Tikrit Journal of Veterinary Sciences (2024) 1(2): 90-100

IRAQI Academic Scientific Journals

TJVS Tikrit Journal of Veterinary Sciences

Tikrit Journal of Veterinary Science

Correlation and regression analysis of body weight, wool and blood traits for Awassi and Naimy and their crosses

Bashar Adham Ahmed[1] Mustafa Taher Badr[2]

[2،1] Department of Animal Production - College of Agriculture - University of Diyala - Iraq

ARTICLE INFO.

Article history:

-Received:

-Accepted:

-Available online:

Keywords:

Awassi sheep, raw fleece weight, regression, correlation

Corresponding Author:

Name:

Bashar adham ahmed

E-mail:

basharadham@uodiyala.edu.iq

Tel:

ABSTRACT

This study was conducted at Khairat Al-Ittihad station in Al-Shumali district / Babil Governorate from period 7/20/2023 until 4/1/2024, to study birth weights and wool traits of ewes in local sheep by (20) Awassi and (20) Naimiya, in addition to (20) Awassi crossir Naimi. The study aimed to compare three breeds of local sheep for the traits of the dams weight at birth, the weight of the newborn, the body weight, and body dimensions, in addition to studying the traits of the wool, the weight of the raw and clean fleece, the length of the tuft, the length of the fiber, the number of folds, and the softness fiber. , tensile strength, elongation, fiber diameter and oil ratio , with a study of blood compound represented by total protein, glucose, cholesterol, glucose, triglycerides and Creatine , as well as a study of correlation and regression for the studied traits. A highly positive correlation was found between the clean fleece weight and each of the after weight, 0.922, the rumps height, 0.603, and the forefoot height, 0.679, while a highly significant, negative correlation was found between the clean fleece weight and each of the chest circumference,- 0.389 and the abdominal circumference, 0.599 - and the body mass index, 0.600 - and a positive significant correlation with... Body length 0.318. There is also a highly significant, positive correlation between hair length and chest circumference, 0.312, and a highly significant, negative correlation between fiber length and postpartum weight, 0.381 - and significant with chest circumference, 0.255. As for the correlation between body length and total protein, it was highly significant, positive, 0.538, significant with triglycerides, 0.262, and a negative significant correlation. Between the height and the triglycerides is -0.293. The study showed that there was a significant regression for body weight on body length by 0.227 kg/cm, and a highly significant regression for body weight on Body height by 0.574 kg, chest circumference 0.574 kg/cm, front height 0.225 kg/cm, and abdominal circumference 0.697. kg/cm. There was a highly significant regression of the clean fleece weight on both the raw fleece weight of 1.089 kg and the tensile strength of 0.181. There was a significant regression in the weight of clean fleece on triglycerides by 6.629. We note from the coefficient of determination that it ranges between the highest value of 0.800 in raw weight and the lowest value of 0.010 in Creatinene .

Introduction

Breeding and improvement programs are among the most important requirements for breeders by developing plans to obtain good results through studying and evaluating the production of sheep with distinctive specifications, which helps save time and effort through valuable actual study according to fixed standards in order to obtain sheep with economic traits and great endurance capacity to face Difficult environmental conditions (1). There are genetic relationships between the variance traits in local sheep, and these traits are linked to each trait, especially wool, either (negative correlation) or (positive correlation), where the genetic equivalent of these economic traits is known, and then the desirable or important traits in increasing production are selected and the impact of each of the environment is identified. And genetics contribute to the productive and phenotypic performance of ewes (2). Phenotypic correlation refers to the change in the phenotypic values of two traits, which results from variations caused by genetic and environmental factors. Studies have indicated that there is a phenotypic and genetic correlation between traits, as (3) showed in his study on Awassi sheep that the correlation was simple and positive between fleece weight and the ratio of clean wool in addition to the number of folds and fiber length, and that the correlation was negative with the ratio of tuft to fiber and was It is highly positive for the weight of the clean fleece and the length of the fiber and the tuft, and negative for the ratio of the fiber to the tuft. (4) found in the study he conducted on Turkish Awassi sheep that the phenotypic and genetic correlations between wool traits and clean fleece weight with body measurements for the trait of clean fleece weight and their correlation with body length, chest circumference and height at the front were positive and highly significant and genetically reached 0.79 and 0.61. And 0.43, and in appearance they are 0.84, 0.96, and 0.43, respectively. The regression coefficient plays an important role in raising sheep and thus improving them, as it serves as a quantitative measure to measure the relationship between maternal age and weight to measure birth weights. The regression coefficient provides valuable insights into the effect of maternal age, development, and health. General sheep flocks. Many studies have indicated regression in traits, as (4) showed that the regression coefficient for the weight of raw fleece on the weight carried at shearing was 0.027 kg and was highly significant, while (5) found that the regression coefficient for the ratio of clean wool to the weight of raw fleece was Negative (-26.38%), when the weight of the raw fleece increases, it leads to a decrease in the weight of the clean wool, while it was indicated that the slope of the length of the strand and the weight of the clean fleece (1.13 cm / kg) and the raw (-0.01 cm / kg), as the length of the strand increases, the weight of the raw fleece decreases and increases. Clean wool. (6) confirmed in their study on Awassi sheep at the Technical College in Al-Musayyib that there was no significant regression in birth weight on the total level of protein, and the regression was negative, reaching - 0.016 kg/L.

