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DETERMINATION OF MILK YIELD CHARACTERISTICS OF KARAKAS SHEEP, BIRTH AND WEANING WEIGHT OF LAMBS IN FARM CONDITIONS

H. Deniz ŞİRELİ

Dicle University, Faculty of Agricultural, Department of Animal Science,
21280 Diyarbakır, Turkey

Corresponding author e-mail: hdsireli@gmail.com

Abstract

The aim of this study is to determine birth and weaning weights and milk yield characteristics of Karakaş sheep. The animal material of the study was composed by 187 lambs and 93heads of ewes aged between 2-6 in Diyarbakır province. Birth weights and weaning weights were found to be 4.08 kg and 18.56 kg in the females and 4.35 kg respectively 19.68 kg in the males. Lactation milk yields, lactation length and mean milk yields in the 2, 3, 4, 5 and 6 year old ewes were: 86.86, 95.74, 95.00, 94.50, 94.85 liters; 166, 92, 167, 47, 168, 79, 169, 36, 165 days; 480.5, 516.3, 529.2, 501.9, 589.0 gr, respectively. According to the research, the yield characteristics of Karakaş sheep breeders in Diyarbakır province were found to be satisfactory for the region.

Key words: *Karakaş Sheep, milk yield, birth weight, weaning weight.*

INTRODUCTION

Akkaraman sheep constitutes of 40-45% of sheep population in Turkey and has some different varieties. Karakaş sheep is an important variety of Akkaraman sheep, It raises as an important indigenous breed, in Elazığ, Diyarbakır, Bitlis and Van Province as well (Gökdal et al. 2003).

Determining the performance, yield and morphological characteristics of the native breeds raised in Turkey will contribute for the breeding of breeds and benefit the development of country's livestock policies (Karaca et al., 1996).

The results obtained from many studies carried out in breeder conditions tend to a successful establishment of breeding program which can respond to the expectations and orientations of breeders conventional production.

As in all the species, one of the most important values in small ruminants breeding is the heigher reproductive efficiency.

Another important fertility feature is the high birth and weaning weights and their productive life (Özmen et al., 2015).

The average milk yield of Akkaraman and Karakaş sheep is around 50-60 kg and lactation length is 140 days approximetly under the different breeding conditions.

The average birth and weaning weights of the lambs vary between 4.5-4.7 and 18-24 kg respectively (Anonymous, 2009).

In this study, it was aimed to determine the milk yield features, birth and weaning weights of Karakaş sheep in breeder conditions in order to increase the yields of conventional breeding enterprises and to provide a basis for the protection of native gene resources and other studies to bedone.

MATERIALS AND METHOD

Material

This research was carried out total 187 head of lambs which is 89 female and 98 male of lambs belongs to 93 head of Karakas ewes at the 2, 3, 4, 5 of age raised in Diyarbakir Höyükdibi Village in 2016.

Method

The study was started with the determination of their ages by looking at the teeth of Karakaş ewes.Immediately after birth, ear tag and disinfectionof umbilical cord care were applied. The birth weights were recorded by precision scale at 10 gr sensitivity. At the same time, gender and birth types of the lambs were also identified and recorded. Colostrum was given to the lambs after birth at 3 days periods.

Lambs were weaned at 2.5-3 months of age and weaning weights were determined and recorded. Ewes are not milked until the pasture season and were milked twice a day after season.
Lactation milk yields wasestimated by using the Trapeze II method based on monthly controls.
In milk control, milking was performed by hand. Milk yielded was determined as morning and eveningmilk which was detected with a precision scale of 10 gr sensitivity.
Lambs were breastfeeding half an hours after milking of ewes in the early hours of the morning, and the sheep were brought to the pasture.
Pastures are returned to the pasture for 8-10 hours, then after half an hour of rest, they are passed to the evening milk. After the end of the milking, the lambs are separated from the lambs after a half hour of absorption.
Ewes grazing for 8-10 hours in the pasture, were milked half an hour after returning to the farm. Following the milking, ewes had breastfeeding the lambs for half an hours than seperated. Additional feeding was also provided depending on the conditions of the pasture and weather conditions.

