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INVESTIGATION OF FEED VALUE OF NATURAL PASTURES IN ŞANLIURFA REGION AND FATTENING PERFORMANCE OF AWASSI LAMBS GRAZING IN PASTURES

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Abstract: In this study, samples were collected from natural pastures in the districts of Haliliye and Eyyübiye, where pasture-based sheep breeding is practised in the Tek Tek Mountains region, at different times (1 March, 1 April, 1 May, 1 June, 2020). For the purpose of sampling, quadrats measuring 50 x 50 cm (equivalent to 0.25 m^2) were positioned in four randomly selected areas at four different points in time. The grasses were manually harvested at ground level. The objective of this study was to ascertain the dry matter (DM), crude ash (CA), crude protein (CP), ether extract (EE), neutral detergent insoluble fibre (NDF) and acid detergent insoluble fibre (ADF) values in the pasture samples collected. In addition, during the study, the live weights of lambs from 30-31 lambs (Pasture1 F/M:18/12; Pasture2 F/M:15/15 Pasture3 F/M:15/15 Pasture4 F/M:15/16) reared in these areas and born during the same period were recorded at the start and end of the grazing period. The data obtained from the research were subjected to analysis according to the Least Squares method. The Duncan multiple comparison test was employed to ascertain the existence of any significant differences between the groups. The results of the analysis of the raw nutrient contents of four different pasture regions in March, April, May and June were presented. Accordingly, the levels of DM, CA, CP, CF, NDF and ADF were determined to be between 24.3 and 43.3, 7.64 and 10.48, 7.72 and 14.85, 2.28 and 2.64, 33.34 and 60.88, and 28.66 and 41.97, respectively. While the average DM, NDF and ADF levels increased over the periods, the CP level decreased. The greatest increase in live weight was observed in male lambs in pasture 3 herd. The highest live weight gain in female lambs was detected in the herd in pasture4. It can be posited that the aforementioned values pertaining to live weight gain in pasture-based feeding will enable breeders to augment their production through supplementary feeding.

Keywords: Natural pastures, Nutrient content, Forage, Awassi, Live weight

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1. Introduction

Fodder plants are produced to meet the nutritional needs of animals to continue their life activities also have qualities such as protecting soil and water, improving the yield of subsequent agricultural products in crop rotation, and are plants that are dried or made into silage after being harvested. Many species belonging to the legume and wheat family are among the forage plants. On the other hand, many plant species outside these families are used as a source of animal feed in the world. Some of these are produced as agricultural products, while others grow naturally in nature (Temel and Tan, 2012). Especially in feeding ruminant animals, production cost cover 60-70% of feed cost. This situation is of great importance in terms of meeting the demand for quality roughage of the animal, despite the feed cost having 70% input for the enterprises dealing with animal husbandry. The primary sources of quality roughage are meadows and pastures, forage crops and silage (Şeker, 2006). This situation clearly shows how important roughage is for economic animal production in ruminant nutrition. In our country, the source from which the need for roughage is mostly met is our pastures (Avcıoğlu, 2000). Our natural meadows and pastures, which are the most important sources of nutrition for our country's livestock, have decreased significantly compared to the past. While they covered almost half of our country's land with 44 million hectares in the 1940s, these rates have now decreased to approximately 14-15 million hectares. Due to excessive, unplanned and early grazing in these natural forage areas for years, imbalances have been observed in the natural vegetation and have become erosive. In 1940, this pasture area per animal was 3.38 ha, and in recent years, it has decreased to 1.18 ha, and with the increase in animal husbandry in the country, there has been a three-fold increase in the number of animals grazing per unit area (Kuşvuran et al., 2011). Small ruminant farming has an important place in the livestock activities of the GAP region. The presence of sheeps and goats in the Southeastern Anatolia Region

covers approximately one-fourth of the small ruminant animals in Türkiye (TUIK, 2019).

