

GENETIC EVALUATION OF SOME PRODUCTIVE TRAITS IN MARAZ GOATS

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ABSTRACT

This study was carried out at the private project of Maraz goats at Bamerny sub-district/Amadiya district /Duhok governorate/Kurdistan Region of Iraq, and consists of 71 does, 8 bucks, as well as 234, 171 and 162 kids at birth, weaning and six month of age, respectively during two kidding seasons (2015-2016) and (2016-2017). Milk traits consist of 121 records of each daily (DMY), total (TMY), pre-weaning (PRMY), peak milk yield (PKMY) and time to peak (TPMY), and 120 records of post weaning milk yield (POMY). Animal Model Program for single trait was used to predict the breeding value (PBV) and the real producing ability (RPA) for animals depending on one trait and then these values were ranked in descending order for each sex for selection. Rank correlation was calculated between estimates for both kid body weights and milk yield traits. The average breeding values for sires, dams, male kids and female kids were 0.1322, 0.0845, 0.0369 and 0.0247 kg for birth weight and 0.9877, 0.6804, 2.0072 and -0.6406 kg for weaning weight and 1.4295, 2.0184, 3.0952 and -1.0623 kg for six-month weight, respectively. Rank correlation coefficient ($P \leq 0.001$) between the breeding value estimates of birth weight and each of weaning weight and six-month weight were 0.36 and 0.28, respectively and between weaning weight and six-month weight was 0.84. Also the average RPA of 71 dams was estimated depending on their kid body weights at birth, weaning and six-months old were 0.0784, 3.7027 and 4.9492 kg, respectively. Also rank correlations coefficient were estimated between real producing ability of birth weight and each of weaning weight and six-month weight were 0.37 and 0.26, respectively and between weaning weight and SMWT was 0.81. In addition, the average producing ability were estimated for 71 Maraz does depending on their (DMY), (TMY), (PRMY), (PRMY), (PKMY) and (TPMY) were 0.0312, -7.0378, -3.6234, -2.4199, 0.0477 and 0.2724 kg, respectively. Also rank correlations between real producing ability of all milk traits have been estimated and it was significant except between TPMY and each DMY, PRMY and PKMY, the significant correlation between RPA of milk traits assist to select the best animals and improve the herd genetically.

KEYWORDS: *Breeding Values, Real Producing Ability, Body Weights, Milk Traits, Maraz Goat.*

INTRODUCTION

Goat is an important domestic animals in many countries including Iraq, because of their adaptation to different environmental conditions (Gall, 1981). Also it is easy to handle and can withstand to harsh conditions (Alkass, 2012). Goat population in Iraq estimated about 1.5 million heads (FAO, 2014).

Maraz (Kurdi or Meriz) goat breed is similar, if not identical to the Iranian Markhoz (Pashmina or Cashmere) (Mason, 1981), which belong to the Cashmere bearing goat breeds and raised at high altitudes in the mountains of Iraqi Kurdistan (Aziz

and Hamad, 2004; Solaiman, 2010; Alkass and Merkhan, 2013; Al-Qasmy and Oramari, 2016 and Oramari and Al-Qasmy, 2016). Animal breeders aim to improve animals genetically in order to increase their income, and this could be realized by arranging pedigree record, testing the performance and genetic evaluation individually to get the correct decisions in selecting the best animals to be parents of the next generation (Kinghorn, 1997). While estimating of heritability and repeatability parameters after adjusting records of body weights for the fixed effects, and using the relationship matrix is very necessary to

maximize accuracy of predicting breeding values (Sakul et al., 1999).

The procedure of Animal Model (AM) allows simultaneous evaluation of all animals (including those without records) for direct additive genetic merit, not only on their own records but also through the inclusion of the inverse of the relationship matrix on the performance of all animal relatives (Sakul *et al.*, 1999). Previously, the animal breeders work hardly to select their best animals depends on its phenotypic performance to be parents of the next generation and animals with the best sets of genes are said to have the best breeding values (Bourdon, 1997). Animal Model programme of single trait as well as multiple traits models can also be used to evaluate animals individually by estimating their breeding values, real producing abilities and ranking the sires and dams for selection purposes (Oramari, 2009).