The aim of the study is to the correlation between the traits of weight, wool, and blood, and study of multiple regression of the traits of body weight and weight of clean fleece with the traits studied.

Materials and methods

The study was carried out at Khairat Al-Ittihad station in Al-Shumali district in Babil Governorate for the period from 7/20/2023 at from 4/1/2024, for study birth weights, the weight of ewes, body dimensions, and wool traits of ewes in local sheep (20) Awasi and (20) Nuaimiya, in addition to (20) Awassi crossing Naimi.

The weight of the lambs was measured at birth 12 hours after their birth. The measurement was done using a special, accurate scale to measure birth weights. The dams were weighed at birth using a scale with a capacity of 120 kg. The dams body dimensions and body weight were measured according to the method (7).

The shearing process was carried out in April to May using electric shearing machines, where 60 sample wool were taken from the experimental animals from the area of the right side of the last ribs on the abdomen, with an area of 15 * 15 cm, and they were placed in a special bag on which the animal's number and sex were recorded, and then naphthalene was added to preserve The wool sample until analysis begins according to (8).

A sample of the wool was taken, weighed on a sensitive scale, then washed with warm water

at 55°C containing a non-ionic detergent for 5 minutes to remove dust and dirt, in addition to stirring and squeezing, then washed with water to remove traces of the detergent and left for 24 hours to dry, then washed with regular alcohol for a period of time. 5 minutes to dissolve the fatty materials and leave it to dry for 24 hours again. The sample is then weighed to calculate the clean weight of the sample, after which the ratio of clean wool and the weight of the clean fleece are estimated according to the following equations:

$$\text{Ratio of clean wool} = \frac{\text{Clean sample weight}}{\text{Raw sample weight}} \times 100$$

Clean fleece weight = ratio of clean wool x raw fleece weight (1) and (9).

The length of the fiber in the wool was measured, for each fiber separately, using a smooth wooden board to fix it at a rate of (25 fibers/skein), and using the included ruler to measure in centimeters after stretching the fibers to obtain the actual length of the fiber. This method was used to calculate the general average and based on previous research as stated in (10).

The length of the strand was measured using a regular ruler, provided that it was not pulled or pulled from the base of the strand to the average of the pyramid forming the top, according to (11). The measurement was taken manually, also using a ruler, for 5 random fibers belonging to several strands of the sample after Fix it at both ends with special clamps to make it tight and straight to adjust its true length.

The diameter of the wool fiber was measured using the Fineness Meter (12). The working mechanism of this device is based on the principle of constant air pressure, through the resistance of the fiber to the air current based on the surface area of the wool fibers of the wool sample.

To measure the number of folds or wrinkles in the fiber, the number of folds per wool fiber was collected (25 fibers/skein) using a velvet plate and a special graduated ruler to calculate the number of folds per centimeter. This method was used to extract the general average and was based on previous research as stated in (13).

The process of extracting the ratio of oil in unwashed wool is not carried out. A sample of 1 gram of wool was taken for each sample and then placed in a fat estimation device by adding ethyl alcohol and running the device for 5 hours to extract the ratio of oil, as alcohol is considered a good solvent for wool oil. Then extract the fat ratio according to the following equation:

$$\text{Oil Ratio} = \frac{\text{Weight of lost fat}}{\text{Weigh the sample before extraction}} \times 100$$

The data was statistically analyzed using the statistical program SAS (Statistical Analysis System) (14) to study effect on the weights, body dimensions, and wool and blood traits of the ewes.