The total area of our pastures in Şanlıurfa is 234,357 hectares. Our pastures have poor pasture quality due to insufficient rainfall. While the green grass yield in the pasture area in the region is 680 kg/hectare, this rate is approximately 200 kg/hectare for dry grass yield (General Directorate of Agriculture and Forestry, Turkish abbreviation of OGM, 2016). The quality of pasture grasses varies depending on the vegetation period, fauna, climate factors, growth conditions, suitability for irrigation and fertilization. The surface area of Şanlıurfa province is 1,858,400 ha and 234,357 ha of this area is meadow / pasture area. (Turkish abbreviation of OGM, 2016). Considering the vegetation cover of pastures and the geographical conditions of Türkiye, ovine husbandry stands out as the most suitable livestock breeding activity. As fewer people live in rural areas, there has been a corresponding decline in demand for products made from sheep and goats (Cedden et al., 2020). Instead, a large percentage of Türkiye's livestock consists of sheep and goats. Not only does Türkiye have the highest density of sheep in Europe, but the percentage of cattle considered small ruminants ranges from 50 to 85 percent, with some variation between regions (Oral and Yıldız 2023). Türkiye's red meat production (estimated at 2 million tons in 2021), 24.6% is from ovine meat, with 19.8% coming from sheep and 4.8% from goats (Gül Varış and Pınar 2024).

In Şanlıurfa province, sheep breeding is in the form of family businesses, and the sheeps raised in the region spend the night in the pasture depending on the climate conditions and are brought to the farm in the morning for milking and feeding the lambs. The milked and rested sheeps are taken back to the pasture. Cultivation is carried out in pasture conditions without additional feed between March and early April, when the climate and pasture vegetation are suitable, and until September, when the vegetation is insufficient. Therefore, research on the nutrient content of pastures in sheep breeding regions in Şanlıurfa province is limited. This study aims to determine the nutrient content of pastures located in individual mountains in the region and to determine their effects on the fattening performance of newborn small ruminants.

2. Materials and Methods

2.1. Material

2.1.1. Trial location

In the study, samples were collected from natural pastures in the villages of Kargalı (pasture1), Karaca (pasture2), Sarpdere (pasture3) and Uğurlu (pasture4) in the Tek Tek Mountains of Şanlıurfa province, where pasture-based sheep breeding is carried out, at different periods (March 1, 2020, April 1, 2020, May 1, 2020, June 1, 2020). In sampling, quadrats of 50x50 cm (0.25 m^2) were placed on the ground in 4 randomly selected regions and the remaining grass was mowed at the soil level. The dried samples were ground through a 1 mm sieve and bagged for analysis of dry matter, crude ash, crude protein, ether extract, crude cellulose, ADF, NDF. The total area of Tek Tek Mountains National Park is 19,335 hectares. Tek Tek Mountains National Park is 40 km away from Şanlıurfa city center and is located in the east of the city (Figure 1). It lies between Viranşehir Plain and Harran Plain in the north-south direction, south of the Şanlıurfa-Mardin Highway. According to the habitat classification in the National Park area, there are habitat types as Perennial Calcareous Meadows and Simple Steppes, Small Groves and Habitats with Sparse or No Vegetation, Young Cultivation Areas, Temporary Streams, Agricultural Areas Where Single Species Crops Are Grown (Şanlıurfa ÇED, 2015).

Figure 1. Field location where the study was conducted.