Growth rate and body weight are important in terms of economic breeding objectives that demand special attention in order to improve the meat production. One way to improve the growth performance is to choose (select) the best animal in terms of body weight to be used as parents of the next generation (Hermiz, 2005 and Mia et al., 2013).

Also milk production can be improved through improving the environment (management and feeding systems) as well through the genetic improvement with using genetically superior animals (Singh and Acharya, 1982). Finally, there is no study so far to the knowledge have been published and concerning to the breeding values and real producing abilities estimated by applied Animal Model (AM) on body weight and milk traits in Maraz goats. Accordingly, this work aimed to evaluate Maraz goats genetically firstly; depending on kid body weights at birth, weaning and at 6-months of age by predicting their breeding values and real producing abilities and secondly on milk traits of dams by predicting their real producing abilities individually using Animal Model Program for one trait.

Materials and Methods

Animals and Management

The study was conducted at the private project of Maraz goats at Bamerny sub-district/Amadiya district /Duhok governorate/Kurdistan Region of Iraq, and consists of 71 does, 8 bucks, as well as

234, 171 and 162 kids at birth, weaning and at six month of age, respectively during two kidding seasons (2015-2016) and (2016-2017). At the start of mating season, estrus was induced in all Maraz does by intra-vaginal sponges impregnated with the FGA⁽¹⁾ (40 mg) for (14) days. Two days following withdrawal of sponges, does were randomly placed in pens with bucks at the ratio of 1: 6 does for three days. The detected does estrus teaser bucks were re-mated by the same buck by using hand mating. The Maraz goat herd was managed semi-intensively and grazed the natural pasture during spring season and stubbles during summer and autumn with the available straw in winter and spring. Does and bucks were flushed three weeks prior to mating season with a daily allowance of 0.8 to 1 kg/head of concentrate mixture, respectively. Also the Maraz does feds the same amount of concentrate through the last 28 days of does pregnancy and six weeks after kidding. Moreover, mineral blocks were available to the animals during mating, five weeks before kidding and suckling period. In addition, clean water was available all the time. Age of does and bucks were determined by dentation their teeth. About 3-5 days pre-kidding, the pregnant does were separated from the herd. Age of dam, weight of dam at kidding, sex and type of kid birth were recorded. Kids were left with their dams till weaning (3 months). Newborn kids were identified by ear tag, and weighed within 24 hours after birth. As well as, body weights of kids were recorded monthly (weaning and six-months). Does were milked by hand at monthly starting from the 4th day post kidding. Milk yield was recorded after the kids were separated for 12 hours from their mothers (during suckling period), Test day milk yield was calculated by multiplying test milk yield * 2 (ICAR, 1995). While the total milk yield was calculated by multiplying test day milk yield by lactation period. The process of milk measurement was continued until the does were dried off (less than 100 g/day) (ICAR, 1995).

STATISTICAL ANALYSIS

Parameters of heritability (h^2) and Repeatability (R) were estimated by Restricted Maximum Likelihood (REML) method (Patterson and Thompson, 1971) within the statistical programme SAS (2005) after adjusting the records for fixed

effects (age of dam, Year and season of kidding, sex, type of kid birth, and regression on dam weight). Individual Animal Model (IAM) program (Meyer, 1991) was used to estimate the predicted breeding values (PBV) for all male and female kids having records and their parents, and estimate real producing abilities (RPA) for dams with record only. In order to achieve three-digit accuracy, 50-iterations were completed (Schaeffer, 1979).

The model for analysis was: $Y = Xb + Za + Wp + e$

$$\begin{pmatrix} X'X & X'Z & X'W \\ Z'X & Z'Z+tA^{-1} & Z'W \\ W'X & W'Z & W'W+IK \end{pmatrix} \begin{pmatrix} b \\ a \\ p \end{pmatrix} = \begin{pmatrix} X'Y \\ Z'Y \\ W'Y \end{pmatrix}$$

Where: $t = (1-r) / h^2$; $k = (1-r) / (r-h^2)$ and A^{-1} = the inverse of the numerator relationship matrix which was set up following rules given by Quaas (1976). RPA was computed as sum of PBV and permanent environmental effects for each dam. The values of PBV and RPA were ranked in descending order for each sex for selection. Rank correlation coefficients between the PBV for growth traits and RPA of studied traits were obtained (SAS, 2005).