Multiple linear regression model

$$Y=b_0+b_1x_1+b_2x_2+e$$

Y is the dependent variable

x1 Independent variable 1 (body weight)

x2 Independent variable 2 (weight of clean fleece)

a The constant term or parameter of the intersection of the regression line with the y-axis

b1 is the slope parameter for the first factor (body weight)

b2 The slope parameter for the second factor (clean fleece weight)

e Random error, which is the difference between the true value Y and the estimated value Ŷ

$$a= \bar{Y} -(x_1 * b_1)- (x_2* b_2)$$

Results and Discussion

Table 1: There is a highly significant correlation between the weight of the clean fleece and the weight birth, 0.922, and a significant correlation with body length, 0.318, buttocks height, sigm 0.603, chest circumference, 0.389, forefoot height, 0.679, abdominal circumference, 0.599, and body mass index, 0.600. This was in agreement with the results of (4) and (15).) who found a correlation between the weight of clean fleece and body measurements, which was positive and highly significant and reached 0.79, 0.61, and 0.43, and he disagreed with (16) and (5).

For the length of the tuft, there is a highly significant correlation with the chest circumference of 0.312, and this agrees with what was found by (17) in a study on Australian Merino sheep, and also with the study of (18), where it was found that there is a highly significant positive correlation, while this result differed with (5).) with their study on the Karadi dynasty. There was a highly significant correlation between the length of

the fiber and weight after birth, -0.381, and a significant correlation between the length of the fiber and the chest circumference. This result is consistent with what was found in (5) and disagreed with (19). As for the quality of the softness of the fiber, the correlation was highly significant with the chest circumference, 0.478, and evidence of mass. Body size was 0.392 and abdominal circumference was 0.354. These results were in agreement with the study of (20) when they studied the correlation on Merino sheep in Uruguay, in addition to what (18) found, where there was a positive significant correlation, and differed from what (21) found in their study. On Australian Merino sheep. As for the tensile strength characteristic, the correlation was significant with the chest circumference of 0.309, and this result agreed with what (21) indicated in their study on the Merino strain.

There is a highly significant correlation between elongation and chest circumference of 0.342, a significant correlation between elongation and abdominal circumference of 0.375, and there was a highly significant correlation between fiber diameter and abdominal circumference of 0.410. This is consistent with what was found by (22) in his study of Awassi and Hamdani sheep, and disagreed with what was found by (18). . There is a highly significant correlation of oil ratio with postpartum weight, 0.704, buttocks height, 0.499, chest circumference, 0.490, abdominal circumference, 0.551 - and body mass index, 0.517 - and this is in agreement with the findings of (18).

Table (1) Correlation between body weight and dimensions and wool traits

Mean	dam weight at birth	Born weight	body weight	Body length	Body height	Chest circumference	Front height	Abdominal circumference	Body mass index
Raw fleece weight kg	0.063	-0.203	0.065	0.217	-0.149	0.124	-0.193	0.159	0.218
Weight of clean fleece kg	0.013	**0.922	0.163	*0.318	**0.603	-0.389 **	**0.679	-0.599 **	-0.600 **
Strand length cm	0.060	-0.201	0.153	0.070	0.142	*0.312 *	-0.017	0.204	0.232
fiber length cm	0.058-	-0.381 **	-0.001	0.060	-0.184	*0.255	-0.248	0.261	0.260
Number of folds	0.034	0.041	-0.211	-0.123	0.085	-0.132	-0.024	-0.128	-0.211
The softness of the fiber	-0.161	-0.151	0.392	0.211	0.236	*0.478 *	0.133	*0.354	0.392 **
tensile strength	0.024	0.017	0.207	0.186	0.210	*0.309	0.066	0.227	0.207
Elongation	0.055	0.151	0.286	0.245	0.327	*0.342	0.211	**0.375	0.286
fiber diameter	0.022	0.141	0.283	0.120	0.051	0.325	0.275	**0.410	0.283
Oil ratio	0.177	**0.704	0.014	0.085	**0.499	-0.490 **	0.482	-0.551 **	-0.571 **

Averages with different letters within one columnar differ significant from each other *($p< 0.05$) non-significant

Table 2 of the correlation between body dimensional traits and blood traits

shows that there is a highly significant correlation between maternal weight and total protein (0.698) and cholesterol (-0.501), as well as a highly significant correlation with triglycerides (0.963). This was in agreement with what (23) found in their study on wool growth and its relationship with... Some blood components of Iraqi sheep.

As for body weight, the highly significant correlation with total protein was 0.256, and the significant correlation with triglycerides was 0.381, which is in agreement with what was found by (3) in their study on the effect of arginine on some hematological and biochemical traits of Awassi ewes, where the results were significant, attributing the reason to high cholesterol. It leads to an increase in progesterone, since cholesterol is considered the main substance in the manufacture of steroids.