Table 1. Temperature and precipitation averages for 2020 (DMI, 2020)

Months	Temperature (ºc)			Mean Humidity (%)	Amount Of Rainfall (Mm)
	Min.	Max.	Mean		
January	-2.3	14.2	6.9	-	54.3
February	-7.4	19.6	7.1	-	13.4
March	2.4	24.2	14.1	26.5	65.5
April	3	28	16.5	19.2	39.1
May	8.5	37.8	22.7	43.2	19.7
June	12.6	40.7	28.1	30	0.2
July	20.9	43.6	33.4	24.6	-
August	18.4	42.3	31	30	-
September	16.1	41.2	29.7	32.5	-
October	12.9	33.5	24	27.5	-
November	5.3	26.8	14.1	53.3	46.8
December	7.6	17.8	12	64.9	2.3

Table 2. Nutrient contents of pastures in different periods (%DM)

Pasture	Periods	DM	CA	CP	EE	NDF	ADF
	March	24.7±1.0^{a}	7.88±0.25^{a}	14.85±0.28^{d}	2.46±0.15	35.23±0.40^{a}	29.61±0.39^{a}
	April	31.8±0.4b^{b}	8.12±0.52^{a}	12.97±0.23^{c}	2.44±0.17	40.98±0.68^{b}	34.14±0.60^{b}
1	May	35.8±0.9^{c}	9.30±0.34^{b}	9.84±0.26^{b}	2.36±0.09	52.25±0.78^{c}	37.28±0.74^{c}
	June	41.2±0.7^{d}	9.96±0.29^{b}	7.89±0.25^{a}	2.61±0.17	59.22±0.27^{d}	41.11±1.06^{d}
	P	**	**	**	ns	**	**
	March	25.7±1.1^{a}	7.64±0.32^{a}	13.88±0.36^{c}	2.39±0.10	34.11±0.80^{a}	28.66±0.72^{a}
	April	30.6±0.5^{b}	8.52±0.46^{ab}	13.14±0.28^{c}	2.28±0.08	40.39±0.37^{b}	34.21±0.59^{b}
2	May	36.1±0.8^{c}	8.80±0.25^{b}	9.82±0.21^{b}	2.40±0.10	53.08±0.59^{c}	37.15±0.52^{c}
	June	43.3±0.6^{d}	10.34±0.27^{c}	7.82±0.40^{a}	2.28±0.09	60.88±1.24^{d}	41.97±1.04^{d}
	P	**	**	**	ns	**	**
	March	25.4±0.8^{a}	8.25±0.24^{a}	14.25±0.49^{d}	2.45±0.12	33.34±0.95^{a}	29.55±0.59^{a}
	April	31.1±1.0^{b}	8.12±0.26^{a}	12.95±0.33^{c}	2.44±0.12	40.80±0.71^{b}	34.43±0.34^{b}
3	May	33.4±0.4^{c}	8.80±0.17^{a}	10.28±0.22^{b}	2.50±0.14	53.22±0.67^{c}	37.96±0.72^{c}
	June	42.9±0.9^{d}	10.48±0.33^{b}	7.72±0.15^{a}	2.64±0.14	60.61±1.11^{d}	41.05±1.35^{d}
	P	**	**	**	ns	**	**
	March	24.3±1.1^{a}	8.42±0.31^{a}	14.32±0.40^{d}	2.45±0.08	34.17±0.98^{a}	29.51±0.63^{a}
	April	31.7±0.7^{b}	8.28±0.57^{b}	13.06±0.36^{c}	2.33±0.15	40.94±0.55^{b}	34.23±0.76^{b}
4	May	33.6±0.8^{b}	9.10±0.08^{bc}	9.84±0.26^{b}	2.44±0.15	52.87±0.67^{c}	38.24±0.51^{c}
	June	42.1±0.6^{c}	10.02±0.26^{c}	8.08±0.24^{a}	2.58±0.16	60.62±0.83^{d}	39.54±0.40^{c}
	P	**	**	**	ns	**	**

^{a,b}= the difference between groups in the same column is statistically significant.**P<0.01 ns= no significant, DM= dry matter (%), CA= crude ash (% of DM), CP= crude protein (% of DM, EE= ether extract (% of DM), NDF= ceutral detergent fiber (% of DM), ADF= ccid detergent fiber (% of DM).

