U. of K. J. Agric. Sci. 20(1), 119-125, 2012

A Note on the Reproductive Performance of Tagger Goat in the Gezira, Sudan

Mohmed Elamin Elimam and Yassir Abdalla Ombabi

Goat Research Centre, Faculty of Agricultural Sciences, University of Gezira, P.O. Box 20, Wad Medani, Sudan

Abstract: The objective of this study was to determine the effects of improved management and nutrition on the reproductive performance of a flock of Tagger goats from Eldaleng area, the Nuba Mountains. It was conducted at Wad Medani , Sudan, from June 2006 to July 2008. The goats were mainly grazed on farm and well managed. Individual records were kept for each animal, and the data were statistically analysed for reproductive characteristics. Kidding percentage was 100% in the two years and was mainly in summer. Sex ratio (males to females) was 57.14: 42.86 in the first year and 54.05: 45.95 in the second year. Twinning rate increased from 17.39% in the first year to 48.0% in the second year, and number of kids born /doe increased from 1.17 in the first year to 1.48 in the second year. Mean age at first kidding was 365.67 days (285- 438) and mean kidding interval was 258.85 days (169- 380). The overall birth weight was 1.73, 1.69 and 1.70 kg for the first, second and third parities, respectively. Seasons had no significant effects on overall birth weight, and it was highest in summer (1.74) followed by autumn (1.71) and then winter (1.63).There were differences between years in birth weight and was generally higher in the first year. Singles were heavier at birth than twins. Birth weight had a significant correlation with doe weight at kidding**.** Doe age had significant correlations with doe body condition score and doe weight at kidding**.** The results showed that Tagger reproductive performance was improved in the Gezira area, especially in the second year, than in Eldaleng area.

Key words: Tagger goat; Nuba Mountains; Gezira; reproductive performance

Goat meat has high nutritive value and low fat (Mudawi 2002; Elimam and Ombabi 2007), but is less preferred in the Sudan, and exports are scarce compared with the goat population. Improving goat meat production will boost local consumption and exports and renders other types of meat more available for export. Tagger is a promising goat meat producer in the Sudan due to superior conformation and meat quality (Elbukhary 1998; Mudawi 2002), but no efforts were exerted to improve it. Consequently, a project was launched for characterization and genetic

improvement of the breed in the Gezira State. Information on the reproductive performance of Tagger goats is scarce; thus, the objective of this work was to study it in the Gezira.

A flock of 50 Tagger goats consisting of 45 females and 5 males from Eldaleng area in the Nuba Mountains, South Kordofan State, Sudan, was reared in Elneshasheba farm at Wad Medani, Sudan, from June 2006 to July 2008. They were housed in an open corral shaded with corrugated iron, ear tagged, treated against parasites and vaccinated against the prevalent diseases, and a record was kept for each animal. Body weight, birth weight and body condition scores were determined. The animals grazed mainly Kittir (*Acacia mellifera*) and Rabaa (*Trianthema pentandra* L.) in the farm and were also fed Gerawia (*Sorghum sudanense*), Abu Sabien (*Sorghum bicolor* variety Abu Sabien), lubia (*Lablab purpureus*), clitoria (*Clitoria ternata*), sorghum and wheat straw, *ad libitum*. Concentrates were offered in late pregnancy, early lactation and to new born kids. Clean water was offered *ad libitum*. The data on reproductive performance for two years were analysed using SAS (1997) program.

Kidding percentage was 100% in the two years. In the first year, kidding was mainly in summer (47.8%) followed by winter (43.5%) and then autumn (8.7%). Sex ratio was 57.14: 42.86, probably because more females were lost during pregnancy. Twinning rate was 17.39% and was similar in winter and summer. The number of kids/doe was 1.17. Kidding rate was higher than that reported by Mofarrah (1985) and Mudawi (2002). In the second year, kidding was mainly in summer and winter, sex ratio was 54.05: 45.95, and twinning rate was 48%, i.e. higher than in the first year. Twinning percentages were similar in all seasons. Number of kids /doe was 1.48 and was higher in the second than in the first year. The improved reproductive performance was mainly due to improved management, health and nutrition. Tagger litter size was less than Mexican dairy goats (Galina *et al.* 1995) and West African Dwarf goats (Baiden 2007). This trait can be improved in Tagger by selection and / or crossing with highly prolific exotic breeds.