Body length, the study showed that there is a highly significant correlation between it and total protein (0.538) and a significant correlation with triglycerides (0.262). The results of the study showed that the height of the buttocks had a significant correlation with triglycerides (-0.293), and chest circumference had a highly significant correlation (0.568), cholesterol (0.459) and triglycerides (0.605). Foreground height, there was a highly significant correlation with total protein 0.288 - cholesterol 0.327 - and with triglycerides 0.424 - it was a significant correlation, and the correlation of abdominal circumference was highly significant with total protein 0.360 - cholesterol 0.356 and triglycerides 0.487 - and in the end the correlation was highly significant for the trait. Body mass index with total protein 0.672, cholesterol 0.453, and triglycerides 0.676.

Table (2) Correlation between body dimensional and blood traits

Mean	Total protein	Clucose	cholestrol	Triglycerides	Creatine
dam weight at birth	**0.698	-0.145	**-0.501	**0.963	0.176
Born weight	0.178	-0.042	-0.002	0.061	0.056
body weight	*0.256	-0.215	0.024	**0.381	0.085
Body length	**0.538	-0.147	-0.327	*0.262	-0.033
Body height	-0.258	0.009	0.241	*-0.293	-0.196
Chest circumference	**0.568	-0.096	**-0.459	**0.605	0.051
Front height	*-0.288	0.024	**0.327	**-0.424	0.005
Abdominal circumference	**-0.360	0.061	**0.356	**-0.487	0.035
Body mass index	**0.672	-0.156	**-0.453	**0.676	-0.165

Averages with different letters within one columnar differ significant from each other *($p< 0.05$) n.e non-significant

Table 3 shows the correlation between wool traits and blood traits, showing that there is no significant effect regarding the weight of the raw and clean fleece, the length of the tuft, and the length of the fiber. As for the number of folds, there was a significant correlation with total protein, 0.260 - and there was a significant correlation for fiber fineness with cholesterol, 0.330 - and this was in agreement with what (20) found in his study on Merino sheep in Uruguay. The fiber diameter has a highly significant correlation with total protein, 0.558 - a significant correlation with triglycerides, 0.350. This is in agreement with what (23) found in their study on wool growth and its relationship with some blood components of Iraqi sheep, as the results showed that there was a significant correlation with total protein, amounting to 0.19.

The highly significant correlation of oil ratio with total protein was 0.593 and triglycerides was -0.378, and the significant correlation with glucose was 0.313. This was in agreement with (8) in their study on the use of multiple types of blood types in choosing the breeding of Kazakh wool sheep in terms

of wool clipping. The net value exceeded 0.30, 0.21, and 0.31, and the correlation was significant at (P<0.05).

The negative and highly significant or non-significant relationships and the positive and significant relationships that were recorded indicate the existence of an optimal ratio of protein to absorbed energy that sheep need in order to lead to increased wool growth (24).

Table (3) Correlation between wool traits and blood composion

Mean / S E	Total protein	Glucose	cholesterol	Triglycerides	Creatine
Raw fleece weight (kg)	-0.110	0.099	0.027	0.242	-0.040
Weight of clean fleece (kg)	-0.030	0.032	-0.033	0.249	0.031
Strand length(cm)	-0.063	-0.069	0.038	0.125	-0.170
fiber length(cm)	-0.104	0.004	-0.049	-0.031	-0.080
Number of folds(cm)	*-0.260	0.042	0.026	0.102	0.080
The softness of the fiber(dtex)	0.036	0.020	*-0.330	0.082	-0.103
tensile strength (gm/dtex)	-0.111	0.021	-0.119	0.209	-0.002
Elongation (%)	-0.068	-0.039	-0.147	0.066	-0.044
fiber diameter (micron)	**-0.558	-0.248	0.262	*0.350	-0.225
Oil ratio (%)	**0.593	*0.313	0.214	**-0.378	0.041

Averages with different letters within one columnar differ significant from each other *(p< 0.05) n.e non-significant

Table (4): Means and standard deviation, lowest and highest value of the studied traits

	Means	standard deviation	lowest value	highest value
dam weight at birth	50.41	8.50	36.20	74.00
Born weight	4.35	0.66	3.00	6.00
body weight	56.55	8.04	37.00	80.00
Body length	66.45	4.39	59.00	78.00
Body height	77.05	3.95	66.00	86.00
Chest circumference	101.86	7.66	80.00	125.00
Front height	77.98	3.54	71.00	86.00
Abdominal circumference	103.11	8.31	82.00	125.00
Body mass index	56.55	8.04	37.00	80.00
Raw fleece weight	2.10	0.47	1.10	3.05
Weight of clean fleece	1.44	0.39	0.76	2.31
Strand length	7.90	1.35	3.60	11.00
fiber length	9.33	2.87	5.00	17.10
Number of folds	1.69	0.64	0.60	3.30
The softness of the fiber	21.25	3.79	11.20	28.77

tensile strength	1.20	0.22	0.71	1.67
Elongation	43.76	10.31	21.00	64.50
fiber diameter	35.74	3.91	25.20	44.80
Oil ratio	3.35	0.71	1.79	5.14
Total protein	6.54	0.52	5.40	7.60
Glucose	31.31	7.18	18.00	56.00
cholesterol	62.54	17.12	28.00	97.00
Triglycerides	41.17	9.64	25.00	69.00
Creatine	0.89	0.129	0.10	1.00

