



ISSN: 2456-2912

VET 2024; 9(1): 620-623

© 2024 VET

www.veterinarypaper.com

Received: 01-10-2023

Accepted: 09-11-2023

PD Tarange

Department of Animal Husbandry and Dairy Science, College of Agriculture, Latur, Maharashtra, India

BM Thombre

Associate Dean and Principal, College of Agriculture, Latur, Maharashtra, India

PV Padghan

Senior Scientist Cattle Cross Breeding Project, VNMK.V, Parbhani, Maharashtra, India

KR Chavan

Assistant Professor Department of Animal Husbandry and Dairy Science, College of Agriculture, Osmanabad, Maharashtra, India

Studies on productive and reproductive characteristics in Madgyal sheep in Maharashtra

PD Tarange, BM Thombre, PV Padghan and KR Chavan

Abstract

Abstract: The present study entitled to "Effect of Non-genetic Factors on Performance in Madgyal sheep at Organized Farm". The data on Madgyal sheep generated at the "Punyashlok Ahilyadevi Sheep and Goat Development Project, Mahud." Tq. Sangola, Dist. Solapur (M.H.) was considered for the study. The "Punyashlok Ahilyadevi Sheep and Goat Development Project", Mahud use to maintain Madgyal sheep. The data accumulated reproduction and production for 7-12 months, 13-36 months and above 36 months were taken from individual's records, maintained at the "Punyashlok Ahilyadevi Sheep and Goat Development Project" Mahud. In records 439 Madgyal sheep for period of 2 years (2021 & 2022) were included in the study. The data collected and subjected to the least squares analysis of reproduction and production. The consist various parameters such as reproduction for 7- 12 month had age at first service 259.49 ± 2.89 , for 13- 36 and above 36 month consist age at first service was 273.07 ± 3.09 and 263.92 ± 3.68 , age at first lambing 425.41 ± 2.99 and 430.04 ± 3.38 , service period 111.69 ± 1.58 and 111.97 ± 2.06 and lambing interval 227.65 ± 1.48 and 227.29 ± 1.99 days. While for production 205.21 ± 6.20 and 225.12 ± 10.56 gm for 13- 36 and above 36 month.

Keywords: Madgyal sheep, non-genetic factors, period, reproduction and production

Introduction

Maharashtra Madgyal breed distributed in the districts of Sangali, Satara, and Solapur. Madgyal are unique sheep of Maharashtra popular for mutton. They are large sized animals, predominantly white with brown patches or spots. Few white as well as brown animals are also seen. The coat colour varies from white with brown patches to light brown with white patches. Head, face, belly and legs are devoid of wool. These sheep have prominent brown ring around the eyes. Backline is straight both sexes are polled and have typical roman nose. The ears are long, leaflike and drooping, the tail is medium and thin, and fleece is extremely coarse, hairy and open. Wattles are observed in a number of animals. Legs are long, strong and thin with grey hooves, udder is round with cylindrical teats and pointed tip.

Materials and Methods

Location: "The Punyashlok Ahilyadevi Sheep and Goat Development Project, Mahud". Tq. Sangola, Dist. Solapur. pin 413107 (MS).

Classification of data: The raw data was collected on the characters under study were classified in suitable sub-class frequency and were subjected for correction. The data was classified in to,

Effects: Following non-genetic factors effects were considered as source of variation.

Season: As per the climatological condition of farm the data of each year were divided into four seasons as: S1-Winter Season (December to February), S2-Summer Season (March to May), S3- Pre-Monsoon Season (June to September) and S4- Post-Monsoon Season (October to November)

Period: The data of 2 years period of body measurement were grouped into following 2 period viz., P1- January to December 2021 and P2- January to December 2022

Sex: G1- Male and G2- Female

Corresponding Author:

PD Tarange

Department of Animal Husbandry and Dairy Science, College of Agriculture, Latur, Maharashtra, India

Results and Discussion

Reproduction of Madgyal sheep

LSM and SE for reproduction of Madgyal sheep at 7-12 months of age: Table 1. shows that the LSMs for age at first service of Madgyal sheep of were 259.49±2.89 days at above 7-12 months of age. Age at first service in different breeds of

sheep were outlined by Clote *et al.* (2000) ^[1] 328 days dropper sheep, Patro *et al.* (2006) ^[6] 368.81±0.79 days in indigenous sheep and Mane *et al.* (2014) ^[5] 489±3.55 days in Deccani sheep. The LSMs for age at first service in the Madgyal sheep were, 255.26±3.60 and 263.73±4.30 days respectively in the PI and P2 Period.