RESULTS AND DISCUSSION

The estimates of heritability and repeatability for body weights of Maraz kids are summarized in Table 1, and these parameters were used to calculate k (2.952, 2.810 and 44.50) and t values (3.647, 2.950 and 9.889) for birth, weaning and 6-months weights, which then these values were used in matrices equations in order to predict breeding values (PBV) and real producing abilities (RPA) by applying Animal Model Procedure (AM). The predicted values were for all animals including those not having records through the relationship matrix and performance records of relatives. The Animal Model programme was executed for at least 50 iterations in order to get a precision in estimates between the iterations and the differences should be less than five digits.

Animal Model (AM) Programme was applied to predict breeding values for 312 Maraz animals (8 sires, 71 dams, 119 male kids and 114 female kids) depending on kids body weights at birth,

Where: Y , b , a , p and e are vectors of observation's values for each trait, fixed effects, random additive genetic effects, random permanent environmental effects, and residual effects respectively.

X , Z and W are the incidence matrices associated with above vectors respectively. Also, it was assumed that a , p and e are normally distributed with zero mean and not correlated. The mixed model equation for the above model can be written as below:

weaning and 6-months old and also depending on does milk traits. Result revealed that predicted breeding values of Maraz goats for sires, dams, male kids and female kids depending on birth weights ranged from -0.0505, -1.1757, -1.1863 and -1.2096 to 0.9479, 1.7107, 1.7093 and 1.1864 with average 0.1322, 0.0845, 0.0369 and 0.0247 kg, respectively (Table 2). Same results were found by Baper (2020) who applied animal model on Kurdish Mountain Goats and reported that the average predicted breeding values for sires, does, male kids and female kids depending on birth weight were 0.1282, 0.0419, -0.0082 and 0.0287 kg, respectively. Ali and Khan (2008) and Kuthu et al. (2017) reported that predicted breeding values for birth weight were ranged from -0.16 to 0.08 and -0.18 to 0.08 kg in Teddy goats and -0.56 to 0.60 and -0.63 to 0.63 kg in Beetal goats for bucks for does, respectively. Also Hassan et al. (2013) revealed to the average -0.0085 kg of breeding values for birth weight of Exotic goats.

Average breeding values for Maraz kids at weaning weight were 0.9877, 0.6804, 2.0072 and -0.6406 kg for bucks, does, male kids and female kids, respectively (Table 2). Baper (2020) reported that the average predicted breeding values for weaning weight of Kurdish Mountain Goats was 1.0308, 0.3617, -0.3589 and 0.6635 kg for sires, does, male kids and female kids, respectively. Previously, low breeding values (-0.61 to 0.40 for bucks and -0.58 to 0.36 for does) using weaning weights of kids has been reported for Teddy goats (Kuthu et al., 2017). While Hassan et al. (2013)

reported low average (-0.0126 kg) of breeding values estimate for weaning weight of Exotic goats. Ali and Khan (2008) reported that estimated breeding values for weaning weight were ranged from -4.75 to 4.34 kg for bucks and -5.52 to 4.65 kg for does in Beetal goats.

The average predicted breeding values for bucks, does, male kids and female kids depending on six-months body weight of kids were 1.4295, 2.0184, 3.0952 and -1.0623 kg, respectively (Table 2). Baper (2020) reported that the average predicted breeding values for sires, does, male kids and female kids on the basis of six-months body weight of kids of Kurdish Mountain goats were 1.6751, 0.5506, -0.4659 and 1.0747 kg, respectively, which were not in accordance with the finding of the present study. Kuthu et al. (2015) found that breeding values ranged from -0.24 to 0.09kg for bucks and -0.27 to 0.11kg for does. While Hassan et al. (2013) reported low average (0.0138kg) of breeding values estimate for six-months body weight of Exotic goats. The results in this study do not match to the finding reported by Hermiz (2001) who applied animal model for does belonging to four genetic groups (Local, Damascus, Damascus X Local and Saanen X Local) depending on body weight at six months old with average breeding values 1.745, -2.532, 0.32 and -0.131 kg for bucks, does, male and female kids, respectively. Generally, there were a wide variation in predicted breeding values for this trait and this encourage to select Maraz kids to be the parents of the next generation depending on their predicted breeding values. Similarly, Hermiz (2001), Jawasreh (2003) and Baper (2020) found a wide differences among predicted breeding values for body weight which may be referred to the existence of high additive genetic variation that could be exploited by a selection in order to improving the animals genetically.