Table 5: We note that body weight and clean fleece weight depend significantly on it, leading to an increase in body dimensions, as an increase in body weight leads to an increase in body length by 0.227 cm/kg. This was consistent with what (22) found, and the regression was with regard to body length. It was positive and amounted to 0.498 cm/kg and also agreed with what was indicated by (25) that weight gain led to an increase in body length amounting to 0.16 cm/kg. This was in contrast to what was found by (5) where there was no significant effect. Increasing body weight leads to an increase in the height of the buttocks by 0.20 cm/kg, and increasing body weight increases the chest circumference by 0.574 cm/kg. This was in agreement with what was found by (22), so the regression was positive and significant and amounted to 0.887 cm/kg and what was found by (26) found that weight gain led to an increase in chest circumference of 0.17 cm/kg, in addition to weight gain leading to an increase in front height by 0.225 cm/kg. This was in agreement with the study of (22) who found that the slope was positive for The height of the front was 0.729 cm/kg, and what (26) found was that weight gain led to an increase in the height of the front, amounting to 0.31 cm/kg, and an increase in abdominal circumference, which was 0.697 cm. This was consistent with what (9) and (26) found that weight gain led to an increase in abdominal circumference of 0.26 cm/kg. Contrary to what was found by (25), the regression rate was negative for weight gain and weaning weight for Awassi sheep, with a coefficient of determination of 0.49, and the increase in body weight led to an increase in the mass index by 1. kg.

The coefficient of determination ranges between the highest value of 1 in the body mass index and the lowest value in the height of the buttocks, 0.140. From the coefficient of determination, we find that the variances resulting from the planned relationship to the regression coefficient of the studied traits are low, and the variances resulting from random factors are high.

Table (5) Multiple regression of body weight and clean fleece weight in body dimensions

traits dependent) (variable	Significance of the first regression coefficient P-value(b1)	Significance of the second regression coefficient P-value(b2)	Expectation equation	Factor of determina (R^2) tion
Body length	0.04	0.153	Y=50.71+0.227 X1 +2.04 X2	0.201
Body height	0.005	0.533	Y= 66.77+0.20 X1 +0.826 X2	0.140
Chest circumference	0.001	0.962	Y= 69.29+0.574 X1+ 0.099 X2	0.345
Front height	0.001	0.368	Y= 66.80+0.225 X1 -0.995 X2	0.225
Abdominal circumference	0.001	0.715	Y= 64.79+0.697 X1 -0.767 X2	0.435
Body mass index	0	0	Y= 0.00+1 X1 +0.0 X2	1

Table 6: Depending on the weight of the body and the weight of the clean fleece significantly leads to an increase in the traits of wool, as the increase in the body weight and the

weight of the clean fleece leads to an increase in the weight of the raw fleece by 1.089 kg/kg and also leads to an increase in the length of the tuft by 0.042 cm. This is different from what was found in (5), where the slope was - 0.01 and 1.13, respectively, as he showed that increasing the length of the tuft reduces the weight of the raw wool.

An increase in body weight leads to an increase in the length of the fiber by 0.042 and reduces the weight of the clean fleece by - 0.779, as (5) found that there was a highly significant regression in the length of the fiber of 0.86 with a coefficient of determination of 0.79, while the study indicated that increasing the body weight and the weight of the clean fleece led to To reduce the number of folds, the amounts were - 0.081 and -0.298, respectively. Increasing body weight leads to an increase in softness by 0.088 cm/kg, and the weight of clean fleece reduces softness by 1.132, as (5) found that the slope was positive and highly significant, 0.86. A coefficient of determination of 0.53 was the body weight and the weight of the clean fleece on the tensile strength, which led to an increase of 0.003 and 0.181, respectively. While the body weight and the weight of the clean fleece had a positive effect on elongation, which led to its increase by 0.174 and 7.136, respectively, the effect of the body weight and the weight of the clean fleece was negative on the oil ratio , 0.027 and -0.461, respectively.