Table 1: Shows that the LSMs for age at first service of Madgyal sheep of were 259.49±2.89 days at above 7-12 months of age

Sources code		LSM±SE	
		Age at first service	
Mean	N	259.49±2.89	
Period	10	255.26±3.60a	
	10	263.73±4.30b	
Season	8	249.06±4.03b	
	5	241.95±5.06a	
	2	256.73±8.41c	
	5	290.24±5.06d	

The LSMs for age at first service in the S1, S2, S3 and S4 season of the Madgyal sheep were, in order, 249.06±4.03, 241.95±5.06, 256.73±8.41 and 290.24±5.06. Table 1. shows that the LSMs for age at first service of Madgyal sheep of were 273.07±3.09 days at above 13-36 months of age. Age at first service in different breeds of sheep were outlined by Selvakkumar *et al.* (2019) ^[8] 509.41±9.83 days and Jehan *et al.* (2022) ^[3] 1078±2.2 days in Bolachi sheep. The LSMs for age at first service in the Madgyal sheep were, 272.21±4.10 and 273.92±3.60 days, respectively in the P1 and P2 Period. The LSMs of age at first service in the S1, S2, S3 and S4

season of the Madgyal sheep were, in order, 260.53±3.77, 271.24±7.95, 287.01±7.88 and 273.49±3.56 days.

LSMS and SE for reproduction of Madgyal sheep at 13-36 months

Table 2. Shows that the LSMs for age at first service of Madgyal sheep of were 273.07±3.09 days at above 13-36 months of age. Age at first service in different breeds of sheep were outlined by Selvakkumar *et al.* (2019) ^[8] 509.41±9.83 days and Jehan *et al.* (2022) ^[3] 1078±2.2 days in Bolachi sheep.

Table 2: Shows that the LSMs for age at first service of Madgyal sheep of were 273.07±3.09 days at above 13-36 months of age.

source	code	N	LSM±SE			
			Age at first service	Age at first lambing	service period	lambing interval
Mean	11	1124	273.07±3.09	425.41±2.99	111.69±1.58	27.65±1.48
Period	PI	58	272.21±4.10a	424.18±3.97a	111.08±2.09a	226.72±1.97a
	P2	66	273.92±3.68b	426.63±3.56b	112.30±1.88b	228.57±1.77b
Season	SI	48	260.53±3.77a	420.88±3.65a	110.62±1.93b	223.03±1.81a
	s2	11	271.24±7.95b	428.80±7.70d	106.17±4.07a	229.03±1.81C
	SJ	11	287.01±7.88d	426.61±7.63C	117.39±4.03d	231.64±3.79d
	S4	54	273.49±3.56C	425.33±3.44b	112.56±1.82C	225.96±1.71b

The LSMs for age at first service in the Madgyal sheep were, 272.21±4.10 and 273.92±3.60 days, respectively in the PI and P2 Period. The LSMs for age at first service in the SI, S2, SJ and S4 season of the Madgyal sheep were, in order, 260.53±3.77, 271.24±7.95, 287.01±7.88 and 273.49±3.56 days. Table 3. shows that the LSMs for Age at first lambing of Madgyal sheep of were 425.41±2.99 days at above 13-36 month of age. Age at first lambing in different breeds of sheep were outlined by Richard *et al.* (2003) ^[7] 21.60±0.09 months in Mecheri sheep, 16-18 months in Muzaffarnagri sheep, Patro *et al.* (2006) ^[6] 518.67±2.81 days. The LSMs for Age at first lambing in the Madgyal sheep were, 424.18±3.97 and 426.63±3.56 days respectively, in the PI and P2 Period. The LSMs for Age at first lambing in the SI, S2, SJ and S4 season of the Madgyal sheep were, in order, 420.88±3.65, 428.80±7.70, 426.61±7.63 and 425.33±3.44. The LSMs for Age at first lambing in the St, S2, S3 and S4 season of the Madgyal sheep were, in order, 420.88±3.65, 428.80±7.70, 426.61±7.63 and 425.33±3.44. Table 3. shows that the LSMs for service period of Madgyal sheep of were 111.69±1.58 days at above 13-36 months of age.

Service period in different breeds of sheep were outlined by Patro *et al.* (2006) ^[6] 149.90±0.08 days in indigenous meat type sheep. Tailor *et al.* (2007) ^[9] 124.98±4.22 days in Sonadi

sheep. The LSMs for service period in the Madgyal sheep were, 111.08±2.09 and 112.30±1.88 days respectively in the PI and P2 Period. The LSMs for service period in the SI, S2, S3 and S4 season of the Madgyal sheep were, in order, 110.62±1.93, 106.17±4.07, 117.39±4.03 and 112.56±1.82 days. Table 3 shows that the LSMs for lambing interval of Madgyal sheep of were 227.65±1.48 days at above 13-36 months of age. lambing interval in different breeds of sheep were outlined by Patro *et al.* (2006) ^[6] 214.01±0.33 days in indigenous meat sheep, Tailor *et al.* (2007) ^[9] 275.08±4.22 days in Sonadi sheep and Mane *et al.* (2014) ^[5] 307.90±1.37 days in Deccani sheep. The LSMs for lambing interval in the Madgyal sheep were, 226.72±1.97 and 228.57±1.77 days respectively in the P1 and P2 Period. The LSMs for lambing interval in the S1, S2, S3 and S4 season of the Madgyal sheep were, in order, 223.03±1.81, 223.03±1.81, 231.64±3.79 and 225.96±1.71 days.