Rank correlation coefficient among predicted breeding values of kids body weight traits were 0.36, 0.28 and 0.84 ($P \leq 0.001$) between birth weight and each of weaning and six-months weights, and between weaning and six-months weights, respectively. Same results of rank correlations ($P \leq 0.001$) were found by Baper (2020) between the predicted breeding values of birth weight and each of weaning weight and six-months weight were 0.35 and 0.24, respectively and between weaning weight and six-months

weight was 0.84 in Kurdish Mountain Goats. These estimates could be helpful to depend on predicted breeding values of any of the growth traits to select the best animals in order to improve the Maraz goat genetically. The estimates of predicted breeding values of body weight at 6-months for all animals (Sires, does, male and female kids) were sorted in descending order to select the best to be parents of the next generation especially those having the highest positive estimates. Selecting animals at early ages and exchange age groups of the parents in the herd as concluded by Kinghorn (1997) is very important to decrease the generation interval. Numbers of Maraz sires, dams, male and female kids with positive estimated values were 5, 46, 85 and 46 respectively (Table 2). Other animals with negative predicted breeding values can be culled and used for other purposes.

It appears from table (3) that the real producing abilities for 71 Maraz goat does was estimated depending on birth, weaning and six-months weights of their kids and averaged 0.0784, 3.7027 and 4.9492 kg, respectively. Similarly, Baper (2020) used the Individual Animal Model (IAM) procedure to predict the real producing abilities for Kurdish Mountain Goats on the basis of one trait for birth, weaning and six-months weights of their kids and averaged 0.3438, 2.5356 and 2.1630 kg, respectively. Hermiz (2001) applied animal model for does belonging to four genetic groups (Local, Damascus, Damascus X Local and Saanen X Local) for body weight at six month of their kids with average producing ability for kidding does was -0.109 kg, which was not in accordance with the finding of the present study. Rank correlations coefficient between real producing abilities of growth traits have been estimated being 0.37, 0.26 and 0.81 and significant ($P < 0.001$) between birth weight and each of weaning and six-months weights, and between weaning with six-months weights, respectively. These significant and correlation between RPA of growth traits help us to select the best animals and thereafter to improve the herd genetically. All Maraz goat dams have been sorted in descending order according to their estimated real producing abilities for body weight at six-months in order to select the best to be dams in the next year especially for those having higher positive estimates of real producing ability.

It appears from Table (4) that the average estimates of real producing abilities for 71 Maraz does for each daily (DMY), total (TMY), pre-weaning (PRMY), post weaning milk yield (POMY), peak milk yield (PKMY) and time to peak (TPMY) are 0.0312, -7.0378, -3.6234, -2.4199, 0.0477 and 0.2724 kg, respectively. Both lower (-22.7694 kg) and higher (11.0094 kg) real producing abilities were estimated for TMY trait of Maraz goat dams (Table 4). Baper (2020) reported that estimated real producing abilities values for the average daily milk yield, total milk yield and milk yield after weaning are -0.0142, -18.6328 and -6.4764 kg for does, which were not in accordance with the results of the present study. Hermiz et al. (2002) reported estimated real producing abilities in Iraqi local goats and their crosses. The average RPA values on the basis of total and post weaning milk yield were -1.461 and -0.333kg. In accordance with the finding of the present study, Hermiz (2001) reported that the real producing ability values for four genetic groups for daily milk yield, total milk yield, and post weaning milk yield ranged between -0.216 to 0.469, -42.22 to 59.32 and -35.84 to 91.56 kg, respectively. All Maraz does have been sorted in descending according to their estimated real producing ability for DMY in order to select the best does for the next year.

Rank correlations coefficient between real producing abilities of all milk traits have been estimated and significant except between TPMY and each DMY, PRMY and PKMY (Table 5), the significant correlation between RPA values of milk traits help us in depending on real producing abilities of any of the studied milk traits to select the best animals in order to improve Maraz goat genetically. These positive and significant rank correlations between daily milk yield and each total milk yield and milk yield after weaning and between total milk yield and milk yield after weaning were in accordance with who reported earlier by Baper (2020).