The mean age at first kidding was 365.67 days and was less than in Eldaleng area (Mudawi 2002) and higher than that reported by Mofarrah (1985). It was better than in Small East African goats and their crosses (Mtenga *et al*. 1992) and Mexican goats (Galina *et al*. 1995). Mean kidding interval was 258.85 days and was higher than that reported by Mofarrah (1985) and Mudawi (2002) and Desert goat in Elobeid area (Ombabi 2006). It was less than Small East African goats (Mtenga *et al*. 1992) and longer than Mexican dairy breeds (Galina *et al*. 1995).

Table 1 shows the factors affecting Tagger birth weight. Male's birth weight was higher in the first and second parity than in the third. This finding is in line with the findings in Sudan Nubian goats (Elabid 2008) and Sahelian goat in Nigeria (Otuma and Osakwe 2008).The overall birth weight was not significantly affected by parity. Birth weight was generally higher than in the Nuba Mountains (Elbukhary 1998; Mudawi 2002) and less than in the Nubian goats (Elabid 2008).

There were insignificant seasonal differences in Tagger birth weight. It was higher in winter in males and was higher in summer and autumn in females. Similar seasonal differences in birth weight were found in Sahelian goat in Nigeria (Otuma and Osakwe 2008) and West African Dwarf goat in Ghana (Baiden 2007). Seasonal variations in birth weight were mainly due to variations in feeds quantity and quality. This is supported by the improved Nubian goat birth weight by pasture supplementation (Elabid 2008).

There were differences between years in birth weight and was significantly higher in the first year for males. These effects were similar to those in Nubian goats (Elabid 2008) and Sahelian goats (Otuma and Osakwe 2008) and were mainly nutritional. Tagger birth weight was less than Nubian goats (Elabid 2008) and was higher than Nigerian Sahelian goat (Otuma and Osakwe 2008) and West African Dwarf goat in Ghana (Baiden 2007).

Type of birth only significantly affected the overall mean birth weight. In singles, birth weight was 1.81+ 0.41and 1.92+ 0.36 for males and females, respectively, and in twins was 1.65+ 0.41 and 1.48+0.39, respectively. The overall mean birth weight (kg) was 1.87+0.38 for males and 1.60+0.41 for females. The higher singles birth weight in Tagger than twins agrees with the findings in Sudanese Nubian kids (Elabid 2008) and West African Dwarf goat (Baiden 2007).The declined birth weight with increased number of twins was mainly due to limited uterus space and nutrients.

Table 1. Factors affecting Tagger goat birth weight (kg) (means ±SD) in the Gezira, Sudan

Parameter	Sex		
	Males	Females	Overall
Parity:			
First	1.74± 0.35^{a}	1.70± 0.27^{ac}	1.73± 0.32^{a}
Second	1.78± 0.49^{a}	1.55± 0.42^{ac}	1.69± 0.47^{a}
Third	1.46± 0.30^{a}	2.04± 0.49^{bc}	1.70± 0.49^{a}
Seasons:			
Winter	1.70± 0.43^{a}	1.57± 0.40^{a}	1.63± 0.41^{a}
Summer	1.65± 0.33^{a}	1.88± 0.38^{a}	1.74± 0.36^{a}
Autumn	1.65± 0.49^{a}	1.83± 0.34^{a}	1.71± 0.45^{a}
Years:			
First	1.77± 0.40^{a}	1.71± 0.29^{a}	1.75± 0.37^{a}
Second	1.48± 0.35^{bc}	1.73± 0.50^{ac}	1.61± 0.44^{a}

Means followed by the same letter(s) in a row or a column for each parameter are not significantly different at P = 0.05.

Birth weight was significantly correlated with doe kidding weight, and doe age was significantly correlated with doe body condition scores and doe weight at kidding (Table 2)**.** The positive correlation between birth weight and doe kidding weight was in line with that in Nubian goats (r= 0.216) (Elabid 2008).

Table 2. Correlation coefficients between different traits affecting Tagger goat birth weight in the Gezira, Sudan

Parameter	Birth weight	Doe age	Doe body condition score	Doe weight at kidding
Birth weight		0.112	0.081	0.269*
Doe age	0.112		0.251*	0.713**
Doe body score	0.081	0.251*		0.022
Doe weight at kidding	0.269*	0.713**	0.022	

*, ** Significant at P= 0.05 and P= 0.01, respectively.

REFERENCES

Baiden, R.Y. (2007). Birth weight, birth type and pre-weaning survivability of West African Dwarf goats raised in the Dangme West District of the Greater Accra Region of Ghana. *Tropical Animal Health and Production* 39, 141- 147.

