

*Original Research***Reproductive Performance of Sheep in Irrigated and Rainfed Areas in Krishna District of Andhra Pradesh, India**Sai Satish Raju Sarikonda*, Asha Latha Peekka, Sudhakar Kaza and Raja Kishore Konka¹

Department of Livestock Production Management, NTR College of Veterinary Science (Gannavaram), Sri Venkateswara Veterinary University, Tirupati-521101, Andhra Pradesh, INDIA

¹Department of Animal Nutrition*Corresponding author: saisatishraju46@gmail.com

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Abstract

A study was conducted to assess the reproductive performance of sheep in irrigated and rainfed areas in Krishna district of Andhra Pradesh. The average age at first mating in ewes, age at first mating in rams, age at first lambing, lambing interval, age at weaning and weight at weaning in irrigated and rainfed areas were 13.16 ± 0.06 and 14.52 ± 0.06 months; 19.89 ± 0.18 and 19.63 ± 0.20 months; 18.24 ± 0.05 and 19.52 ± 0.06 months; 306.68 ± 0.81 and 308.53 ± 1.15 days; 3.71 ± 0.40 and 4.09 ± 0.05 months; 12.57 ± 0.07 and 10.98 ± 0.05 kg, respectively. Overall age at first mating in females, age at first lambing, age at weaning and weight at weaning differed significantly between the two areas. Reproductive performance of sheep flocks in irrigated area was significantly better than the flocks in rainfed area.

Key words: Irrigated Area, Krishna District, Rainfed Area, Reproductive Performance, Sheep**How to cite:** Sarikonda, S., Peekka, A., Kaza, S., & Konka, R. (2019). Reproductive Performance of Sheep in Irrigated and Rainfed Areas in Krishna District of Andhra Pradesh, India. International Journal of Livestock Research, 9(12), 68-72. doi: 10.5455/ijlr.20190812052918**Introduction**

Sheep husbandry has served as the sustainable livelihood resource option for people living in the arid and semi-arid regions of the world since long time. The rearing of small ruminants (goats and sheep) in drylands is very important, since they serve as a lifeline during drought years by providing income and sustenance to the farming community and grazers (Rangnekar, 2006). Although nature has been a little biased towards these regions by imparting less vegetation resources, in contrast, all these regions have been gifted by nature with the real sustainable livelihood options for survival of the rural population and that is sheep and goat. The small ruminant's suite the need of small land holders and village system due to low initial investment,

ease of rearing and high feed conversion efficiency. Besides this they are very well adapted to harsh climate, long migration, resistance against tropical diseases, poor nutritional conditions, shortage of drinking water and water quality. Small ruminants play an important role in the food and nutritional security of millions of rural people especially the landless, marginal and small farmers in arid and semiarid rainfed regions. They act as a means of asset retention with high liquidity and help in absorbing unemployed family labour (Suresh *et al.*, 2007). Small ruminants are widely distributed and are of great importance as major source of livelihood for small holder farmers and the landless in rural communities in developing countries. Assessing the reproductive parameters will help in knowing the present reproductive performance of flock under field conditions, this intern will help in knowing the problems related to altered reproductive performance, as this was one of the most important economic traits of sheep. The aim of the present study was to assess the reproductive performance of sheep in irrigated and rainfed areas in Krishna district of Andhra Pradesh.

Materials and Methods

The present study was conducted in the Krishna district of Andhra Pradesh. Selection of respondents was made by multistage stratified random sampling technique. The district is divided into two areas i.e irrigated and rainfed areas. In the first stage from each area, five mandals were selected. In the second stage from each mandal, five villages were selected at random. In the third stage from each selected villages, 5 sheep farmers were selected forming total respondents of 250 sheep farmers. On the basis of above classification, the study involved a total number of 2 areas, 10 mandals, 50 villages and 250 sheep farmers. Reproductive performance of rams and ewes was studied with the help of a pre-tested questioner. The information on age at first mating in males, age at first mating in females, age at first lambing, lambing interval, age at weaning and weight at weaning were collected by interacting with the shepherds or from the records, wherever they are available. The data collected were subjected to standard statistical procedures as per Snedecor and Cochran (1994).

Acharya (1982) recorded the average age at first lambing and lambing interval as 846 and 428 days, respectively in Nellore sheep. Kushwaha *et al.* (1999) reported that age at first mating among Chokla sheep flock was 18 months in rams and for ewes was 10-15 months. Kushwaha *et al.* (1999b) reported that age at first mating of Munjal breed was around 12 to 15 months in females, while males were generally used for breeding at around 18 months of age. Dixit *et al.* (2002) reported that the least squares mean for age at first conception, age at first lambing, service period and lambing interval were 580 ± 13 days, 730 ± 13 days, 142 ± 26 days and 290 ± 26 days, respectively in Bharat Merino sheep. Rajanna *et al.* (2012) reported that the least squares mean for age at first mating, age at first lambing and lambing interval were 610.00 ± 3.81 , 788.39 ± 3.94 and 420.93 ± 2.76 days, respectively in Nellore sheep in farmers flock of Telangana.

Results and Discussion

Age at First Mating in Females

The average age at first mating in ewes in irrigated and rainfed area was 13.16 ± 0.06 and 14.52 ± 0.06 months, respectively. There was a significant difference in age at first mating in females between irrigated and rainfed area ($P < 0.01$).

Age at First Mating in Males

The average age at first mating in rams in irrigated and rainfed area were 19.89 ± 0.18 and 19.63 ± 0.20 months, respectively. There was no significant difference in age at first mating in males between irrigated and rainfed areas ($P < 0.05$).

