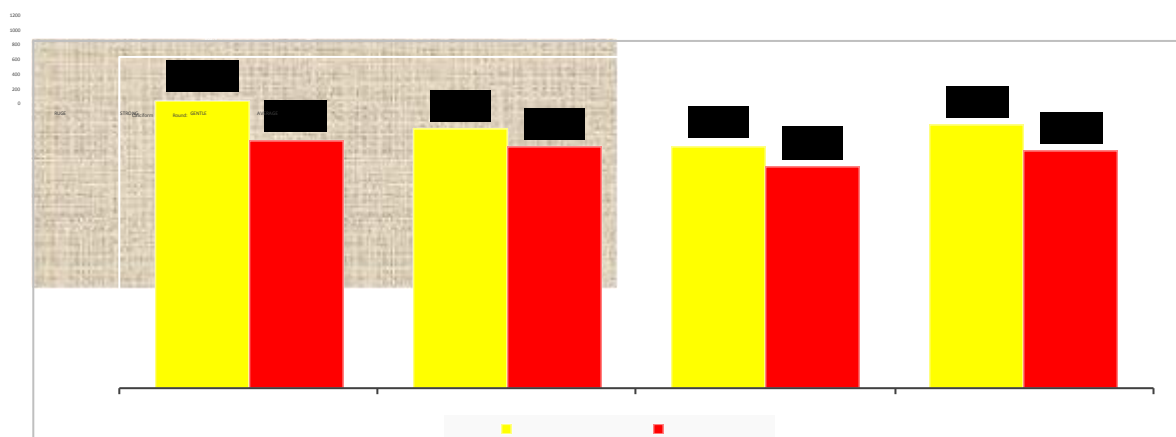


Figure 1. Udder size of camels, cm³, (9 years old)

Production of milk from camels creates a basis for their full use as a reserve in providing the people with medicinal milk. In addition, the need for dietary camel milk is met to a certain extent.

The milk yield of camels is to some extent directly related to their constitutional types.

The data for this indicator are presented in Table 3.

The analysis data presented in Table 3 show that in all three groups, the highest amount of milk was observed in the morning milk and the lowest in the evening milk. In terms of constitution of animals, 3732±10 grams of milk were milked in animals with delicate type constitution, while 5007±10 grams of milk were milked in animals of robust type. Camels with rough type occupied an intermediate position [18; 15-18].

Table 3 Dependence of the constitution of milk yield of camels

Types of constitution	n	Milking periods					Total amount of milk expressed in 1 day, gramm
		1	2	3	4	5	
Gentle type	4	907± 28	846±26	787±24	646±20	546±20	3732±10**
Rough type	7	1203±24	1049±21	889±18	861±17	878±18	4880±10
Strong type	6	1230±24	1069±21	949±19	868±17	891±17	5007±10*

*P<0,02., **P,0,05

Thus, the level of milk productivity of camels largely depends on their milking interval. It was found that more milking of animals with low milk yield has a negative effect on the growth and development of offspring; on the other hand, in camels with high milk, frequent milking ensures an increase in the yield of commercial milk.

In our experience, camels have an average milk yield, per day

Had a milking interval of 4-5 times.

Table 4 below shows the milk yield of camels of different ages depending on milking interval and age.

Table 4 Milk yield of camels of different ages depending on milking interval and age

Camels are of reproductive age	Amount of milk	1-Day milking period					Total amount of milk expressed
		1	2	3	4	5	
		X±S _x					
3rd year	gram	907±28,5	846±26,5	787±24,7	646±20,3	-	3186±100
5th year	gram	1203±24,6	1049±21,5	889±18,2	861±17,6	878±18,1	4880±100
7th year	gram	1230±24,6	1069±21,3	949±19,0	868±17,3	891±17,8	5007±100

Analysis of the data in Table 4 shows that 3-year-old camels were milked 4 times a day, while 5-year-old and 7-year-old camels were milked 5 times a day. At the same time, their milk yield increased as the childbearing age increased. If milk milked from 3-year-old camels in one day is considered 100%, the amount of milk in 5-year-old camels was equal to 155,4%, and in 5-year-old camels it was 159,5%.

In conclusion, the milk yield of camels increased as the reproductive age increased.

In the conditions of Karakalpakstan, camel meat is mainly used in domestic markets. Therefore, the use of camel meat is more common in rural areas.

Table 5 shows the data on camels of different ages slaughtered for meat in our research.

Table 5 Indications for slaughtering camels of different ages for meat.

Indicators	Age of camels	
	3rd year (n-4)	5th year (n-3)
Live weight before slaughter, kg	489,5	506,1
Slaughter weight, kg	229,5	239,3
Output of the carcass, %	46,9	47,3
Internal fat weight, kg	3,6	3,2
Internal fat output,%	0,7	0,6
The weight of the hump, kg	27,9	28,8
The output of fat of the hump,%	5,7	5,7
Slaughter weight, kg	261,0	271,3
Slaughter output,%	53,3	53,6

The analysis of the data in Table 5 shows that the milk yield was 53,3% in 3-year-old camels, and 53,6% in 5-year-old camels. was equal.