LSM and SE for reproduction of Madgyal sheep above 36 months of age

Table 3. shows that the LSMs for age at first service of Madgyal sheep of were 263.92±3.68 days at above 36 months of age. Age at first service in different breeds of sheep were outlined by Patro *et al.* (2006) ^[6] 518.67±0.81 days. 650 days

in Malpura sheep, and Jehan *et al.* (2022) ^[3] 579.62±0.6 days. The L8Ms for age at first service in the Madgyal sheep were, 262.96±4.36 and 264.87±5.10 days respectively in the P1 and P2 Period. The L8Ms fo age at first service in the 81, 82, SJ and S4 season of the Madgyal sheep were, in order, 253.82±4.87, 272.75± 10.32, 253.69±7.90 and 275.4 1±4.56 days. Table 4. shows that the LSMs for age at first lambing of Madgyal sheep of were 430.04±3.38 days at above 36 months of age. Age at first lambing in different breeds of sheep were outlined by Tailor *et al.* (2007) ^[9] 709.67±8.38 days in Sonadi sheep, 10.6±01 months in Coimbatore sheep. The LSMs for age at first lambing in the Madgyal sheep were, 431.64±4.01

and 428.45±4.69 days respectively in the P1 and P2 Period. The LSMs for age at first lambing in the 81, 82, S3 and S4 season of the Madgyal sheep were, in order, 430.60±4.48, 428.75±9.49, 432.03±7.27 and 428.81±4.19 days. Table 4. Shows that the LSMs for service period of Madgyal sheep of were 111.97±2.06 days at above 36 months of age. Service period in different breeds of sheep were outlined by Jehan *et al.* (2022) ^[3] 206.25±0.2 days in Bolachi sheep and Tailor *et al.* (2007) ^[9] 124.98±4.22 days in Sonadi sheep. The LSMs for service period in the Madgyal sheep were, 114.38±2.45 and 109.55±2.86 days respectively in the P1 and P2 Period.

Table 3: Shows that the L8Ms for age at first service of Madgyal sheep of were 263.92±3.68 days at above 36 months of age.

Source	code	N	Age at first service	Age at first lambing	LSM±SE	
					Service period	Lambing interval
Mean		50	263.92±3.68	430.04±3.38	111.97±2.06	227.29±1.99
Period		30	262.96±4.36a	431.64±4.01b	114.38±2.45b	227.28±2.36a
	P2	20	264.87±5.10b	428.45±4.6988	109.55±2.868	227.31±2.768
Season	s1	18	253.82±4.878	430.60±4.48b	111.34±2.74C	228.05±2.63C
	s2	04	272.75±10.32b	428.75±9.498	110.25±5.80b	224.75±5.588
	83	07	253.69±7.908	432.03±7.27c	109.53±4.448	225.71±4.27b
	84	21	275.41±4.56C	428.81±4.18	116.75±2.56d	230.66±2.4d

The L8Ms for service period in the 81, 82, 83 and 84 season of the Madgyal sheep were, in order, 111.34±2.74, 110.25±5.80, 109.53±4.44 and 116.75±2.56 days. Table 4. Shows that the LSMs for lambing interval of Madgyal sheep of were 227.29±1.99 days at above 36 months of age. Lambing interval in different breeds of sheep were outlined by Islam *et al.* (2018) ^[2] 179.68±1.06 days in indigenous sheep of Bangladesh. The L8Ms for lambing interval in the Madgyal sheep were, 227.28±2.36 and 227.31±2.76 days respectively in the P1 and P2 Period. The L8Ms for lambing interval in the St, 82, S3 and S4 season of the Madgyal sheep were, in order, 228.05±2.63, 224.75±5.58, 225.71±4.27 and 230.66±2.4 days.

In the OI and O2 sex groups of the Madgyal sheep, the LSMs for wool were 200.19±10.29 and 210.24±5.61, gm respectively.

Table 5 shows that the LSMs for wool production of Madgyal sheep of were 225.12±10.56 gm at above 36 months of age. Higher values of wool production in different breeds of sheep were outlined as 1.52 kg in Malpura sheep. The LSMs for wool in the Madgyal sheep were 241.41±11.03 and 208.82±13.81 kg respectively in the P1 and P2Period.

