Original Research

Performance of Deoni Cattle in Telangana, India

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Abstract

An investigation was carried out to study the performance of Deoni cattle in Northern part of Telangana state. The data was collected through personal pretested schedule from 150 farmers selected by stratified random sampling technique. The average lactation milk yield (litres) and lactation length (days) in Deoni cows was 796.31± 8.14 and 228.60 ±1.55, respectively in the study area. The average lactation milk yield (litres) and lactation length (days) significantly (P≤0.01) higher in Sangareddy than Kamareddy district. Mean peak milk yield (litres) and days to reach peak milk yield was 4.68 ± 0.05 and 46.83 ± 0.20, respectively in the study area. The mean age at puberty, AFC, service period, gestation period, dry period and calving interval in Deoni cows were 45.31 ± 0.21, 54.28 ± 0.21, 5.12 ± 0.09, 9.25 ± 0.02, 5.27 ± 0.05 and 15.41 ± 0.10 months, respectively in the study area. Significantly (P<0.01) higher service period was observed in Sangareddy district whereas dry period was significantly (P<0.01) higher in Kamareddy district. The vast range in the productive and reproductive performance indicates that there is great potential for genetic improvement of the breed through selective breeding.

Key words: Deoni Cattle, Productive and Reproductive Performance, Telangana

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Introduction

Livestock sector plays a pivotal role in the wellbeing of India's rural population as it provides sustainable livelihoods and also provides a large share of draft power to cultivate crop land. Cattle rearing is supplementary to agriculture and forms part of social and cultural heritage of Indian civilization. Cattle have been the source of livelihood for landless and resource deficit farmers and majority of them having 1-2 cattle. Indigenous cattle have been instrumental in providing milk, milk products, draft power, biofertilizer and bio fuel besides producing bio-molecules and other products beneficial for human health (Gandhi, 2018). Deoni cattle is known for draught capacity, heat tolerance, disease resistance and

adaptability to harsh climatic conditions. Deoni cattle is one among the other 41 registered breeds which was originated Maharashtra. This breed is also distributed in small numbers in the neighbouring districts of Gulbarga in Karnataka; Parbhani, Nanded and Osmanabad districts of Maharashtra, and some parts of Medak district of Andhra Pradesh (Das *et al.*, 2011). Breed wise survey (2013) revealed that the total Deoni population in India is 3, 51,600 which comprises pure (1, 51,236) and graded Deoni (2, 01,145). The percentage of Deoni cattle to total indigenous cattle is 0 .23. Deoni cattle are distributed across the Telangana but highest population is found in Sangareddy and Kamareddy districts. The population of Deoni cattle in Telangana is about 76,436. Very few studies have been carried in the country and none in Telangana with regards to the performance of Deoni cattle in field conditions to bring out improvement. Hence, the present study is planned to evaluate the performance of the Deoni cattle rearing in Telangana state.

Materials and Methods

The study was carried in Kamareddy and Sangareddy districts of Northern Telangana. A multistage stratified random sampling technique was applied to select the mandals, villages and respondents in the selected districts for the present study. Out of the 31 districts in Telangana State, Kamareddy and Sangareddy districts were purposively selected based on the larger population of Deoni cattle as per the breed-wise livestock census (2012) data. In the second stage of selection, from each selected district, three mandals were selected based on highest Deoni cattle population to make a total number of 6 mandals. In third stage, from each selected mandal, five villages were selected so as to form a total of 30 villages. In the fourth stage of selection, five Deoni cattle farmers were selected at random from each village for the present study thus giving a total sample size of 150.