Table (6) Multiple regression of body weight and clean fleece weight in wool traits

traits dependent) (variable	Significance of the first regression coefficient P-value(b1)	Significance of the second regression coefficient P-value(b2)	Expectation equation	Factor of determinati (R^2) on
Raw fleece weight	0.208	0.001	Y= 0.8280 – 0.005 X1 +1.089 X2	0.800
Strand length	0.109	0.669	Y= 5.084+0.042 X1 +0.193 X2	0.057
fiber length	0.460	0.489	Y= 7.824+ 0.042 X1 - 0.779 X2	0.020
Number of folds	0.183	0.199	Y= 3.106 - 0.081 X1 -0.298 X2	0.075
The softness of the fiber	0.267	0.408	Y= 14.71+0.088 X1 -1.132 X2	0.061
tensile strength	0.598	0.035	Y=0.787+0.003 X1 +0.181 X2	0.134
Elongation	0.450	0.091	Y= 24.24+0.174 X1 + 7.136 X2	0.107
fiber diameter	0.381	0.146	Y= 29.67+ 0.110 X1 + 0.076 X2	0.057
Oil ratio	0.087	0.095	Y= 5.61 - 0.027 X1 -0.461 X2	0.168

Table 7: The regression of body weight and clean fleece weight leads to a change in blood traits, as the increase in body weight led to an increase in total protein by 0.09, and its effect was negative for clean fleece weight, 0.185 - which was in agreement with what was found (27), and this differed with a study (6), where the regression was not significant and negative and amounted to 0.016 kg/g per liter. It was also shown that increasing body weight and clean fleece weight leads to an increase in glucose by 0.148 and 0.097, respectively, and this was in agreement with the study of (6) that the decrease in body weight was positive, and the increase was 0.022, and the glucose level increased by one milligram, explaining the reason for the animal's need. To energy.

The study indicated that the regression in body weight and clean fleece weight was positive and led to an increase in cholesterol by 0.072 and 5.417, respectively. This was in agreement with what was found by (6), where the regression was significant and positive and amounted to 0.007 kg/milligram per deciliter, with a coefficient of determination of 32%, and in disagreement with what was found by (4). The study showed that the regression in body weight and clean fleece weight was positive for triglycerides and amounted to 0.053 and 6.629, respectively, and this same applies to Creatine, for which the increase in relation to body weight

was 0.001 and 0.023 with regard to clean fleece weight.

Table (7) Multiple regression of body weight and clean fleece weight in blood traits

traits dependent) (variable	Significance of the first regression coefficient P-value(b1)	Significance of the second regression coefficient P-value(b2)	Expectation equation	Factor of determination (R^2)
Total protein	0.369	0.325	Y=6.318 +0.09 X1 - 0.185 X2	0.029
Glucose	0.278	0.975	Y=22.76+0.148 X1 +0.097 X2	0.023
cholesterol	0.827	0.423	Y=66.32+0.072 X1+ 5.417 X2	0.013
Triglycerides	0.764	0.050	Y=28.33 +0.053X1+ 6.629 X2	0.079
Creatine	0.656	0.623	Y=0.796+0.001X1 + 0.023 X2	0.010

.

References

[1]Safari, E.; Fogarty, N.M. and Gilmour, A.R. (2005). A review of genetic parameter estimates for wool, growth, meat and reproduction traits in sheep. Livestock production science, 92(3), 271-289.

[2] Ramos, Z., Blair, H. T., De Barbieri, I., Ciappesoni, G., Montossi, F., & Kenyon, P. R. (2021). "Productivity and Reproductive Performance of Mixed-Age Ewes across 20 Years of Selection for Ultrafine Wool in Uruguay" Agriculture 11, no. 8: 1-18.

[3] Ahmed, B. A. and Abdullah D. Sh. (2016). The effect of magnetized water and some life factors on wool production and its physical traits in Awassi lambs at the age of six months. Basra Journal of Agricultural Sciences, 2: 438 – 444.

[4] Abdel Nour, M. J. M. (2017). Genetic and phenotypic parameters of some wool traits and body measurements in Awassi sheep. Al-Furat Journal of Agricultural Sciences - 9 (4): 198-209.

[5] Khoshnaw, A. H., Eid Al-Qadir A. H. (2014). Study of some physical properties of wool in Kurdish sheep based on the ratio of fibres. Tikrit University Journal of Agricultural Sciences, Volume (14), Issue (1) .

[6] Al-Shammari, Haider Rahim Obaid, Makki Khalaf Hussein Al-Dulaimi, Bashar Nouri Kazem. (2013). The effect of maternal age and some biochemical traits on the productive and reproductive performance of Awassi sheep. Karbala University Scientific Journal - Eleven - Issue Two .