Age at First Lambing

The average age at first lambing in irrigated and rainfed area was 18.24 ± 0.05 and 19.52 ± 0.06 months, respectively. There was a significant difference in age at first lambing of sheep between irrigated and rainfed area ($P < 0.01$).

Lambing Interval

The mean lambing interval in irrigated and rainfed area was 306.68 ± 0.81 and 308.53 ± 1.15 days, respectively. There was no significant difference in lambing interval of sheep between irrigated and rainfed areas ($P < 0.05$).

Age at Weaning

The mean age at weaning in irrigated and rainfed area was 3.71 ± 0.40 and 4.09 ± 0.05 months, respectively. There was a significant difference in age at weaning of lambs between irrigated and rainfed area ($P < 0.01$).

Weight at Weaning

The mean weight at weaning in irrigated and rainfed area was 12.57 ± 0.0 and 10.98 ± 0.05 kg, respectively. There was a significant difference in weight at weaning of lambs between irrigated and rainfed area ($P < 0.01$).

Table 1: Reproductive performance of sheep in irrigated and rainfed areas of Krishna district

Parameter	Irrigated area	Rainfed area	t-value (df)	Overall
Age at first mating in female (Months)	13.16 ± 0.06 (125)	14.52 ± 0.06 (125)	14.929**	13.84 ± 0.06 (250)
Age at first mating in male (Months)	19.89 ± 0.18 (125)	19.63 ± 0.20 (125)	-0.958	19.76 ± 0.13 (250)
Age at first lambing (Months)	18.24 ± 0.05 (125)	19.52 ± 0.06 (125)	14.403**	18.88 ± 0.06 (250)
Lambing interval (Days)	306.68 ± 0.81 (125)	308.53 ± 1.15 (125)	1.313	307.60 ± 0.70 (250)
Age at weaning (Months)	3.71 ± 0.40 (125)	4.09 ± 0.05 (125)	5.397**	3.90 ± 0.03 (250)
Weight at weaning (Kg)	12.57 ± 0.07 (125)	10.98 ± 0.05 (125)	17.219**	11.78 ± 0.06 (250)

Values in the parenthesis indicate number of observations; ** indicates the values in a row were more significantly differed ($P < 0.01$); * indicates the values in a row were significantly differed ($P < 0.05$)

The age at first mating in females in the present study were comparable to the findings reported by earlier workers as 10-15 months in Chokla sheep by Kushwaha *et al.* (1999). Higher age at first mating in female reported as 16.41 ± 0.12 months in Ganjam sheep by Mishra *et al.* (2004) and 19 months in Sonadi and Malpura sheep by Mehta *et al.* (1995). Whereas, lower age at first mating in females reported by Kandasamy *et al.* (2006) in Coimbatore sheep as 11.10 ± 0.10 months. The age at first mating in males in the present study were comparable to the findings reported by earlier workers as 18 months in Chokla sheep by Kushwaha *et al.* (1999). Higher age at first mating in males reported as 24 months in Sonadi and Malpura sheep by Mehta *et al.* (1995). Whereas, lower age at first mating in males reported by Kandasamy *et al.* (2006) in Coimbatore sheep as 12.50 ± 0.10 months, 12 months in Rampur Bushair sheep by Dixit *et al.* (2005), 10-14 months in Muzaffarnagri sheep by Dinesh *et al.* (2006). The age at first lambing in the present study was comparable to the findings of Kandasamy *et al.* (2006) in Coimbatore sheep (16.60 ± 0.10 months), Poonia (2008) in Munjal sheep (530.53 ± 12.39 days) and Mane *et al.* (2014) in Deccani sheep (638.91 ± 3.56 days). Higher AFL was reported by Acharya (1982) and Rani *et al.* (2014) in Nellore sheep (841.04 ± 1.21 days) and Dey and Poonia (2005) in Nali sheep (925.08 ± 13.02 days). The lambing interval recorded in the present study were comparable with the findings of Dixit *et al.* (2002) in Bharat Merino sheep (290 ± 26 days) and Mane *et al.* (2014) in Deccani sheep (307.90 ± 1.37 days). However higher lambing interval was reported by Rajanna *et al.* (2012) in Nellore sheep (420.93 ± 2.76 days) and lower values reported by Patro *et al.* (2006) in indigenous meat-type sheep of coastal Orissa (214.01 ± 0.33 days). The age at weaning of the present study was comparable to the reports of Rao *et al.* (2013), where the age at weaning for lambs were 3.25 ± 0.04 months in North Coastal zone of Andhra Pradesh. Rao *et al.* (2004) recorded the weight at weaning as 11.67 kg and 12.24 kg in Nellore Jodipi and Palla sheep respectively. Overall better reproductive performance was noted in the sheep of irrigated area compared to the sheep of rainfed area in Krishna district of Andhra Pradesh. This was due to the availability of better grazing, water facilities in the irrigated area. Moreover, the sheep in irrigated area will be less subjected to environmental stress which intern will show effect on reproductive performance of the animal.

Conclusion

The average age at first mating in ewes, age at first mating in rams, age at first lambing, lambing interval, age at weaning and weight at weaning in irrigated and rainfed area were 13.16 ± 0.06 and 14.52 ± 0.06 months; 19.89 ± 0.18 and 19.63 ± 0.20 months; 18.24 ± 0.05 and 19.52 ± 0.06 months; 306.68 ± 0.81 and 308.53 ± 1.15 days; 3.71 ± 0.40 and 4.09 ± 0.05 months; 12.57 ± 0.0 and 10.98 ± 0.05 kg, respectively. A significant difference noted in all reproductive parameters of sheep between irrigated and rainfed area except in age at first mating in male and lambing interval ($P < 0.01$).

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