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Factors affecting lactation performance of Deoni cattle

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Abstract
The study was conducted to asses lactation performance of 123 Deoni cattle in 13 villages of Bidar district of Karnataka, India. The data was systematically compiled and analysed using least squares analysis to study the effect of age group, parity and season of calving on lactation performance. The overall mean values of lactation milk yield, lactation length and peak yield were found to be 966.08 kg, 259.15 days and 5.69 kg, respectively. Lactation milk yield and peak yield were not affected by any of the factors studied where as lactation length was significantly affected by season of calving, with summer calves having least performance. The results indicated that Deoni cattle have a good productive life and are well suited to the agro-climatic conditions of the region.

Keywords: Deoni cattle, lactation performance, lactation length, milk yield, peak yield

Introduction
Animal husbandry plays an important role in livelihood security and economic sustenance of farmers, especially in rainfed areas. As per the 20th Livestock Census of 2019, the total livestock population in India was 535.78 million with an increase of 4.6% over 2012, and total cattle population was 192.49 million. Karnataka was the 9th largest state in cattle and buffalo population in the country, accounting for 29 million and it had 4.70% of the total population (DAHD, 2019) [21]. Deoni is an important dual-purpose cattle breed of India. The migration of Gir breed of cattle to Marathwada region and the consequent admixture with Dangi and local cattle of north-western and western parts of erstwhile Hyderabad state resulted in the formation of Deoni breed (Thorat, 2013) [20].
The home tract of the Deoni breed is Udgir, Ahmedpur, Nilanga and Ausa tehsils of Latur district of Maharashtra and adjoining areas of Telangana, Bidar and Gulbarga districts of Karnataka state. Deoni breed has evolved into three morphological types that are distinguished by their body colour patterns. They are (i) Balankya, animals with complete white body coat and without any spots on the body, (ii) Wannera, animals with white body and black shades on sides of the face, and (iii) Shevera/Waghya, animals with white and black shades or patches or spots scattered all over the body.
In an extensive study the overall mean lactation milk yield and lactation length was estimated as 819.98±16.50 kg and 195.23±2.62 days respectively. Basak and Das (2018) [1]. As various non-genetic factors influence the productive performance of cattle, this study was carried out to study the effect of parity, age and season of calving on the lactation performance of Deoni cattle in its home tract of Bidar district of Karnataka.

Materials and Methods
The present study was carried out using performance data of 123 Deoni cattle in 13 villages of Bidar district of Karnataka State as part of a research project on 'Field performance recording of Deoni cattle in Bidar district' under Rashtriya Gokul Mission sponsored by Karnataka Livestock Development Agency. The lactation milk yield was estimated using the Test Interval Method (Interpolation Method) approved by the International Committee for Animal Recording (2012). The cows were categorized based on their age group (4-6, 6-8, 8-10, 10-12 and 12-14 years) and parity (1-9). The season of calving was divided into 3 groups based on agro-climatic conditions of the region - summer (March to June), rainy (July to October) and winter (November to February). Statistical analysis of the factors influencing lactation performance was done by using Least Squares Analysis as per the procedure given by Harvey 1975 using SAS University Edition (ver. SAS Studio 3.8).

Results and Discussion

The least squares means of lactation milk yield (LMY), lactation length (LL) and peak yield (PY) of Deoni cattle are given in Table 1. The overall mean values of lactation milk yield, lactation length and peak yield were found to be 966.08±35.915 kg, 259.15±4.883 days and 5.69±0.176 kg, respectively. The LMY values obtained in this study are in agreement with Deshpande (1970) [8] (818.1 and 1041.9 kg at Hingoli and Udgir farms respectively), Singh *et al*. (2002) [17] (868.24±49.56 litres), Das *et al*. (2012) [6] (911.14 kg), Kuralkar *et al*. (2014) [11] (910.95±27.62 kg), Patil (2014) [14] (881.35±37.64 kg), Saravanan *et al.* (2015) [15] (824.44±149.99 kg), and Basak and Das (2018) [1] (819.98±16.50 kg).In contrast, higher LMY values were reported by Padwal (1975) [13] (1120.49±62.89 litres) and Gatchearle *et al.* (2009) [9] (1193.22±44.79 kg); while lower LMY were reported by Shingare *et al*. (2015) [16] (236.43±12.71 kg), Bhutkar *et al*. (2014) [3] (358.31±27.18 kg), Das *et al*. (2011) [7] (779.27±18.31 kg), Chakravarthi *et al*. (2002) [4] (238.86±76.00 kg) and Thombre *et al*. (2004) [3] (518.23±22.44 kg).