2.1.2. Climate characteristics

According to the temperature and precipitation averages of the Turkish State Meteorological Service (Turkish abbreviation of DMİ) for 2020, no precipitation was observed in July, August, September and October. The months with the most precipitation were January, March and November. The lowest temperatures are in December, January and February, while the highest temperatures are in June, July, August and September. The climate features a climate where the influence of the Mediterranean and Eastern Anatolia Regions and the arid-tropical region in the southern parts were seen. Winters are rainy, cold and humid. With the arrival of June, desert conditions in the south begin to be felt in the region and the drought level reaches its maximum. The drought period is long and is effective between June and September. The Southeastern Anatolia region generally has a steppe climate and evaporation is very common in these months. This steppe climate is different from the steppe climate seen in the Central Anatolia Region in that summers are hot and dry Turkish State Meteorological Service (Turkish abbreviation of DMİ, 2020) (Table 1).

2.2. Methods

For the samples examined within the scope of the study, dry matter determination was calculated by drying the samples at 105 °C for 3 hours based on (%DM). The crude ash values of the forage plant samples were calculated after burning them in the oven at 525 °C for 8 hours. Organic matter contents were determined by the calculation method (AOAC, 1990).

Crude protein is based on the calculation of nitrogen amount by converting nitrogen into ammonia by first adding ammonium sulphate and then adding alkali (sodium hydroxide) with the Kjeldahl method, which is found as a result of burning the ground leaves with concentrated H_2SO_4, and titrating with 0.1 N HCl. The values found were calculated as CP, N×6.25. (AOAC, 1990). ADF and NDF content of the collected samples were determined by the method of (Van Soest et al., 1991). Record information was obtained from a total of 120 animals, 30-31 lambs (Female (F)/Male (M) ratio is given in the Table 2) from each region, grazing in the pastures in the Tek Tek Mountains of Şanlıurfa region in March, April, May and June and giving birth in the same period. In line with the data obtained in the study, the live weights of the lambs at the beginning of the pasture and at the end of the pasture were recorded. A weighing machine with a sensitivity of 50 g was used for live weight weighing. The animals were not subjected to additional feeding and were fed entirely based on pasture.

Effects on the growth characteristics of the environment are determined using the Least Squares method and GLM procedure. Growth traits were adjusted for the fixed effects of herd, sex, and maternal age. The model for adjusting for growth changes is as given in Equation 1:

$$Y_{ijkl} = \mu + F_i + MA_j + S_k + e_{ijkl} \quad (1)$$

Here Y=observed values of traits, μ=general mean, F=effect of herd (1, 2, 3, 4), MA=effect of dam age (2, 3, and 4) and S = effect of gender of lambs (male or female) was included in the model as a covariate for the other two characteristics and e = random error N (0,σ) run with each observation. Analyzes were carried out using the SPSS 9.0 package program. The means of the groups were compared using the Duncan multiple comparison test.

3. Results and Discussion

In the pasture1 region given in Table 2, DM, NDF and ADF levels increased significantly (P<0.01) while CP levels decreased significantly (P<0.01) according to the periods. Two separate groups emerged between March-April and May-June, and CA levels between the groups were found to be significant (P<0.01). On the other hand, statistical differences between periods in EE levels were found to be insignificant. The results of the study conducted by Aydogan et al. (2014) when we analyzed the results of our study, it was seen that they were parallel to the results of our study and accordingly, as the plant matured towards the last forms decreased protein value, dry matter, the amount of cellulose, NDF and ADF amounts were found to increase were found. It is thought that the changes in nutritional value are due to the change in harvest time.