[7] Cam, M.A.; Olfaz, M. and Soydan, E. R. C. A. (2010). Possibilities of using morphometrics characteristics as a tool for body weight prediction in Turkish Hair Goats (Kilkeci).. Asian J. Anim. Vet. Adv.,5: 52-59 .

[8] Taddeo, H.R. ; L.Duga ; P. Willemas and Samlo R.(2000). Variation of mohair quality over the body in Angora goats.Small.Rumi.Res., 36 (3) :285 – 291.

[9] Al-Dabbagh, S. F. S. (2009). Comparison of the productive and physiological performance of milk and wool traits in Awassi and Hamdaniya ewes. Ph. D thesis - College of Agriculture and Forestry - University of Mosul.

[10] Al-Sayegh, M. N. and Al-Kass, J. S. (1992). Sheep and goat production. University of Basra, Iraq.

[11] VonBorgen ,W.(1963).Hand book 3thed. VI. John Willy &Sans Inc. New York London..

[12] Nikolaeva A.I. (1979). Agriculture Ministry publication Moscow .p.13-25.

[13] Ryder , M.L and S.K, Stephenson (1968) Wool growth academic press

[14] SAS. (1989). Statistical Analysis System. User's guide: Statistics.SAS.Inst. Cary, NC.USA.

[15] Raoof ,salim omar .(2017). Effect of breed, body condition score and age on some economic tralits of local flocks ewes . Animal Resources Dept., College of Agriculture,

Salahaddin University, Erbil– Iraq. Vol. (54) No. (5) .

[16] Al-Dabbagh, S. F., Mohammed, A. K., and Abdulla, R. K. (2013). Genetic parameters of some economic traits in Arab ewes, Iraqi Journal of Veterinary Sciences, 27(2), 63-66.

[17] Mortimer, S. I., Hatcher, S., Fogarty, N. M., van der Werf, J. H. J., Brown, D. J., Swan, A. A., R. H. Jacob, G. H. Geesink, D. L. Hopkins, J. E. Hocking Edwards, E. N. Ponnampalam, K. L. Pearce, and D. W. Pethick (2017). Genetic correlations between wool traits and carcass traits in Merino sheep. *Journal of Animal Science*, *95*(6), 2385-2398.

[18] Behrem, S., and Gül, S. (2022). Effects of age and body region on wool characteristics of Merino sheep crossbreds in Turkey. Turkish Journal of Veterinary and Animal Sciences, 46(2), 235-247.

[19]Al-Dabbagh, S. F.(2011). Evaluation of the genetic parameters of milk product and some of its components, wool product and some of its physical traits in two breeds of Iraqi sheep, College of Agriculture and Forestry, University of Mosul.

[20] Ramos, Z., Garrick, D. J., Blair, H. T., De Barbieri, I., Ciappesoni, G., Montossi, F., & Kenyon, P. R. (2023). Genetic and phenotypic relationships between ewe reproductive performance and wool and growth traits in Uruguayan Ultrafine Merino sheep. Journal of Animal Science, 101,1-11

[21]Dominik, S., and A. A. Swan. (2016). Genetic and phenotypic -parameters for reproduction, production and bodyweight traits in Australian fine-wool Merino sheep. *Animal Production Science*, *58*(2), 207-212.

[22]Al-Jawari, M. F. A. (2011). Studying the effect of some genetic and non-genetic factors on milk production, its components, and offspring growth among Awassi and Hamdaniya ewes. Mesopotamia Agriculture Journal 39 (4): 122-129.

[23]Ahmed, Nabil Naguib, Samim Fakhri Al-Dabbagh, Nabil Abdel-Jabbar Al-Masry. (2012). Study of some genetic and hereditary factors in wool growth and its relationship to some biochemical blood components in Iraqi sheep. Department of Livestock, College of Agriculture and Forestry, University of Mosul.

[24]Al-Atabi, A. K. D.(2005). A study on the traits of the wool of Awassi sheep and the extent of its contamination by living and non-living environmental factors, Master's thesis, College of Science, Al-Mustansiriya University.

[25] W. j., W.A. Al-Samarrai, and H.M Ajil (2014). The effect of some genetic and hereditary factors on the fertility and growth traits of Awassi sheep. Iraqi Agricultural Sciences Journal, 45, special issue 263-26.

[26]Al-Jubouri , O. S., Riyadh H. S., Ahmed Ali A., Zaid M. M. .(2021) . Predicting the final weight and weight gain in a herd of Awassi sheep independent on the initial weight and body measurements . Kirkuk University Journal For Agricultural Sciences (KUJAS) . 12(2).