The productive and reproductive performance of Deoni cattle was studied through interview schedule by recording the data. The information on productive performance indicators like lactation milk yield, lactation length, peak milk yield, days to reach peak milk yield were collected based on the memory/ recall of the respondents (Varaprasad *et al.*, 2013). Similarly, information related to age at puberty, age at first calving, service period, gestation period, dry period and calving interval were collected to assess the reproductive performance. Data were subjected to analysis of variance according to the procedure described by Snedecor and Cochran (1994) using SPSS, version 22.0.1 (Statistical package for social sciences)

Results and Discussion

Productive Performance

The overall average lactation milk yield of Deoni cows was 796.31± 8.14 litres in the study area (Table 1). Lactation milk yield was significantly (P≤0.01) higher in Sangareddy (831.91± 10.41) than Kamareddy

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district (760.7± 11.12). This could be due to the better nutrition of the animals and management practices adopted by the farmers in Sangareddy district. The results in the present study are comparable with the Dongre *et al*. (2017a) who reported the lactation milk yield was 714.26± 69.72 kg in Deoni cattle in Udgir, Latur district. In contrast to this, Chakravarthy *et al*. (2002), Kumar *et al*. (2006) and Bhutkar *et al*. (2014b) reported lower lactation milk yield (238.86±76.00, 544.06±15.33 and 358.31±27.18 kg, respectively) in Deoni cattle reared in farm conditions. However, Kuralkar *et al*. (2015) reported higher (830 to 973kgs) lactation milk yield among three strains of Deoni breed of cattle.

Table 1: The mean (± SE) Productive performance of Deoni cattle in the study area

S. No.	Parameters	Kamareddy (N=75)	Sangareddy (N=75)	Overall (N=150)
1	Lactation milk yield (in liters)	760.72^{a}±11.12	831.91^{b} ±10.41	796.31±8.14
2	Lactation length (in days)	222.81^{a}±1.95	234.39^{b}±2.22	228.60±1.55
3	Peak milk yield (in liters)	4.43^{a}±0.07	4.93^{b}±0.08	4.68±0.05
4	Days to reach peak yield (in liters)	45.43^{a}±0.15	48.23^{b}±0.31	46.83±0.20

^{ab} *Means with different superscript in the same row differ significantly (P<0.01)*

Lactation Length

The overall mean lactation length of Deoni cows was 228.60 ±1.55 days and ranged from 190 to 270 days in the study area. It was significantly (P<0.01) lower in Kamareddy district (222.81± 1.95) than Sangareddy district (234.39 ± 2.22). This could be due to the varied agro-climatic conditions in the study areas. The present findings are in agreement with Bhutkar *et al.* (2014b) and Kuralkar *et al*. (2015) who have reported that the overall lactation length was 226.98, 213.90± 13.74 and 246.89±7.02 days, respectively in Red Sindhi and Deoni cattle. In contrast to present results Dongre *et al.* (2017b) reported higher lactation length as 284.89± 31.92 days in Deoni cattle maintained at Veterinary College farm in Udgir, Latur district.

Peak Milk Yield

The results from the Table 1 indicated that the overall mean peak milk yield of Deoni cows was 4.68 ± 0.05 litres in the study area. There was a significant (P<0.01) difference between the districts due to adoption of different managemental practices and climatic conditions. The results in the present study are corroborated with the findings of Dongre *et al.* (2017a) who observed the peak milk yield as 4.58 litres in Deoni cattle. Chakravarthy *et al.* (2002), Bhutkar *et al.* (2014b) and Thorat *et al.* (2016a) reported lower peak milk yield in Deoni cattle.

Days to Reach Peak Milk Yield

The overall mean days to reach peak milk yield of Deoni cows was 46.83 ± 0.20 days in the study area. Significantly (P<0.01) higher days to reach peak milk yield was observed in Sangareddy district. A similar

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results were reported by Chakravarthy *et al*. (2002) and Bhutkar *et al*. (2014b) in Deoni cattle. Mayekar *et al*. (2010) observed the higher days (69.43) to reach peak milk yield in Gir cattle.

Reproductive Performance

Age at Puberty

The overall mean age at puberty in Deoni cows were recorded as 45.31 ± 0.21 months and ranged from 39 to 52 months in the study area. There was no difference observed among the districts. The results in the present study was higher than the findings of Kuralkar *et al.* (2014) who reported in his study as 35.45 ±0.30 months in Deoni cows in its native tract.