Elabid, K.E. (2008). Various factors affecting birth weight of Sudanese Nubian goat kids. *Research Journal of Agriculture and Biological Sciences* 4 (6), 700-703.

Elbukhary, H.A. (1998). *Production Characteristics of Tagger Goats.* M.Sc. thesis (Animal Production), University of Khartoum, Sudan.

Elimam, M.E. and Ombabi, Y.A. (2007). Carcass characteristics of male desert goats in Elobeid area in North Kordofan State. *Sudan Gezira Journal of Agricultural Science* 5, 190 – 202.

Galina, M.A.; Silva, E.; Morales, R, and Lopez, B. (1995). Reproductive performance of Mexican dairy goats under various management systems. *Small Ruminant Research* 18, 249- 253.

Mofarrah, M.B. (1985). Goat's breeds and varieties in Sudan. Proceedings. Arab Centre for the Studies of Arid Zones and Dry Land (ACSAD), Khartoum, 17-27 January 1995.

Mtenga, L.A.; Kifaro, G.C. and Belay, B. (1992). Studies on factors affecting reproductive performance and mortality rates of Small East African goats and their crosses. S.H.B Lebbie,. and E.K. Irungi.(Edts.) In: *Small Ruminant Research and Development in Africa*. Proceedings of the Second Biennial Conference of the African Small Ruminant Nerwork, AICE, Arusha, Tanzania. FAO, Rome, Italy.

Mudawi, T.M. (2002). *Performance Characteristics of Tagger Goats in South Kordofan State, Sudan*. M. Sc. thesis, Department of Animal Science, University of Gezira, Wad Medani, Sudan.

Ombabi, Y.A. (2006). *Characteristics of Desert Goat as a Meat Producer in Elobeid area, Sudan.* M.Sc. thesis, Department of Animal Science, University of Gezira, Wad Medani, Sudan.

Otuma, M.O. and Osakwe, I.I. (2008). Estimation of genetic parameters of growth traits in Nigerian Sahelian goats. *Journal of Animal and Veterinary Advances* 7, 535- 538.

SAS (1997). *Statistical Analysis System* (SAS). SAS Institute. Inc., Cary, NC, U.S.A.

مجلة جامعة الخرطوم للعلوم الزراعية : المجلد العشرين – العدد الاول ، 2012م

الأداء التناسلي لماعز التقر في الجزيرة بالسودان

محمد الأمين الامام و ياسر عبد الله أمبابي

مركز أبحاث الماعز، كلية العلوم الزراعية، جامعة الجزيرة، ص. ب. 20، ود مدني ، السودان.

المستخلص : هدفت هذه الدراسة لتحديد تأثير الرعاية والتغذية المحسنة على الأداء التناسلي لقطيع من ماعز التقر، المستجلب من منطقة الدلنج بجبال النوبة . أجريت الدراسة فى ود مدني ، السودان من يونيو 2006 الى يوليو 2008 م. رعيت الماعزأساساً في المزرعة مع توفيررعاية جيدة. حفظت سجلات فردية لكل حيوان وحللت البيانات احصائيا للصفات التناسلية. كانت نسبة الولادة 100% في العامين، وكانت اساسا في الصيف . بلغت النسبة الجنسية (ذكور للاناث) 42.86:57.14 فى السنة الاولى و45.95:54.05 فى السنة الثانية. ازداد معدل التوائم من .17.39% في العام الأول الى 48.0% في العام الثانى وعدد الجديان المولودة من 1.17 في العام الأول الى 1.48 في العام الثاني. كان متوسط العمر عند الولادة الأولى365.67 يوماً (285- 438) ومتوسط المدة بين الولادتين 258.85 يوماً (169- 380) ومتوسط وزن الميلاد الكلى 1.7 و 1.69 و1.70 كجم للولادات الأولى والثانية والثالثة على التوالى. لم يكن للموسم تأثير معنوى على وزن الميلاد الكلي، وكان أعلى فى الصيف (1.74) يليه الخريف (1.71) ثم الشتاء (1.63) . وجدت اختلافات بين السنوات فى وزن الميلاد وكانت عامة أعلى فى العام الأول، وكان وزن الولادات المفردة أثقل من التوائم . كان لوزن الميلاد ارتباطا معنويا مع وزن المعزات عند الولادة، ولعمر المعزات ارتباط معنوي مع درجة حالة الجسم ووزن المعزات عند الولادة. بينت النتائج تحسن الأداء التناسلي للتقرفي منطقةالجزيرة ، خاصة في العام الثاني ، مقارنة بمنطقة الدلنج.