Nutrient content varied depending on vegetation. When the samples taken from Pasture2 were evaluated, DM, NDF and ADF levels increased significantly (P<0.01) according to the periods, while CP levels were similar in March and April, these two months were found to be significantly higher than the other months (P<0.01). In CA levels, April was similar to March and May, while the difference in June was found to be significant (P<0.05), while in EE levels, the difference between the periods was found to be insignificant. Erkovan et al. (2009) showed similarity in their study, and while CP decreased according to vegetation, ADF and NDF levels increased, showing similarity. In Pasture3 region, DM, NDF and ADF levels increased significantly (P<0.01) while CP levels decreased significantly (P<0.01) according to the periods. CA levels were found to be significantly higher in June than other months (P<0.01), while other months were similar. On the other hand, the difference in CF levels between periods was due to chance. Tuna et al. (2013) found that ADF and NDF rates were similar while HP rates were high in their study. Aydoğan et al. (2014) observed that the CA ratio was low in their study and our study, and it is in line with other nutrient contents. The nutrient content changed depending on the vegetation. In the pasture4 region, NDF levels increased significantly (P<0.01) according to the periods, while CP levels decreased significantly (P<0.01). DM levels were similar in April and May, the highest DM level was found in June and the lowest in March, and the difference was found to be significant. CA levels were similar in May to June and April, and the lowest CA level was found in March. ADF levels were found to be similar in May and June and these two months were significantly higher than other months (P<0.01). On the other hand, the difference in EE levels between the periods was not found to be significant.

In the study, in Table 3, it was determined that the difference in DM levels of the averages of four different pasture regions for the periods of March, April, May and June was insignificant in all months. The DM rate obtained from our study is lower than Aydoğan et al. (2014), and is in agreement with Işık and Kaya (2011). In our study, the general averages of the CA level contents of four different pasture regions in the periods of March, April, May and June were calculated. It was determined that the differences in the CA levels of the averages of four different pasture regions in the periods of March, April, May and June was insignificant in all months. In our study in terms of CA content, it was observed that the CA rate was similar to Arslan and Tufan (2011) and higher than Canbolat and Karaman (2009). The general averages of the CP level contents of four different pasture regions for the periods of March, April, May and June, the difference in CP levels was found to be significant (P<0.05) in March for pasture1 and pasture2, while pasture3 and pasture4 were similar among themselves, while pasture1 and pasture2 were close to CP levels.

Table 3. Changes in nutrient content of pastures in different periods (%DM)

	Periods	Pastures				P	Mean
		1	2	3	4		
DM	March	24.7±1.0	25.7±1.1	25.4±0.8	24.3±1.1	ns	25.0
	April	31.8±0.4	30.6±0.5	31.1±1.0	31.7±0.7	ns	31.3
	May	35.8±0.9	36.1±0.8	33.4±0.4	33.6±0.8	ns	34.7
	June	41.2±0.7	43.3±0.6	42.9±0.9	42.1±0.6	ns	42.3
CA	March	7.88±0.25	7.64±0.32	8.25±0.24	8.42±0.31	ns	8.04
	April	8.12±0.52	8.52±0.46	8.12±0.26	8.28±0.57	ns	8.26
	May	9.30±0.34	8.80±0.25	8.80±0.17	9.10±0.08	ns	9.00
	June	9.96±0.29	10.34±0.27	10.48±0.33	10.02±0.26	ns	10.02
CP	March	14.85±0.28^{a}	13.88±0.36^{b}	14.25±0.49^{ab}	14.32±0.40^{ab}	*	14.33
	April	12.97±0.23	13.14±0.28	12.95±0.33	13.06±0.36	ns	13.03
	May	9.84±0.26	9.82±0.21	10.28±0.22	9.84±0.26	ns	9.95
	June	7.89±0.25	7.82±0.40	7.72±0.15	8.08±0.24	ns	7.88
EE	March	2.46±0.15	2.39±0.10	2.45±0.12	2.45±0.08	ns	2.43
	April	2.44±0.17	2.28±0.08	2.44±0.12	2.33±0.15	ns	2.38
	May	2.36±0.09	2.40±0.10	2.50±0.14	2.44±0.15	ns	2.43
	June	2.61±0.17^{a}	2.28±0.09^{b}	2.64±0.14^{a}	2.58±0.16^{a}	*	2.53
NDF	March	35.23±0.40	34.11±0.80	33.34±0.95	34.17±0.98	ns	33.46
	April	40.98±0.68	40.39±0.37	40.80±0.71	40.94±0.55	ns	40.78
	May	52.25±0.78	53.08±0.59	53.22±0.67	52.87±0.67	ns	52.86
	June	59.22±0.27	60.88±1.24	60.61±1.11	60.62±0.83	ns	60.33
ADF	March	29.61±0.39	28.66±0.72	29.55±0.59	29.51±0.63	ns	29.33
	April	34.14±0.60	34.21±0.59	34.43±0.34	34.23±0.76	ns	34.25
	May	37.28±0.74	37.15±0.52	37.96±0.72	38.24±0.51	ns	37.66
	June	41.11±1.06^{ab}	41.97±1.04^{a}	41.05±1.35^{ab}	39.54±0.40^{b}	*	40.92