It is worth noting that slaughtering 3-year-old camels for meat in the conditions of Karakalpakstan is proven to be economically efficient. The meat of 3-year-old camels is characterized by soft and good quality [12;87-95-b], [20;26-27].

Goats are an emergency food supply for camels. Fat deposits increase when camels are fed more, which indicates pasture conditions. It has been suggested that camels are not important in meeting the camel's water needs, which naturally raises the question of how the camels will meet their long-term water needs.

In our research work, the size of the scythe was determined and we studied the dependence of this indicator on the dynamics of age and seasons. These data are presented in the accompanying Table 6.

Table 6 Dependence of the size of the scythe on age.

Age of camels	Number	of	Indicators of the reaper
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	heads	Hump height, sm	Hump girth, sm	Hump volume, sm
3	9	30,1±0,21	57,5±0,41	1730,8
5	12	31,4±0,17	58,7±0,47	1843,9
7	15	34,5±0,24	59,6±0,37	2056,2
9	11	37,6±0,31	60,4±0,51	2271,0

The data of Table 6 shows that the size of the scythe depends to a certain extent on the age of the camels.

In the dynamics of age, the size of the scythe changes, that is, it increases. In our experiments, camels from 3 to 9 years of age were taken, and it was observed that the size of their scythes increased with age.

The height of the scythe is, to some extent, an indicator of the degree of fatness of the animal. Therefore, when determining this indicator, it is possible to determine the level of obesity of the animal based on certain criteria.

In our research, indicators of the direct dependence of the size of the scythe on the level of obesity are presented in Table 7 below.

Table 7 Dependence of the size of the scythe on the level of obesity

(n=82 heads in all experimental farms)

Obesity rate	Number of camels	The size of the scythe, sm ³					
		1500-1800		1801-2100		2101-2400	
		Number of heads	%	Number of heads	%	Number of heads	%
In low to moderate obesity	21	19	90,5	2	9,5	-	-
In middle obesity	32	1	3,1	29	90,6	2	6,3
In moderate to high obesity	29	-	-	3	10,4	26	89,6
Average	82	20	24,4	34	41,4	28	34,1

The data of Table 7 shows that the degree of obesity is directly related to the size of the scythe. In our research, we divided the size of the scythe into 3 groups, 1500-1800, 1801-2100, 2101-2400 cm², and when we studied a total of 82 camels, there were 24,4% of low-moderate obesity, 41,4% of moderate obesity, and 34,1% of moderate-to-high obesity. was equal to %.

It can be concluded that the fatness level of camels was determined by organoleptic method. This method is an approximate method, and it is difficult to get accurate information. Determining the level

of obesity based on the size of the waist is a somewhat accurate method. The mean level of reliability is 89,6-90,5% [13; 114-117-b].

It should be noted that it is recommended to use it in camels over 3 years old when determining the degree of obesity by the size of the withers. The reason is that 1,5-2-year-old camels are small but have a high probability of obesity.

Changes in the quantity and quality of wool productivity in the dynamics of the age of camels have been noted by many scientists in their research works.

In our research work, wool productivity was obtained in spring shearing, and these indicators are presented in Table 8 below.

Table 8 Wool shearing indicators in the age section of camels.

Age of camels	n	Wool productivity			
		Allotment		from that	
		kg	%	Fleece	Mane
		X± Sx		X± Sx	
5-10 age	11	3,9±0,14	100,0	0,84±0,05	3,06±0,15
11-15 age	14	4,4±0,21	112,8	0,89±0,05	3,51±0,21
16-20 age	9	4,9±0,23	125,6	0,91±0,05	3,91±0,23

The analysis of the data of Table 8 shows that wool productivity is manifested in dromedary camels at the age of 16-20 years. If the wool productivity of 5-10-year-old camels is taken as 100%, it can be seen that the wool productivity of 11-15-year-old camels has increased by 12,8%, and the wool productivity of 16-20-year-old camels has increased by 25,6% [4; 141-154-b], [21; 28-29-b].

If we analyze the results of research studies on the differences in productivity indicators of camels, it is noted that male camels are higher than the equivalent female camels.

This is presented in table 9 under gender dependence of wool productivity in our experimental work.

Table 9 Gender dependence of wool productivity (9-year-old camels)

A breed of camels	n	Wool productivity, kg	The amount of wool, kg
		X± Sx	
Male camels	17	4,45±0,41	3,31±0,29
Female camels	31	4,21±0,33	3,04±0,21

Analysis of the data in Table 9 shows that male camels have higher wool productivity than female camels, that is, this indicator is 1,7% more. If the total productivity of wool is taken as 100% in male camels, then the amount of tivit was 82,3%, and in female camels it was 79,5%. The data analysis

shows that the amount of tivitis is slightly higher (2,8%) in male camels [7;128-131-b], [15;706-709-b].