Statistical Analysis

In the study, the Khi-square method was used to compare features mentioned above.
The effects of environmental factors on the milk yield such as age, genderand type of birth on the live weight were determined by "Least Squares Method".
The control of the significance of differences between the subgroup meanings was done by the Tukey test (Kesici and Kocabas, 2007). SPSS 22 package program was used for statistical analysis.

RESULTS AND DISCUSSIONS

Birth and weaning weights

In the study, birth weight and weaning weight of the Karakas lamb in terms of sex and type of birth was given in Table 1 and Table 2.
According to this, male lambs were found to be heavier than both female lambs in terms of In the study contucted for Karakaş lambs by Gökdal et al. (1999), they reported the birth weight of male lambs was 4.03 kg, and 3.85 kg for female lambs.
They found birth weights in single lambs as 4.19 kg and in twin lambs as 3.64 kg when considering the type of birth.
Demirel et al. (2000) found that the birth weights of Karakaş lambs were 3.84 kg in their studies.both birth weight and weaning weight as well.
Bingöl and Aygün (2014) found that the birth weights in male lambs were 3.01 kg and 3.01 kg in female lambs.

Table 1. Birth and weaning weight of Karakaş lambs according to the sex

Lamb	n	Birth Weight (kg)			General	n	Weaning Weight (kg)			General
		Mean	Min	Max			Mean	Min	Max	
Female	89	4.08±053	2.72	5.26	4.22±0.06	59	18.56±3.05	11.63	24.00	19.08±3.38
Male	98	4.35±0.67	2.52	5.82		72	19.68±3.71	11.51	24.98	

The values found (Karaca et al., 1993; Aygün and Karaca, 1999; Öter, 2000) were lower than the birth weight obtained in this study.
Özge et al. (2015) determined birth weights as 3.74 kg in Akkaraman lambs.
The values obtained by different researchers were found to be lower than obtained in this study.
Ülker et al. (2004) found that the birth weights of male lambs were 4.78 kg, and 4.43 kg of female, 5.05 kg in single births and 4.16 kg in twins in their studies with Karakaş and Norduz lambs.
Birth weights obtained in this study was found higher than the study conducted by Karakuş et al. (2008) in Norduz and Karakaş lambs as 4.90 and 4.65 kg, respectively.
The results of the researchers' results are higher than the results obtained in this study. The differences were interpreted as due to using different breeds and different nutrition and environmental conditions in the enterprises.

Table 2. The birth and weaning weight of the Karakaş Lambs by birth type

Lambs	n	Birth weight (kg)			n	Weaning Weight (kg)		
		Mean	Min	Max		Mean	Min	Max
Single	161	4.32±0.58	2.52	5.82	119	19.81±2.89	14.19	24.94
Twin	26	3.59±0.51	2.52	4.66	12	16.67±3.90	11.51	24.98

Weaning Weight

Gökdal et al. (1999) were found the average weaning weight of 118 day weaned Karakasmale Lambs as 26.32 kg, while in female lambs as 23.85 kg. They found weaning weight in single born lambs as 25.63 kg, for twin lambs as 24.54 kg when considering of birth type.

Demirel et al. (2000) weaned Karakaş lambs at 90 days of age and they have identified the weaning weight in kg 21.46 kg. These values were found higher than this study.

While the values obtained from the studies performed by different researchers (Bingöl, 1998; Akçapınar and Kadak, 1982) were found to be higher than the values obtained from this study.

Gökdal (1998), Gökdal et al. (1999) conducted a study with Karakaş lambs weaned on the 90th day, they found weaning weight as 18.93 kg and 20.43 kg respectively. Bingol (1998) reported weaning weight of Norduz lambs as 20.27 kg. Öter (2000) reported the weight of weaning weight for Karakaş lambs was similar to that of 19.72 kg.

Bingol and Aygun (2014) reported the Karakas lambs weaned on 90 days of age lamb male weaning weights as 14.99 kg, while in female lambs 14.82 kg.

According to the type of birth, They found the weaining weight as 15.20 kg in singleborn lambs while in 15.20 the twins born lambs as 14.61 kg.

They found that the weaning weights were lower than obtained from this study.

As a result, we should interpret the results obtained in different researches in terms of birth and weaning weights to be different, due to used different breeds and hybrid genotypes in their studies, and the studies were conducted under different climatic, geographical and growing conditions and durations as well.