^{a,b}= the difference between groups in the same column is statistically significant, **P<0.01 ns= no significant, DM= dry matter (%), CA= drude ash (% of DM), CP= drude protein (% of DM, EE= ether extract (% of DM), NDF= neutral detergent fiber (% of DM), ADF= acid detergent fiber (% of DM).

In terms of CP content, the CP level in our study is lower than the values found by Arslan (2008) and Canbolat and Karaman (2009), and the values found by Marinas and Gonzalez (2006) and Karabulut et al. (2006) was found to be lower than their study, while Aschalew et al. (2006) was observed to be higher.

By calculating the general averages of the contents of the EE level, it was determined that the difference in the EE level of the averages of four different pasture regions belonging to the periods of March, April, May and June was insignificant in March, April and May. In June, while pasture1, pasture3 and pasture4 were similar, they were higher than pasture2 in EE level and the statistical differences were found to be significant (P<0.05). By calculating the general averages of the contents of the EE levels, it was determined that the difference in the EE level of the averages of four different pasture regions belonging to the periods of March, April, May and June was insignificant in March, April and May. In June, while pasture1, pasture3 and pasture4 were similar, they were higher than pasture2 in EE level and the statistical differences were found to be significant (P<0.05). In our study in terms of NDF content, it was observed that NDF rates were in accordance with the studies of Tuna et al. (2013), Arslan and Tufan (2011) and Martinson et al. (2011). By calculating the general averages of the ADF level contents, it was determined that the differences in ADF levels of the averages of four different pasture regions belonging to the periods of March, April, May and June was insignificant in March, April and May. In June, pasture2 and pasture4 ADF levels were found to be significant (P<0.05) between two pastures, while it was determined that both pastures were similar to other pastures. In our study in terms of NDF content, it was observed that NDF rates were in accordance with the studies of Tuna et al. (2013), Arslan and Tufan (2011) and Martinson et al. (2011). By calculating the general averages of the ADF level contents, it was determined that the differences in ADF levels of the averages of four different pasture regions belonging to the periods of March, April, May and June was insignificant in March, April and May. In June, pasture2 and pasture4 ADF levels were found to be significant (P<0.05) between two pastures, while it was determined that both pastures were similar to other pastures. It was determined that the DM levels increased linearly in the periods of March, April, May and June (R^2>0.98). Karslı et al., (2003) found that the DM levels were lower in our study than their study. While the DM rate decreased, it increased in our study. Karslı et al., (2003). In their study, it is seen that the CA ratios did not change, but it increased in our study. It is seen that the CP, ADF and NDF levels are similar to our study. Kaya et al., (2004) in their study, it is seen that the CP ratio is high and the CF ratio is low

compared to our study, while it is in harmony with the DM and NDF levels. Avcı et al. (2006), the results of their study are in harmony with our study in terms of DM, NDF, ADF and CP, while the EE ratio decreased, it did not change in our study. Arslan and Tufan (2011) in their study, it is seen that the CA, ADF, NDF and CP levels are in harmony with our study, while the EE level is higher than our study. In their study, Worrell et al. (1990) found that DM and NDF levels were higher than our study, while ADF levels were similar. In their study, Aschalew et al. (2006) found that CA levels were consistent with our study, CP levels were low, and ADF and NDF levels were high.

