RESEARCH ON THE GROWTH OF KIDS IN GOAT BREEDING WITH GOOD FLOCK MANAGEMENT: PILOT VILLAGE BEŞKAVAK MODEL*

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ABSTRACT
This study was carried out to demonstrate the effect of "Good Flock Management" on the growth characteristics of goats. Studies conducted in the province of Burdur in Turkey under "Focused District Development Project". Goat flocks were in Beşkavak village which was selected as a model village, were used in the study. The study was carried out in 2019 in two goat flocks. The birth weights of the male and female kids were determined as 4.04 kg and 3.58 kg and 4.09 kg and 3.52 kg respectively for the first and second flock. On the90th day of the first and second flock, the live weight values of male and female kids were determined as 17.68 kg and 14.17 kg and 19.81kg and 16.94 kg respectively. Single born kids' live weight value on the 90th day in flock 1 determined as 15.85 kg.

Keywords: Flock management, kids, growth

INTRODUCTION

The formation of the animal production of Turkey's developing infrastructure for small animals is quite overflowing importance (BINGÖL ET AL. 2011). In Turkey, as of the end of June 2020, the number of goat was recorded as the number of goats as 12 million 351 thousand (TURKSTAT, 2020). When we look at Turkey's economy in goat breeding, traditional, inefficient but fields not suitable for crop production is useable for small ruminants which makes it very important.Today, however, significant reduction in the number of small animals Turkey, with the fall in yields occurred. Consequently, the products obtained from these animals also decreased and the breeders were affected negatively by this situation. (ERTEN AND YILMAZ 2013). Growth; It is the most important feature of the creature and is defined as the increase in both weight and size over a period of time (ÖZDEMIR AND DELLAL 2009). ELMAZ ET AL. (2020), within the scope of the Public Breeding Project, examined the growth data of 22817 kids born in a five-year period (2012-2016) and 21643 kids reaching the 90th day in their study on the Hair goat flocks raised in Antalya. The mean birth weights of the kids born in 2012, 2013, 2014, 2015, and 2016 were determined as 3.38, 3.41, 3.26, 3.32, and 3.26 kg, and also the mean live weights of 90th day (weaning) were found as 16.96 kg, 18.33 kg, 17.43 kg, 17.47 kg, and 17.53 by the years, respectively. ELMAZ ET AL. (2012), The average birth weight for the Honamlı kids was 4.1 and 3.7 kg, respectively. In a study carried out on Hair goats raised completely in extensive conditions in Aydın province, the live weights (kg) of born goats at birth, 1st month, 2nd month, 3rd month, 4th month, 5th month and 6th month respectively; It has been determined as 2.58 kg, 6.36 kg, 9.75 kg, 13.58 kg, 17.32 kg, 20.45

kg and 22.40 kg (ORAL AND ALTINEL 2006). In the study, in which some yield characteristics of Hair goat goats raised under extensive conditions in the same province up to 8 months old were examined; Live weights at birth, 3rd, 6th and 8th months were found to be 2.19 kg, 13.08 kg, 20.25 kg and 23.32 kg, respectively (ORAL TOPLU AND ALTINEL 2008). In another study performed in pure Bristle goat flock and Saanen x Hair goat crossbred goats raised under breeding conditions, the average birth weight of goats was reported as 2.63 kg and 3.70 kg (ŞENGONCA VE ARK., (2003).

This study was carried out to determine the growth traits of Turkish Hair goat kids applied to good flock management.

MATERIALS AND METHODS

This research is a part of project supported by Burdur Mehmet Akif Ersoy University, which was selected as the pilot university in the field of "Regional Development Focused Mission Differentiation and Specialization" project studies coordinated by the Higher Education Council and Presidency Strategy and Budget Directorate: Increasing the Sectoral Competitiveness of Burdur Province: Integrated Development by Differentiating in Agriculture and Livestock. It consists of some data (Department of Animal Science) obtained under the subproject titled and number "Dissemination and Small Ruminant Breeding 2017K12-41003-2" from pilot village Beşkavak's 2 goat holding.