Quality indicators of wool fibers are presented in Figure 2.

This indicator is equal to 83,9% of strong type, 84,2% of gentle type and 83,2% of rough type in 9-year-old camels. If the camels are analyzed in terms of age dynamics, it is observed that the wool of the camel is decreasing, i.e. it increases by 4,0% compared to the 3-year-olds (see Fig. 2).

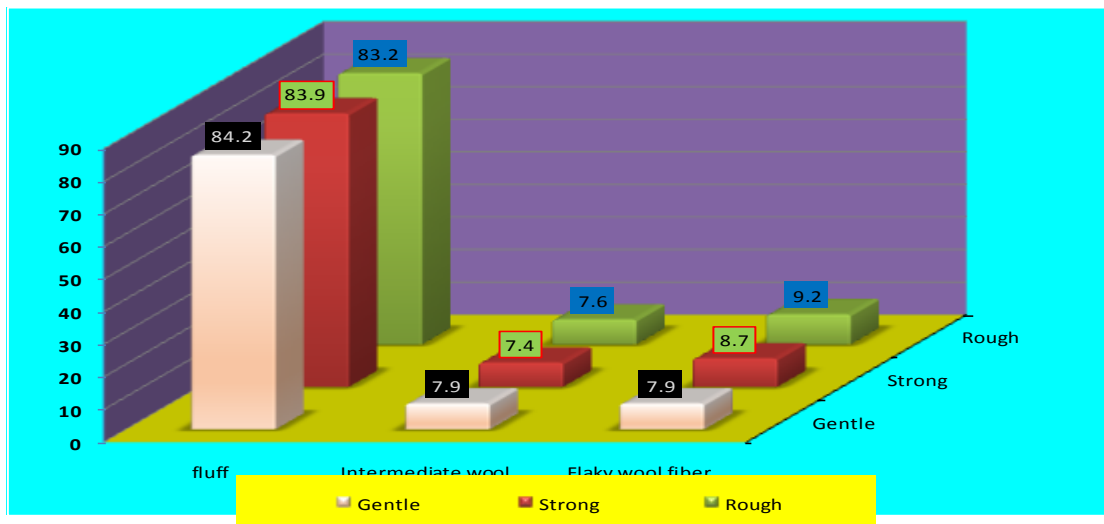


Figure 2. Wool fiber quality indicators. %

Conclusion

1. Differences between male and female camels in terms of body size are preserved in their age group. If the height of the body size is taken as 100% at birth, it is 25,2% at the age of 6 months, 42,9% at the age of 1,5 years, and 51,8% at the age of 2,5 years, it can be seen that it increased by 60,3% at the age of 3,5 years, and by 69,4% at the age of 5 years. These indicators indicate that one-humped camels grow according to the breed standard.

2. At the time of the birth of the young male cubs, it was reflected that the weight was in the range of 29,1-35,6 kg. In camels, the indicators of live weight increased rapidly mainly up to the age of 2,5-3,5 years. The data obtained on live weight fully correspond and confirm the indicators of body dimensions and indices. Keeping young camels and feeding them at a standard level is the basis for the full manifestation of the genetic potential of animals and has a positive effect on their future performance.

3. The structure of the udder of single-humped camels is directly related to their milk productivity, and it was noted that the cup-shaped udder structure is superior in animals of all constitutional types. That is, compared to animals with a smooth udder structure, it prevailed by 0,65 liters per day.

4. 3732 ± 10 grams of milk were milked in animals with a delicate constitution, while 5007 ± 10 grams of milk were milked in animals with a strong constitution. Camels with rough type occupied an intermediate position. At the same time, their milk yield increased as the childbearing age increased. If milk milked from 3-year-old camels in one day is considered 100%, the amount of milk in 5-year-old camels was equal to 155,4%, and in 5-year-old camels it was 159,5%.

5. The size of the scythe is to some extent an indicator of the level of fatness of the animal. It is recommended to use camels over 3 years of age to determine the level of obesity based on the size of the udder. Determining the degree of obesity based on the size of the chest is a fairly accurate method and the reliability level is 89,6-90,5%.
6. Meat yield of camels was 53,3% in 3-year-old camels and 53,6% in 5-year-old camels. It is equal to 5,7% of live weight in camels of both ages.
7. According to the indicators of wool shearing of camels, the wool productivity of camels of older age (16-20) is proportionally 1,0 compared to that of 5-10-year-olds and 11-15-year-olds; 0,5 kg more. As the age of camels increases, it is observed that the amount of tivit wool decreases, that is, the amount of tivit wool in 3-year-old camels is 86,5%, and in 9-year-old camels it is 83,2%.

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