**Wool production of Madgyal sheep
LSM and SE for production of Madgyal sheep at 13-36 months of age**

Table 4 shows that the LSMs for wool production of Madgyal sheep of were 205.21±6.20 gm at 13-36 months of age. Higher values of wool production in different breeds of sheep were outlined by Cloete *et al.* (2000) ^[1] 0.66 kg in Dorper sheep. The LSMs for wool in the Madgyal sheep were 214.11±7.89 and 196.32±6.97 gm respectively in the Pt and P2 Period. The LSMs for wool in the St, S2, S3 and S4 season of the Madgyal sheep were, in order, 198.06±7.31, 218.54±13.25, 210.68±13.68 and 193.58±7.68 gm.

Table 5: Shows that the LSMs for wool production of Madgyal sheep of were 225.12±10.56 gm at above 36 months of age

Sources	Code	N	LSM±SE
			Wool
Mean	IJ	58	225.12±10.56
Period	Pt	36	241.41±11.03b
	P2	22	208.82±13.81a
Season	St	22	197.85±12.138
	s2	05	266.57±22.61d
	S3	08	214.01±19.07b

The LSMs for wool in the Madgyal sheep were 241.41±11.03 and 208.82±13.81 kg respectively in the Pt and P2 Period. The LSMs for wool in the St, S2, S3 and S4 season of the Madgyal sheep were, in order, 197.85±12.13, 266.57±22.61, 214.01±19.07 and 222.04±12.99 gm. Inthe Gt and G2 sex groups of the Madgyal sheep, the LSMs for wool were 235.83±18.15 and 214.40±8.46 gm, respectively.

Table 4: Shows that the LSMs for wool production of Madgyal sheep of were 205.21±6.20 gm at 13-36 months of age.

Sources	Code	N	LSM±SE
			Wool
Mean		149	205.21±6.20
Period	PI	68	214.11±7.89b
	p2	81	196.32±6.978
Season	si	60	198.06±7.31b
	s2	15	218.54±13.25d
	S3	14	210.68±13.68c
	s4	60	193.58±7.688
Sex	OI	25	200.19±10.298
	O2	124	210.24±5.61b

Conclusions

Madgyal sheep are fairly well built with dropping ears, convex forehead with Roman nose, short and curved tail with round shape udder and cylindrical teat and pointed tip. Body measurements and reproduction, production of Madgyal sheep were found superior than other sheep breeds viz. Gurez, Hazaragie, Malpura, Sonadi etc. Madgyal sheep shows rapid growth rate, better body weight gain and good body measurements. This reveals that Madgyal sheep has the potential for increased mutton production and can be characterized as mutton purpose breed.

References

1. Cloete SWP, Snyman MA, Herselman MJ. Productive performance of Dorper sheep. *Small Ruminant Research*. 2000;36(2):119-135.
2. Islam S, Bhuiyan AFH, Ersaduzzaman MH, Lee SH, Bhuiyan MSA. Morphometric features, production and reproduction potentials of indigenous sheep genetic resources of Bangladesh. *Journal of Animal Breeding and Genomics*. 2018;2(2):107-115.
3. Jehan M, Bajwa MA, Tariq MM, Waheed A, Ahmad M, Ullah R, *et al.* A time-series assessment of the productive and reproductive performance of Balochi sheep. *Tropical Animal Health and Production*. 2022;54(5):1-9.
4. Kumar AR, Chandrahasan C, Iyue M, Selvaraju M, Palanisamy A. Reproductive and economic efficiency in Nilagiri and Sandyno ewes treated with PMSG. *Livestock Research for Rural Development*. 2010;22(2):101.
5. Mane PM, Pachpute ST, Nimase RG. Growth and reproductive performance of Deccani sheep in an organized farm. *Indian Journal of Small Ruminants*. 2014;20(2):23-27.
6. Patro BN, Mallick CR, Rao PK, Panda P. Production performance of Indigenous meat type sheep in Kendrapada District of coastal Orissa. *Indian Journal of Small Ruminants*. 2006;12(1):42-47.
7. Richard PN, Jagatheesan S, Arunachalam T, Kumar S, Selvaraju M. Performance of Mecheri sheep in its breeding tract. *Indian Journal of Animal Science*. 2003;73(8):909-912.
8. Selvakkumar R, Sivakumar T, Meenakshi S, Jawahar KTP, Vana NT. Reproductive performance of Vembur sheep in its home tract. *Indian Journal of Animal Health*. 2019;58(1):111-114.
9. Tailor SP, Gupta L, Nagda RK. Productive and reproductive performance of Sonadi sheep in their native tract. *The Indian Journal of Small Ruminants*. 2007;13(1):51-54.