When starting to work, first of all, farm owners were given trainings on all kinds of applications during mating, pregnancy, birth and growth periods by the expert team involved in the project. Flock lists prepared in order to keep birth records regularly were distributed and how to keep records was explained in detail and in practice. All processes were checked regularly by project experts throughout the year. During this period, applications for vaccination, parasitic applications and similar protective measures were performed in a controlled manner in the flock.

The present study was carried out in two Hair goat flocks reared under local breeder condition in Beskavak district of Burdur province in Turkey. The birth weights, live weights on the 30th, 60th and 90th days of age of totaly 281 kids were defined. The interpolation was used for measurement periods for growth characteristics. The kids in two flocks were kept under the same care-feeding conditions in the same environment.

In the statistical comparison of the data, 16.1 version of Minitab statistical packaged software was used (MINITAB, 2011). A statistical model with the fixed effects (sex and birth type) was used for determining the Least-square means of the examined traits for flock 1. Additionally, The Student-T test was employed the defined differences between Hair male and female kids for flock 2.

RESULTS

Table 1 shows the growth performances of Turkish Hair kids in flock 1. Based on sex, the birth weights of male and female kids were determined to be 4.04 kg and 3.58 kg, respectively. While the live weights at the 30th, 60th and 90th days of age were 8.59 kg, 13.13 kg and 17.68 kg for male kids, these values were respectively 7.11 kg, 10.64 kg and 14.17 kg for female kids. There were significant differences, except at birth for live weights between male and female kids ($P < 0.05$- 0.001). In addition, As seen from Table 1, while single kids were observed to reach higher values in terms of birth and live weigts compared to twin birth kids, differences between birth type groups were not found to be a statistically significant ($P > 0.05$).

Table 1. Least square means for the effects of sex and birth type on live weights of Turkish Hair kids in the different periods in flock 1 (kg) (x ± sx)

Factors	n	Birth weight (kg)	30th days	60 th days	90 th days
Sex					
Female	**59**	3.58 ± 0.07	7.11 ± 0.15	10.64 ± 0.26	14.17 ± 0.36
Male	**69**	4.04 ± 0.65	8.59 ± 0.15	13.13 ± 0.26	17.68 ± 0.37
P		ns	*	***	***
Birth type					
Single	**92**	3.83 ± 0.05	7.84 ± 0.13	11.85 ± 0.22	15.85 ± 0.31
Twin	**36**	3.20 ± 0.20	7.18 ± 0.63	11.16 ± 1.08	15.13 ± 1.52
P		ns	ns	ns	ns
Overall	**128**	3.80 ± 0.05	7.80 ± 0.13	11.81 ± 0.22	15.81 ± 0.31

ns: nonsignificant ($P > 0.05$). *: $P < 0.05$, **: $P < 0.01$, ***: $P < 0.001$.

Growth performances of Turkish Hair male and female kids from birth until 4 months of age were presented in Table 2 for flock 2. When this table was examined, the live weights at birth, 30th, 60th and 90th days of age were 2.75 kg, 8.44 kg, 14.13 kg and 19.81 kg for Hair male kids, these values were respectively 2.40 kg, 7.25 kg, 12.09 kg and 16.94 kg for female kids. Similar to flock 1, There were significant differences, except at birth for live weights between male and female kids ($P < 0.05$- 0.001).

Table 2. Live weight values of male and female Turkish Hair kids in the different periods in flock 2 (kg) (x ± sx)

Factors	n	Birth weight (kg)	30th days	60 th days	90 th days
Sex					
Female	**76**	3.52 ± 0.06	7.25 ± 0.16	12.09 ± 0.30	16.94 ± 0.44
Male	**77**	4.09 ± 0.08	8.44 ± 0.17	14.13 ± 0.31	19.81 ± 0.45
P		ns	*	***	***
Overall	**153**	3.79 ± 0.05	7.85 ± 0.13	13.12 ± 0.23	18.38 ± 0.33

ns: nonsignificant ($P > 0.05$). *: $P < 0.05$, **: $P < 0.01$, ***: $P < 0.001$.