Age at First Calving

As per the farmers perception, the mean AFC in Deoni cows was 54.28 ± 0.21 months in the study area. AFC depends upon the age at puberty and the present finding was reflect of higher age at puberty in Deoni cows. In contrast to the present findings, Kuralkar *et al.* (2014) and Dongre *et al.* (2017b) reported lower mean value for AFC as 44.50±0.30 and 36 to 51.1 months, respectively in Deoni cows.

Table 2: Mean reproductive performance of Deoni cattle in the study area

S. No.	Parameters	Kamareddy (N=75)	Sangareddy (N=75)	Overall (N=150)
1	Age at puberty (in months)	45.71±0.30	44.91±0.28	45.31±0.21
2	Age at first calving (in months)	54.61±0.30	53.91±0.28	54.28±0.21
3	Service period (in months)	5.57 [a]±0.11	4.67[b]±0.12	5.12±0.09
4	Gestation period (in months)	9.23±0.02	9.26 [b]±0.02	9.25±0.02
5	Dry period (in months)	5.67 [a]±0.05	4.87±0.05	5.27±0.05
6	Calving interval (in months)	15.29±0.15	15.53±0.14	15.41±0.10

[ab] *Means with different superscript in the same row differ significantly (P<0.01)*

Service Period

The overall mean service period in Deoni cows was 5.12 ± 0.09 months and ranged from 3 to 8 months in the study area. Significantly (P<0.01) higher service period was observed in Sangareddy than Kamareddy district. A similar results are reported by Chakravarthi *et al.* (2002) in Deoni cows. Kuralkar *et al.* (2014) reported the service period as 3.9 months while Dongre *et al.* (2017b) as 7.52± 1.40 months in Deoni cattle in their respective studies. These findings indicate that the farmers were not aware of postpartum heat detection and the benefit of mating the animals within optimum service period.

Gestation Period

The results from the study indicated that the gestation period of Deoni cows was 9.23 ± 0.02 and 9.26±0.02 months, respectively in Kamareddy and Sangareddy districts and the overall mean gestation period as 9.25 ± 0.02 months in the study area. These results can be corroborated with the findings of Sarder (2006) and Dongre *et al.* (2017b).

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Dry Period

Dry period of Deoni cows was significantly (P<0.01) higher in Kamareddy (5.67±0.05) than Sangareddy district (4.87±0.05). The overall mean dry period in Deoni cows was 5.27 ± 0.05 months with a range of 4 to 6 months in the study area. Chakravarthi *et al.* (2002) reported lower value in Deoni cattle maintained at Dairy Experimental Station, Rajaendranagr, Hyderabad. However, Kumar *et al.* (2006), Das *et al.* (2013), Bhutkar *et al.* (2014b) and Dongre *et al.* (2017b) have reported higher dry period ranging from 6.82 to 9.63 months in Deoni cattle. The higher dry period in the present study could be due to shorter lactation length and low persistence in the milk production of Deoni cows.

Calving Interval

Longer calving interval lowers the productive lifespan of animal and lesser progenies would be obtained. For economic milk production, the cow should calve regularly at an optimal interval. The farmer always prefers an animal having shorter calving interval for better economic gain. In present study, the district-wise calving interval varied from 15.29± 0.15 months in Kamareddy district to 15.53± 0.14 months in Sangareddy district with average calving interval of 15.41 ± 0.10 months in the study area. The present findings are similar to the findings of Chakravarthi *et al.* (2002) and Kumar *et al.* (2006) in Deoni cows maintained in farm conditions. Whereas, Das *et al.* (2011) and Kurlkar *et al.* (2014) have reported lower calving interval ranging from 13.2 to 14.9 months in Deoni cows.

Conclusion

Deoni is cattle is known for its drought capacity, heat tolerance, disease resistance and it can thrive in harsh climatic conditions. A study on the performance of Deoni cattle in Northern Telangana has revealed that the Deoni cattle has a wide performance potential which can further be improved over a period of time through proper selection and management in the breeding tract of Telangana state.

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