[27]Baranowski, P.; Stanislaw, B. B. and Wieslawa, K. (2000). Some heamatological and biochemical serum and bone tissue indices of lambs derived from ewes fed on vitamin and mineral-vitamin supplements during pregnant. Bulletin -Veterinary Institute In Pulawy. 2: 207-214.

تحليل الارتباط والانحدار لوزن الجسم وصفات الصوف والدم للعواسي والنعيمي وتضريبهما

بشار ادهم احمد[1] مصطفى طاهر بدر[2]

قسم الانتاج الحيواني - كلية الزراعة - جامعة ديالى- العراق[1،2]

الملخص

اجريت هذه الدراسة في محطة خيرات الاتحاد في ناحية الشوملي/ محافظة بابل من 2023/7/20 ولغاية 2024/4/1، لدراسة اوزان المواليد وصفات الصوف للنعاج في الاغنام المحلية بواقع (20) عواسي و (20) نعيمية بالاضافة الى (20) مضرب العواسي والنعيمي. هدفت الدراسة المقارنة بين ثلاث سلالات من الاغنام المحلية (العواسي والنعيمي ومضربهما) لصفات وزن الام عند الولادة، وزن المولود, وزن الجسم , ابعاد الجسم, طول الجسم, ارتفاع الجسم, محيط الصدر, ارتفاع المقدمة , محيط البطن , دليل كتلة الجسم بالاضافة الى دراسة صفات الصوف, وزن الجزة الخام والنظيف, طول الخصلة, طول الليفة, عدد الثنيات, نعومة الليفة, قوة الشد, الاستطالة , قطر الليفة ونسبة الزيت مع دراسة صفات الدم المتمثلة بالبروتين الكلي , والكولكوز , والكولسترول ,الكلوكوز , الكلسريدات الثلاثية والكرياتين فضلا عن دراسة الارتباط والانحدار المتعدد للصفات المدروسة .

وجد ارتباط عالي المعنوية موجب بين وزن الجزة النظيف وكل من الوزن بعد الولادة 0.922 وارتفاع المؤخرة 0.603 وارتفاع المقدمة 0.679 فيما كان ارتباط عالي المعنوية سالب بين وزن الجزة النظيف وكل من محيط الصدر 0.389 - ومحيط البطن 0.599 - ودليل كتلة الجسم 0.600 -وارتباط معنوي موجب مع طول الجسم 0.318 . وكذلك هناك ارتباط عالي المعنوية موجب بين طول الخصلة ومحيط الصدر 0.312 وارتباط عالي المعنوية سالب بين طول الليفة والوزن بعد الولادة 0.381 - ومعنوي مع محيط الصدر 0.255 , بالاضافة الى ارتباط عالي المعنوية موجب بين نعومة الالياف وكل من محيط الصدر 0.478 و دليل كتلة الجسم 0.392ومعنوي مع محيط البطن 0.354 . هناك ارتباط عالي المعنوية موجب بين وزن الام وكل من البروتين الكلي 0.698 والكلسريدات الثلاثية 0.963 وسالبا مع الكولسترول 0.501-, وارتباط عالي المعنوية موجب بين وزن الجسم والكلسيريدات الثلاثية 0.381 ومعنوي موجب مع البروتين الكلي 0.256, اما الارتباط بين طول الجسم والبروتين الكلي فكان عالي المعنوية موجب 0.538 ومعنوي مع الكلسريدات الثلاثية 0.262 , وارتباط معنوي سالب بين ارتفاع المؤخرة والكلسريدات الثلاثية 0.293- .

واوضحت الدراسة ان هناك انحدار معنوي لصفة وزن الجسم على طول الجسم بمقدار 0.227 كغم/سم , وانحدار عالي المعنوية بالنسبة لوزن الجسم على كل من ارتفاع المؤخرة وبمقدار 0.574 كغم , ومحيط الصدر 0.574 كغم / سم , وارتفاع المقدمة 0.225 كغم / سم و محيط البطن 0.697 كغم / سم . وبينت الدراسة ايضا ان هناك انحدار عالي المعنوية لوزن الجزة النظيف على كل من وزن الجزة الخام بمقدار 1.089 كغم و قوة الشد بمقدار 0.181 . وان هناك انحدار معنوي لوزن الجزة النظيف على الكلسريدات الثلاثية بمقدار 6.629 . نلاحظ من معامل التحديد انه يتراوح بين اعلى قيمة 0.800 في وزن الجزة الخام واقل قيمة في الكرياتين 0.010.

الكلمات المفتاحية : اغنام عواسية ، وزن الجزة الخام ، انحدار ، ارتباط