In this study, Kaya and Işık (2011) investigated the effect of the quality of change in the nutrient content of the pasture during the grazing period (22 May-09 October) of Tuj sheeps and lambs raised in Kars province on the fattening performance. In the weightings, an average live weight gain of 164.9 g/day and 181.6 g/day was observed in female and male lambs of Tuj sheeps and lambs during the grazing season, reaching 23.10 and 25.47 kg, respectively (P>0.05). In Tuj broodstock sheep, an average live weight gain of 35 g/day was achieved, with a live weight gain of approximately 4.9 kg. In our study, it was observed that Awassi lambs gained less than Tuj lambs. Kaya et al. (2004) investigated the effects of grazing and concentrate feed addition during the pasture green period and the nutrient content of pasture plants on the body weight gain (BWG) increase, rumen pH, total volatile fatty acids (VFA) and ammonia nitrogen (NH3-N) values in Morkaraman and Tuj breed lambs. No significant effect of grazing and concentrate feed addition on BWG was found between breeds. During the total trial period (70 days), the group grazed on pasture gained 14.52 kg, the group supported with the addition of concentrated feed gained 17.40 kg BW, and the difference between the feeding groups in terms of BWG was found to be significant (P<0.05).

When Table 4 was examined, it was determined that the dry matter (DM) content of the pasture grazed depending on the vegetation was 23.08-45.34%, the CP ratios were 6.72-17.18%, and the EE ratios were 23.78-36.45. As a result of our study, BWG is similar to the group grazed in pasture in terms of BWG averages. In the study conducted by Özkan (2009), the current structure of sheep breeding in Viranşehir district and its villages was investigated. In the study, a total of 184 Akkaraman sheeps, including 174 sheeps and 10 rams, were observed from 4 villages. In this study, where birth weights were observed, the average lamb weight was 3.32 kg, 90-day weaning average weight was 26.5 kg and the average daily BWG in the 0-90 day period was 294.4 grams. By determining these characteristics, it was determined that the effect of gender and birth type was important. As a result, it was determined that the maintenance and feeding conditions in the in-house breeding were effective in the yields obtained from Akkaraman sheep. In this study, it was observed that gender did not have much effect on live weight gain. In the study conducted by Çalışkan (2019), the values of birth weight (BW), weaning weight (WW) and daily live weight gain (DLWG) in the examined Awassi sheeps were found to be 3.879±0.0139, 20.648±0.0824, kg 186.297±0.9298 g, respectively. The coefficients of variation were determined as 21.88%, 23.81 and 29.80, respectively. In Awassi herds, the survival rate was determined as 95%. In our study, since the daily feeding was based only on pasture, the body weight gain was less than in the study conducted by Çalışkan (2019). In their study, Gül and Ekici (2020) investigated the effects of weaning at different ages in Awassi sheeps on the developmental characteristics of lambs and milk production in dams. The animal material of the study consisted of Awassi sheeps and lambs in a private farm in Kilis province. The lambs born were divided into 3 groups of 35 lambs each, taking into account their gender. The lambs in the first group were weaned on the 60th day (Group I), the lambs in the second group were weaned on the 75th day (Group II), and the lambs in the third group were weaned in the traditional time (90th day) (Group III). At the end of the study, the mean birth weights were determined as 3.4 ± 0.09 kg, 3.6 ± 0.08 kg, 3.4 ± 0.09 kg in Group I, and it was determined that weaning at an early age (60 days) had a significant effect on the development of the lambs when compared to the traditional method (90 days) (P<0.05).