Table (1):- Heritability (h^2), repeatability (R), k and t parameters for the studied traits

Traits	h^2	R	K	t
Birth weight	0.17	0.38	2.952	3.647
Weaning weight	0.20	0.41	2.810	2.950
Six-months weight	0.09	0.11	44.50	9.889

CONCLUSION

It can be concluded from the results presented in the text that there is a wide variation in predicted breeding values for all animals depending on six-months weight exist, indicating that selecting animals to be parents for the next generation will be useful. Rank correlations between predicted breeding values of growth traits of kids were all significant, medium to high, which lead to depend on breeding values of any of the studied traits to select the best animals in order to improve the Maraz goat herd genetically. In addition, the real producing ability estimates depending on milk yield traits could be used in selecting the best does of the next year. Rank correlations between real producing ability of milk traits can helps breeder to select the best animals and improve his herd. Also it is feasible to use animal model procedure for evaluating Maraz goats and obtaining breeding values for growth traits as well as real producing values for both body weights and milk traits, which can be helpful in ranking, comparing animals and selection animals (the best) to be parents for the next generation of future herd of Maraz goats in order to improve the herd genetically and other animals can be culled and used for others purposes.

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Table (2):- Mean, positive values, minimum and maximum breeding values for body weights of Maraz sires, dams, male kids and female kids (kg).

Traits	No.	Mean	Positive values	Minimum	Maximum
Sires					
Birth weight	8	0.1322	4	-0.0505	0.9479
Weaning weight	8	0.9877	4	-1.0307	5.6598
Six-months weight	8	1.4295	5	-2.3504	7.7272
Dams					
Birth weight	71	0.0845	39	-1.1757	1.7107
Weaning weight	71	0.6804	45	-15.9516	11.0035
Six-months weight	71	2.0184	46	-12.1029	18.2738
Male kids					
Birth weight	119	0.0369	60	-1.1863	1.7093
Weaning weight	119	2.0072	90	-15.9475	10.9983
Six-months weight	119	3.0952	85	-11.9237	14.9244
Female kids					
Birth weight	114	0.0247	58	-1.2096	1.1864
Weaning weight	114	-0.6406	54	-16.8340	8.8965
Six-months weight	114	-1.0623	46	-14.1320	18.2992

Table (3):- Mean, positive values, minimum and maximum real producing abilities for body weights of Maraz goat dams (kg).

Traits	No.	Mean	Positive values	Minimum	Maximum
Birth weight	71	0.0784	37	-1.6617	3.4973
Weaning weight	71	3.7027	50	-21.5876	23.6639
Six-months weight	71	4.9492	45	-27.4605	38.3715

Table (4):- Mean, positive values, minimum and maximum real producing abilities for milk traits of Maraz goat dams (kg).

Traits	No.	Mean	Positive values	Minimum	Maximum
Daily milk yield	71	0.0312	35	-0.0359	0.3092
Total milk yield	71	-7.0378	18	-22.7694	11.0094
Pre-Weaning milk yield	71	-3.6234	16	-10.7600	5.1730
Post Weaning milk yield	71	-2.4199	16	-7.1860	3.4548
Peak Milk Yield	71	0.0477	35	-0.0549	0.4723
Time to peak milk yield	71	0.2724	35	-0.3135	2.6965

Table (5):- Rank correlation coefficient between the real producing abilities of milk traits of Maraz does (kg).

Traits	TMY	PRMY	POMY	PKMY	TPMY
DMY	0.82**	0.88**	0.58**	0.90**	0.22 ^{NS}
TMY		0.90**	0.84**	0.89**	0.29*
PRMY			0.57**	0.94**	0.10 ^{NS}
POMY				0.63**	0.35**
PKMY					0.22 ^{NS}

NS = P≥0.05

* = P≤0.05

** = P≤0.01

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ههلسه‌نگاندنا جینی ب کارئینانا هندهک سالوخته‌تین به‌ره‌م ئینانی بو بزنین مه‌ره‌زی کوردی