DISCUSSION

The birth weight and live weights on the 90th days of flock 1 kids determined by this study were higher than values reported by some researcher (ŞENGONCA ET AL. 2003; ORAL AND ALTINEL 2006; ORAL TOPLU AND ALTINEL 2008). In other studies, the average birth weights of Honamlı kids kids which was similar to the findings of the current study (ELMAZ ET AL. (2012).

The birth weight of kids in flock 2 was lower than reported values in prior studies (ŞENGONCA ET AL. 2003; ELMAZ ET AL. 2020). and it was similar to the value stated by the study of (ORAL AND ALTINEL 2006; ORAL TOPLU AND ALTINEL 2008).

The results of the current study showed that Turkish Hair kids applied to good flock management had a similar to birth weight and live weights than the other goat breeds and similar breed in Turkey. Therefore, this study could be used as a model in goat breeding within the Teke region of Turkey. Additionally, it is considered that the income of local people may be increased by implementing planned applications and the regular recording studies.

REFERENCES

Bingöl M, Gökdal Ö, Aygün T, Yilmaz A, Daşkiran İ (2011). Some productive characteristics and body measurements of Norduz goats of Turkey. *Trop Anim Health Prod* (2012) 44:545–550.

Elmaz Ö, Saatci M, Ağaoğlu Ök, Akbaş A.A., Metin M.Ö, Gezer G, Gökçay Y (2020). Reproductive performance and kid growth until weaning in Hair goat reared on-farm conditions in Turkey. *Turk J Vet Anim Sci* (2020) 44: 370-376.

Elmaz Ö., Saatci M., Dağ B., Aktaş A.H., Mamak N., Ata A., Gülay MŞ., Gök B. (2012). Some descriptive characteristics of a new goat breed called Honamlı in Turkey, *Tropical Animal Health Production,* 44(8), 1913-1920, DOI 10.1007/s11250-012-0156-7

Erten, Ö., Yilmaz, O. (2013). Ekstansif Koşullarda Yetiştirilen Kıl Keçilerinin Döl ve Süt Verimi Özelliklerinin Araştırılması. *YYU Veteriner Fakultesi Dergisi*, 2013, 24 (3), 105 – 107.

Mınıtab, (2011): Minitab For Windows Version Release 16, Minitab Inc.

Oral, H.D.., VE Altinel A., (2006). Aydın ili özel işletme koşullarında yetiştirilen kıl keçilerinin bazı verim özellikleri arasındaki fenotipik korelasyonlar. *İstanbul Üniv. Vet. Fak. Derg.* 32(3), 41-52.

Oral, Toplu H.D., VE Altinel A., (2008). Some production traits of indigenous Hair goats bred under extensive conditions in Turkey. 2nd communication: viability and growth performances of kids. *Arch. Tierz.*, Dummerstorf, 51 (5), 507-514

Özdemir, H., Dellal, G. (2009). Determination of Growth Curves in Young Angora Goats. *Tarım Bilimleri Dergisi 2009*, 15(4), 358-362.

Şengonca, M., Taşkin T., Koşum N. (2003). Saanen x Kıl Keçi melezlerinin ve Saf Kıl keçilerinin kimi verim özelliklerinin belirlenmesi üzerine eş zamanlı bir araştırma. *Turk J Vet Anim Sci.,* 27 (6), 1319-1325

TURKSTAT (Turkish Statistics Institute), (2021): The Results of Animal Production Statistics, http://www.tuik.gov.tr/UstMenu.do?metod=temelist (accessed 17.03.2021).