Table 4. Descriptive statistics of total live weight at the beginning of the pasture and at the end of the pasture

			Live weight at the beginning of the pasture			Live weight at the end of the pasture			Total live weight gain			
Herd	Gender	N	Mean	Std Dev	CV%	Mean	Std Dev	CV%	Mean	Std Dev	CV%	DLWG
Pasture 1	female	18	14.430	0.4657	13.69	30.158	0.588	8.267	15.728	0.4352	11.740	131.07
	male	12	13.571	0.6962	17.77	30.080	0.948	10.914	16.508	0.4697	9.858	137.57
Pasture2	female	15	17.787	0.6737	14.66	32.534	0.778	9.247	14.747	0.4364	11.462	122.89
	male	15	16.383	0.9005	21.28	31.190	1.002	12.446	14.807	0.5827	15.242	123.39
Pasture 3	female	15	10.210	0.6179	23.44	25.871	0.807	12.081	15.660	0.4955	12.257	130.5
	male	15	15.197	0.6599	16.81	30.224	10.302	13.201	15.027	0.5947	15.330	125.23
Pasture 4	female	15	12.143	10.447	33.31	28.377	1.317	17.969	16.233	0.6340	15.128	135.28
	male	16	12.163	0.9676	31.82	26.539	1.036	15.615	14.375	0.3708	10.320	119.79

Number of samples (N), mean, standard deviation, and coefficient of variation (CV), daily live weight gain (DLWG).

However, it should also be taken into account that weaning at an early age and raising lambs on quality pastures will increase the profitability of the enterprise. In our study, it was detected that the effect of pasture is greater. Descriptive statistics of live weight at the beginning of pasture, live weight at the end of pasture and total live weight gain are given in Table 4. While the highest live weight gain was observed in male lambs in pasture 3, the highest live weight gain in pasture 4 was detected in female lambs.

4. Conclusion

In ruminant nutrition; a more efficient feeding in terms of animal physiology and economy is possible with the quality of the roughage used. According to the studies, it is known that there are significant differences between the distribution of pasture and meadow areas in different regions and the quality and quantity of grass yield in these regions. The quality of pasture grass varies depending on the vegetation period, growth conditions, climatic factors, botanical composition, irrigation and fertilization, vegetation period and geographical structure. Therefore, research on the nutrient content of pastures in sheep breeding regions in Şanlıurfa region is limited. For this purpose, scientific studies on determining the nutrient content of pastures in the region should be increased. It has been observed that pastures in Şanlıurfa Tek Tek Mountains meet the nutrient needs of lambs to a significant extent during the periods when the grass is green between March 1 and June 30, and it is seen that there is a positive increase due to the fact that pasture-based breeding is more economical than livestock farming and that there is less labor. This live weight increase is provided, and it will allow breeders to increase live weight gain with additional feeding. The importance of supporting the Awassi sheep, which are highly adaptable to regional conditions, within the scope of the breeding project in the hands of the public is great. The Awassi breed, known as yellow gold in this region, makes very good use of the pasture capacity due to its characteristics. The protection and increase of this animal stock is of great importance in terms of further developing and advancing the regional animal husbandry.

Author Contributions

The percentages of the authors' contributions are presented below. All authors reviewed and approved the final version of the manuscript.

	F.T.	A.B.K.
C	50	50
D	100	
S	100	
DCP		100
DAI	100	
L	50	50
W	50	50
CR	50	50
SR	100	
PM	80	20

C=Concept, D= design, S= supervision, DCP= data collection and/or processing, DAI= data analysis and/or interpretation, L= literature search, W= writing, CR= critical review, SR= submission and revision, PM= project management.

Conflict of Interest

The authors declared that there is no conflict of interest.

Ethical Consideration

Since this study does not involve animals or humans, ethics committee approval is not required. Within the scope of the "Small Ruminant Breeding Project in Public Hands" carried out by the General Directorate of the Ministry of Agriculture and Forestry (TAGEM), the live weight data of 120 lambs were officially recorded in 2020. A permit document for the data used in the study has been submitted.

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