پوخته

ئه‌ف قه‌کولینه هاته ئه‌نجامدان ل پروژه‌کی که‌رتی تایبته یی خودانکرنا بزنین مه‌ره‌زی کوردی ل ناوچه‌داریا بامهرنی / قه‌زا ئامیدین / پارێزگه‌ها ده‌وکی. و گیانه‌وه‌رین قی قه‌کولینی پیکه‌اتبووم ژ 71 بزن و 8 نیری وه‌هه‌ر وه‌سا 234 کار ل روژا ل دایک بوونی و 171 گیسک ل ده‌می شیر قه‌کرنی و 162 گیسک ل ژیی شه‌ش هه‌یقی ل وه‌رزین 2016-2015 و 2016-2017، هه‌ر وه‌سا سالوخته‌تین به‌ره‌می شیر یی هاته‌نه تومارکرن ئه‌وین کو پیکه‌اتبو ژ 121 تومار بو هه‌ر ئیک ژ به‌ره‌می شیر یی روژانه و گشتی و یی به‌ری شیر قه‌کرنی و یی گوپیتکا به‌ره‌ه‌ئینانی و یی وه‌ختی بگه‌ه‌یته گوپیتکی و 120 تومار یی به‌ره‌می شیر یی پشته شیر قه‌کرنی. پروگرامی تایبته‌مه‌ند ب هه‌لسه‌نگاندنا جینی قه‌ یا گیانه‌وه‌را لسه‌ر بنه‌مایێ سالوخته‌ته‌کی بتنی هاته بکار ئینان ژ بو ده‌رئێخستنا نه‌رخین خودانکرنی (Breeding Values) بو هه‌می گیسکان و باب و ماکان، هه‌ر وه‌سا شیانین به‌ره‌ه‌ئینانین راست (Real Producing Abilities) یین بزنان هاته‌نه ده‌رئێخستن و پاشی هاته‌نه ریزکرن ب شیوازی ژوردایی ل دویف ره‌گه‌زی گیانه‌وه‌ری بو کارین هه‌لبزارتنی، هه‌ر وه‌سا فاکته‌ری هه‌قه‌ندی یی ریزی (Rank Correlation) هاته‌نه هژمارتن دناف به‌را کیشین گیسکاندا و سالوخته‌تین به‌ره‌می شیر یی. ریزا بهایی خودانکرنی یی باب و دایکا و گیسکین نیر و می گه‌ه‌شتنه 0.1322 و 0.0845 و 0.0369 و 0.247 کغم بو کیشین گیسکا د ژیی زانی دا و 0.9877 و 0.6804 و 2.0072 و -0.6406 د ژیی شیر قه‌کرنی دا و 1.4295 و 2.0184 و 3.0952 و -1.0623 د ژیی شه‌ش هه‌یقی دا، د ئه‌نجاماندا دیار بو هه‌قه‌ندیین به‌رچاڤ ($P \leq 0.01$) دناقه‌ه‌را ریزین بهاییین خودانکرنا بو کیشا گیسکا د ژیی زانی و هه‌ر ئیک ژ کیشا گیسکا د ژیی شیر قه‌کرنی و شه‌ش هه‌یقی دا گه‌ه‌شتنه 0.36 و 0.28 لدویف ئیک دا و دناقه‌ه‌را کیشا گیسکا د ژیی شیر قه‌کرنی و شه‌ش هه‌یقی دا گه‌ه‌شته 0.84. هه‌ر وه‌سا ریزا شیانین به‌ره‌م ئینانی یین بزنین زایی لدویف به‌ره‌می لدویف کیشین گیسکا د ژیی زانی و شیر قه‌کرنی و شه‌ش هه‌یقی دا گه‌ه‌شته 0.0784 و 3.7027 و 4.9492 کغم لدویف ئیک دا. هه‌ر وه‌سا هه‌قه‌ندیین به‌رچاڤ دیار بوون دناقه‌ه‌را ریزین بهاییین خودانکرنا بو کیشا گیسکا د ژیی زانی و هه‌ر ئیک ژ کیشا گیسکا د ژیی شیر قه‌کرنی و شه‌ش هه‌یقی دا گه‌ه‌شتنه 0.37 و 0.26 لدویف ئیک دا و دناقه‌ه‌را کیشا گیسکا د ژیی شیر قه‌کرنی و شه‌ش هه‌یقی دا گه‌ه‌شته 0.81. هه‌ر وه‌سا ریزا شیانین به‌ره‌م ئینانی یین بزنین زایی لدویف به‌ره‌می شیر یی روژانه و گشتی و به‌ری و پشته شیر قه‌کرنی و یی گوپیتکا به‌ره‌ه‌ئینانی و یی وه‌ختی بگه‌ه‌یته گوپیتکی گه‌ه‌شتنه 0.0312 و -7.0378 و -3.6234 و 2.4199 و 0.0477 و 0.2724 کغم لدویف ئیک دا. هه‌ر وه‌سا فاکته‌ری هه‌قه‌ندی یی ریزی (Rank Correlation) هاته‌نه هژمارتن دناف به‌را شیانین به‌ره‌م ئینانی یین بزنین زایی بو سالوخته‌تین به‌ره‌می شیر یی ژ بو هه‌لبزارتن باشته‌رین گیانه‌وه‌ران و پێش‌ئێخستنا بوماوه‌یی یا که‌ری بزنین مه‌ره‌زی کوردی