Age group

In present study the observation regarding lactation performance based on age groups, 10-12 years age group had the highest LMY (973±148.68 kg) and PY (6.47±0.720 kg) while, lowest LMY (802±145.410 kg) and PY (5.09±0.705 kg) was recorded in age groups of 12-14 years. Similarly, highest LL (230.26±18.23 days) was recorded in age groups of 6-8 years and lowest LL (209.60±14.95 days) was recorded in age groups of 8-10 years, respectively. However, age group did not have any significant effect on the traits studied. No reports regarding the effect of age on the lactation performance in Deoni cattle were found. The consistent performance of Deoni cattle across age groups indicates that they are well suited to the agro-climatic conditions in their home tract.

Parity

The highest LMY (1106.87±441.00 kg) and PY (9.19±2.137 kg) was recorded in parity number 9, while lowest LMY (772.12±116.92 kg) was recorded in parity number 3 and lowest PY (4.83±0.852 kg) was recorded in parity number 1. The highest LL (239.38±20.607 days) was recorded in parity number 1 and lowest LL (201.75±15.623 days) was recorded in parity number 2. However, parity did not have any significant effect on the traits studied, possibly due to the very few number of observations in higher parities. Similar observations were made by Shingare *et al.* (2015) [16] in a study on 114 Deoni cows maintained at Marathwada Agriculture University, Parbhani. Saravanan *et al.* (2015) [15] studied 51 lactating Deoni cows maintained at National Dairy Research Institute SRS Bangalore and reported similar inconsistent trend of LMY with increasing parity. In contrast, Basak and Das (2018) [1] reported that LMY and LL of Deoni cattle at the same farm were highly influenced (p<0.01) by parity of the cows, with maximum values observed in the fifth and above parity, and minimum values in the first parity. As all these comparative reports are from institutional herds with standard management practices, they are indicative in nature. The present study reveals that lactation performance of Deoni cattle reared by traditional farmers is consistent until the seventh parity.

Season of calving

Among the lactation traits studied, only lactation length was found to be significantly affected by season of calving, with highest values in rainy season calvers (277.49±9.599 days) and lowest values in summer season calvers (140.20±29.716 days). The analysis of calving data revealed that only 2.4 per cent calvings took place in summer season, while 56.9 per cent of the calvings took place in rainy season. The extremely low number of calvings in summer could be responsible for non-significant impact of season of calving on LMY. The highest LMY (1052.30±81.90 kg) was recorded in rainy season (July-October) and the lowest LMY (609.64±253.56 kg) in summer season (March-June). Similar findings were reported by Basak *et al.* (2018) [1] in their study on 296 Deoni cattle maintained at National Dairy Research Institute, SRS Bengaluru regarding first lactation milk yield. In contrast, Shingare *et al.* (2015) [16] reported that season did not significantly affect persistency and lactation traits in Deoni cows. Chauhan and Ghosh (2015) [5] and Basak and Das (2018) [1] reported highest and lowest LMY and LL in winter and summer calvers, respectively. Higher LMY in winter calvers in institutional farms as compared to this study could be attributed to greater emphasis on fodder conservation and availability in summer months in the former.

Table 1: Least Squares Means of Lactation performance in Deoni cattle

Sl. No	Groups	n	Lactation Milk yield (kg)	Lactation length (days)	Peak yield (kg)
1.	**Age Group (years)**				
	4-6	25	899.86±178.780	219.64±20.952	6.25±0.866
	6-8	28	932.67±155.630	230.26±18.239	6.36±0.754
	8-10	38	834.17±127.640	209.60±14.959	6.03±0.618
	10-12	15	973.00±148.680	220.93±17.425	6.47±0.720
	12-14	17	802.49±145.410	209.97±17.042	5.09±0.705
2.	**Parity**				
	1	13	767.95±175.840	239.38±20.607	4.83±0.852
	2	23	819.89±133.310	201.75±15.623	5.99±0.646
	3	25	772.12±116.920	213.84±13.703	5.38±0.567
	4	22	868.72±120.780	230.50±14.155	5.36±0.585
	5	22	912.03±133.580	226.38±15.655	5.55±0.647
	6	07	791.94±187.930	216.36±22.025	5.26±0.911
	7	08	882.43±207.120	219.68±24.273	6.19±1.004
	8	02	1074.01±336.920	228.14±39.485	6.58±1.633
	9	01	1106.87±441.000	186.71±51.684	9.19±2.137
3.	**Season**				
	Summer (Mar-Jun)	03	609.64±253.560	140.20 a±29.716	5.74±1.229

	Rainy (Jul-Oct)	70	1052.30± 81.907	277.49 $^{b\pm}$ 9.599	5.95±0.397
	Winter (Nov-Feb)	50	1003.38± 83.196	236.56 $^{c\pm}$ 9.750	6.42±0.403
	Overall	123	966.08± 35.915	259.15± 4.883	5.69±0.176

Note: Column-wise means within a group having different superscripts differ significantly (p<0.05)

Conclusion

The study revealed that the season of calving had a significant effect of the lactation length while parity did not have a significant effect on any of the production traits studied, there was improved performance in advanced parity upto seventh of Deoni cattle reared under field conditions in Bidar District of Karnataka. This indicates better productive life in Deoni cattle, even under field conditions. However, more records of higher parities need to be studied before a final conclusion is made in this regard.