Lactation Length, Milk Yield and Daily Average Milk Yields

The lactation milk yield, lactation length and daily average milk yield results beginning after one week of birth to dry period in Karakas ewes were given in Table 3.

Table 3. Daily Milk Yield, Lactation Length and Daily Average Milk Yields by age in Karakas Sheep

Features		Lactation Milk Yield (Liters)			Lactation Length (Day)			Daily Average Milk Yields (gr)		
Age	**n**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**	**Mean**	**Min**	**Max**
2	26	86.86±19.96	47.05	132.32	166.92±1.38	151.00	179.00	480.5±19.6	151.00	179.00
3	35	95.74±24.99	45.35	157.57	167.47±0.96	152.00	176.00	516.3±21.2	152.00	176.00
4	14	95.00±18.60	61.52	124.27	168.79±2.00	157.00	185.00	529.2±33.6	157.00	185.00
5	14	94.50±19.51	67.58	149.64	169.36±1.56	160.00	184.00	501.9±31.3	160.00	184.00
6	4	94.85±15.51	73.52	110.65	165.00±4.38	152.00	171.00	589.0±18.2	152.00	171.00
General	**93**	**92.91±21.55**	**45.35**	**157.57**	**167.50**	**154.40**	**179.00**	**523.38**	**154.40**	**179.00**

Lactation Milk Yield

Aydoğan and Gül (1992) found the average lactation milk yield as 49 liters in Karayaka ewes which was lower than the values obtained in Karakaş sheep in this study due to the effect of different breed characteristics.

Gökdal (1998) reported that the lactation milk yields in the 3, 4, 5 and 6 years old Karakaş sheep were 39.42, 56.77, 61.50, 59.97 liters, respectively.

Gökdal et al. (2000) reported the average milk yield of Karakas sheep raised in village as 59 liters.

Gökdal et al. (2000) reported that the lactation milk yields of 2,3,4 and 5 years old ages of Karakaş sheep as 44.4, 63.7, 62.9 and 64.8 liters, respectively.

Altın (2001) has reported that average milk yields in 2, 3, 4 and 5 year old Karakaş sheep were: 55.1, 55.6, 69.7 and 47.1 liters, respectively.
Lactation milk yield obtained in this study were significantly higher than any of the reported literature value.
The variation in the milk yields of Karakaş sheep can be explained by the fact that due to the regional conditions were different.
Karakaş sheeps which have high adaptability ability in poor maintenance and feeding conditions are indispensable due to this ability to adapt to the regional conditions.

Lactation Length

Aydogan and Gül (1992) found that the average lactation length as 131 days in Karayaka was lower than the Karakaş sheep due to the different race characteristics (Table 3).
Cengiz et al. (1998) reported the lactation length as 166.13, 169.54, 167.79 and 157.12 days in the Karakaş sheep weaned at 45, 60, 75 and 90 days of age respectively. These values was shown similarity to those obtained in this study.
Gökdal (1998) reported that the length of lactation in the Karakaş sheep of 3, 4, 5 and 6 years old was 169.6, 195.3, 213.2, 205.7 days, respectively.
The lactation length of 3 years older sheep was shown similarity while values for other age grup were found higher with the work which was done.

CONCLUSIONS

In this study, it was aimed to determine the birth weights, weaning weights, lactation milk yields, lactation length and daily avarage milk yields of Karakaş sheep in breeders conditions.
The milk yield characteristics, birth and weaning weights of the Karakaş sheep show similar characteristics when compared to the findings obtained from studies conducted on native breeds raised in Turkey.
In this regard, although Karakaş sheep are not at a satisfactory level in terms of the characteristics discussed, this breed are an important source of production when considering the conditions of the breeding enterprises. Together with the identification of the yield performances of the Karakaş sheep which is one of the native gene sources, studies on improving the yield characteristics of this sheep breed provide the necessary information to protect native gene resources of Turkey.
In terms of protection of gene resources of native sheep breeds have to be protected in their natural environment.It is important that Karakaş sheep breeders continue their breeding activities and do not leave their sheep breeding habits. In this sense, studies aiming to reveal the characteristics of Turkey' native sheep breeds gain importance.

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