التقييم الوراثي لبعض الصفات الانتاجية لماعز المرعز الكوردي

الخلاصة

أجريت هذه الدراسة في مشروع القطاع الخاص لتربية ماعز المرعز في ناحية بامرني/ قضاء العمادية /محافظة دهوك/ اقليم كوردستان العراق وأشتملت هذه الدراسة على القطيع المتكون من 71 معزة و 8 تيس و بالاضافة الى 234 و 171 و 162 جداء عند الميلاد والفظام وعند عمر 6 أشهر على التوالي خلال موسمين 2015-2016 و 2016-2017. و تضمنت صفات انتاج الحليب على 121 سجلا لكل من انتاج الحليب اليومي و الكلي و قبل الفطام وانتاج القمة و الوقت الوصول الى القمة و كذلك على 120 سجلا لانتاج الحليب بعد الفطام. وتم استخدام برنامج متخصص بالتقييم الوراثي للحيوانات بالاعتماد على صفة واحدة لتقدير القيم التربوية لجميع الحيوانات وأبائها وأمهاها وتقدير القابلية الانتاجية الحقيقية للمعزات، ثم تم ترتيب هذه التقديرات تنازليا لكل جنس لأغراض الانتخاب واحتسب معامل ارتباط الرتبة (Rank Correlation) بين التقديرات لصفات أوزان المواليد و انتاج الحليب. و بلغ معدل تقديرات القيم التربوية للآباء، الأمهات والولادات الذكرية والأنثوية 0.1322 و 0.0845 و 0.0369 و 0.0247 كغم لأوزان الحملان عند الميلاد و 0.9877 و 0.6804 و 2.0072 و - 0.6406 عند الفطام و 1.4295 و 2.0184 و 3.0952 و - 1.0623 عند عمر 6 أشهر على التوالي. وتبين وجود ارتباط معنوي ($P \leq 0.01$) بين رتبة تقديرات القيم التربوية للوزن عند الميلاد و كل من الوزن عند الفطام والوزن عند عمر 6 أشهر (0.36 و 0.28 على التوالي وبين الوزن عند الفطام والوزن عند عمر 6 أشهر كانت 0.84. كما و بلغت تقديرات القابلية الإنتاجية للمعزات الوالدة حسب وزن مواليدها عند الميلاد و الفطام وعند عمر 6 أشهر 0.0784 و 3.7027 و 4.9492 كغم على التوالي. وكذلك كانت معامل الارتباط بين رتبة تقديرات القابلية الإنتاجية للمعزات للوزن عند الميلاد و كل من الوزن عند الفطام والوزن عند عمر 6 أشهر 0.37 و 0.26 على التوالي وبين الوزن عند الفطام وعند عمر 6 أشهر كانت 0.81. بينما بلغ معدل القابلية الإنتاجية للمعزات بالاعتماد على انتاج الحليب اليومي والكلي وقبل وبعد الفطام وانتاج القمة و الوقت الوصول الى قمة الانتاج 0.0312 و -7.0378 و -3.6234 و - 2.4199 و -0.0447 و 0.2724 كغم على التوالي. وكذلك تم احتساب الارتباط بين رتبة تقديرات القابلية الإنتاجية لصفات الحليب لهدف انتخاب افضل الحيوانات وتحسين قطع الماعز وراثيا.