Conflict of Interest: None

References

1. Basak S, Das DN. Effect of parity, period and season of calving on production and reproduction traits on Deoni cattle. J Anim. Health Prod. 2018;6(1):1-4.
2. Basak S, Das DN, Mundhe UT. Genetic and non-genetic factors affecting productive and reproductive traits in Deoni cattle. Indian J Anim. Res. 2019;53(6):699-703.
3. Bhutkar SS, Thombre BM, Bainwad DV. Effect of non-genetic factors on production traits in Deoni cows. Int. Organ. Sci. Res. J Agric. Vet. Sci, 2014;7(12):09-14.
4. Kalyana Chakravarthi M, Sasidhar PVK, Ramana Reddy Y. Productive and reproductive performance of Deoni cattle. Indian journal of dairy science. 2002;55(1):56-57.
5. Chauhan DS, Ghosh Nilotpal. Association of climatic variables with lactation peformance of Deoni cows in subtropical region of India. Vet Sci Res J. 2015;6(1):10-15.
6. Das DN, Jeyakumar S, Ramesha KP, Srinivas B, Kataktalware M. Deoni cattle: A dual-purpose breed of southern India. In NDRI News. 2012;17(3):15-16
7. Das DN, Kataktalware MA, Ramesha KP, Reddy AO. Productive and reproductive performances of Deoni cattle under intensive management system. Indian Journal of Animal Sciences. 2011;81(11):1186-1188.
8. Deshpande KS. Studies on Economic Traits of Deoni Cattle (Doctoral dissertation, UP college of veterinary Science and animal husbandry), 1970.
9. Gatchearle PL, Mitkari KR, Mule RS, Baswade SV, Adangale SB. Effect of age at first calving on lactation milk yield and lactation length. Indian Journal of Animal Research. 2009;43(3):228-229.
10. Harvey WR. Least-squares analyses of data with unequal sub-class numbers. Washington, DC: USDA. Agricultural Research Service; c1975.
11. Kuralkar SV, Bankar PS, Chopade MM, Kuralkar P, Dhaware SA. Phenotypic characteristics, production and reproduction performance of Deoni cattle in its native tract. Indian Journal of Animal Sciences. 2014;84(1):75-77.
12. Livestock Census. Dairying in Karnataka A Statistical Profile; c2015. Retrieved from http://www.dahd.nic.in
13. Padwal BB. Performance of Deoni herd at cattle breeding farm Udgir and agriculture college dairy Parbhani (Doctoral dissertation, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani, India); c1975. Retrieved from http://krishikosh.egranth.ac.in/handle/1/5810045633
14. Patil VM. A critical appraisal of the management practices of Deoni cattle in Bidar District (Doctoral dissertation, Veterinary College Bangalore, KVAFSU, Bidar, India; c2014. Retrieved fromhttp://krishikosh.egranth.ac.in/handle/1/67776
15. Saravanan R, Das DN, De S, Panneerselvam S. Effect of season and parity on somatic cell count across zebu and crossbred cattle population. Indian J Anim. Res. 2015;49(3):383-387.
16. Shingare VM, Chauhan DS, Bhise BR, Ghosh N. Estimates of genetic parameters and trends of lactation performance traits of deoni cattle. Theriogenology Insight. 2015;5(2):69.
17. Singh G, Gaur GK, Nivsarkar AE, Patil GR, Mitkari KR. Deoni cattle breed of India. A study on population dynamics and morphometric characteristics. Animal Genetic Resources/Resources génétiques animales/Recursos genéticos animales. 2002;32:35-43.
18. Suryawamshi SM, Siddiqui MF, Dhumal MV, Auradkar SK, Borsaikia A. A comparative review on Deoni cattle breed of Maharashtra. In Proc. International Conference on Small Holder Livestock Production System in Developing Country; c2000. p. 24-27.
19. Hombre BM, Mitkari KR, Patil GR, Jadhav VS. Age at first calving effect on economic traits in Deoni cattle of Maharashtra. Indian J Anim. Res. 2001;35(1):65-67.
20. Thora BN. Effect of climatic parameters on milk production in Deoni cattle (Doctoral dissertation, Vasantrao Naik Marathwada Krishi Vidyapeeth, Parbhani, India); c2013. Retrieved fromhttp://krishikosh.egranth.ac.in/handle/1/ 5810052347
21. DAHD G. Department of Animal Husbandry and Dairying (DAHD). Government of India, Annual Report; c2019.