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Productivity performance of Kangayam cattle

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Kangayam cattle is an excellent draught breed of cattle, are seen in Kangayam, Dharapurm, Perundurai, Karur and Palani talukas of Tamil Nadu located in southern India. Kangayam calves are generally red at birth and change to grey colour around six months. Bulls and cows are grey. The estimated total population of Kangayam cattle in the breeding tract is found to be 4,79,200. Of these, breedable females, breeding bulls and working males constituted 43.53, 0.15 and 22.79% respectively (http: //www.tanuvas.ac.in/nea/docs/AnGR_of_TN.pdf). Superior draught quality, tolerance to disease, adaptation to poor nutrition, drought condition and longevity are excellent qualities of this breed. Selection of Kangayam cattle based on swirls and curls present on the surface of the body is still followed in the Kangayam belt (Karthikeyan and Gajendran 2005). Though cross breeding has stretched nook and corner of the state, still farmers keep native cattle for draught and milk. The present study was undertaken to find out the production performance of Kangayam cattle in Karur District.

Karur District was selected for the study since it is one of the breeding tract of Kangayam cattle. From the district 60 Kangayam cattle owners were identified randomly as a sample for the study. The cows were milked twice daily in the morning and evening. Hand milking was practised. The calves were used for let down of milk as well as for consumption both before and after milking. Generally calves up to 6–7 months of age were allowed to suck milk from the cattle. As the calf and the farmer shared the milk the milk yield data were considered as daily partial milk yield. In addition milk samples were collected both morning and evening for estimation of milk constituents. Fat percentage was estimated by Gerber butyrometer (ISI: 1224–Part I 1997) and the percentage of SNF was determined gravimetrically. The lactation length was also calculated by the number of days the animal milked. The total milk yield of the lactation was estimated using average daily partial milk yield and average lactation length. The animals are generally allowed to graze in cenchrus pasture and also fed with paddy straw, sorghum straw, grains and bran mixture.

The study revealed that 15% of the animals were in first lactation, 31.67% in second, 36.67% in third, 10% fourth and 3.33% in fifth and sixth lactation respectively. The animals in second and third lactation were found in large numbers.

The average partial milk yield, fat and SNF contents of Kangayam cattle are furnished in Table 1 which reveals that the milk yield in the first month (3.81litres) got increased to 4.11 litres in the second month. Almost the production in first 6 months is around 3.9 litres. Later it reduced to 2 litres in the following months. The milk yield ranges from 1.14 litres to 4.85 litres. The milk yield was highly variable with a coefficient of variability of 30%. It was also found that the average total lactation yield was 924.13±36.52 litres. However, the study reflected that the maximum lactation yield recorded among 60 animals was 1455 litres and minimum of 342 litres. Like that 26 animals yielded more than 1000 litres. The milk yield recorded did not show any definite pattern.

Table 1. Production performance of Kangayam cattle in different stages of lactation

Months	1	2	3	4	5	6	7	8	9	10
Average daily milk yield	3.81(0.15)	4.11(0.14)	3.93(0.14)	3.74(0.16)	3.48(0.16)	3.12(0.16)	2.8(0.14)	2.39(0.13)	2.03(0.13)	0.81(0.13)
Fat%	3.29(0.06)	3.51(0.06)	3.75(0.06)	3.97(0.06)	4.18(0.07)	4.31(0.08)	4.57(0.09)	4.72(0.10)	4.59(0.09)	4.64(0.08)
SNF	8.17(0.02)	8.19(0.02)	8.18(0.02)	8.18(0.02)	8.19(0.02)	8.18(0.02)	8.21(0.02)	8.22(0.02)	8.19(0.02)	8.10(0.01)

The fat percentage was initially fluctuated between 3.29 and 3.97% whereas it increased after the fourth moth of

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Table 2. Production performance of Kangayam cattle in different order of lactation

Order of lactation	No. of animals	Age	Daily milk yield	Total lactation yield	Fat %	SNF
1	9	3.44±0.24	3.12±0.29	942.33±88.3	3.78±0.18	8.28±0.05
2	19	5±0	3.11±0.24	927.89±72.68	4.04±0.14	8.2±0.03
3	22	6.65±0.16	3.18±0.2	954.04±60.38	3.97±0.11	8.19±0.03
4	6	7.29±0.29	2.75±0.29	824±86.95	3.62±.13	8.25±0.04
5	2	8.35±0.21	2.72±0.23	818±87.72	3.46±0.09	8.2±0.04
6	2	9±0	2.71±0.63	813±189	3.23±0.03	8.13±0.08

lactation from 4.18 to 4.64% and implied that the fat percentage in milk got increased in the advanced stage of lactation. The average fat per cent in Kangayam milk was found 3.9±0.07 and the SNF was 8.2+0.02 in the entire lactation period. There was no specific trend in the monthly averages for the fat and SNF content. The SNF is less than the standard of 8.5% prescribed for cow milk under PFA rules 1955. This might be due to poor genetic potentialities of the Kangayam cows since underfeeding has been shown to lower SNF percentage of the milk by only 0.2 to 0.3% (Griffiths *et al*. 1957).

The average lactation length was found to be 9 months which is found to be higher than 245 days recorded for Umblacherry cattle, most closely related to Kangayam breed (NBAGR 2008). It was found from the Table 2 that the age at first calving was 3.44±0.24 and the animal aged 9 years when it come for 6th calving. The age at first calving for the local breeds of Asom was recorded as 1,365 days (Sarkar *et al*. 2007) and for Deoni cattle as 38.44 months (Das *et al.* 2011) is partly agreed with the findings. It was also revealed that majority of the farmers were not preferred to keep the animal after fourth calving since the animal became old. The lactation yield was high in first three lactations (>900 litres). When the order of lactation increased the yield also got decreased. The fat and SNF percentage were also getting decreased after fourth lactation.

Kangayam breed of cattle is a dual purpose breed, reared mainly for draught purpose and used more for carting in Karur district mainly to carry the sand and sugarcane load. But unfortunately the population of Kangayam cattle is getting decreased year by year. Though this breed cannot yield more like other indigenous milk purpose breeds, Red Sindhi, Sahiwal, Tharparkar etc., selection of animals can improve the production performance. The milk yield was highly variable with a coefficient of variability of 30%. This suggests the possibility of improving their daily production by genetic means. The performance was affected by the calf, feeding and breeding management practised by the farmers, since the animals are maintained under low input system of management. Hence proper scientific management interventions should be adopted by the farmers and State Department of Animal Husbandry to maximize the production and it is the time of hour to conserve this breed by suitable breeding policy and potential animals to be selected and their efficiency may be improved. This will enhance the Kangayam animal rearers to get more production and more returns.

SUMMARY

Kangayam cattle, is a dual purpose breed and used more for carting. The present study was undertaken to find out the production performance of Kangayam cattle in Karur District. From the district 60 Kangayam cattle owners were identified randomly. The milk yield of the selected animals was recorded twice daily. As the calf and the farmer shared the milk the milk yield data were considered as daily partial milk yield. In addition milk samples were collected both morning and evening for estimation of milk constituents. The study reflected that the maximum lactation yield recorded among 60 animals was 1,455 litres and minimum of 342 litres. The milk yield in the first month (3.81litres) got increased to 4.11 litres in the second month. Almost the production in first 6 months is around 3.9 litres. The average fat per cent in Kangayam milk was found 3.9±0.07 and the SNF was 8.2±0.02 in the entire lactation period.

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