

# Indigenous Rearing Practices on Kasargod Cattle Farming Systems of Kerala

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Part of the M.V.Sc. Thesis submitted by the first author to Kerala Veterinary and Animal Sciences University for the award of the degree

**Abstract:** *Kasargod is the northern most district in Kerala. It is from this district that the Kasargod cattle have been reported. Simple random sampling was then used to select 60 farmers rearing Kasargod cattle. Triangulation involving the use of observations, focus group discussions, SWOT analysis, in-depth interviews and questionnaires were used for data collection. Among the various indigenous practices on selection of Kasargod cattle, the practice of selecting animals with shaky horns was adopted to the highest extent whereas that on selecting animals with a long body was adopted to the least extent. The most extensively adopted indigenous feeding practice was that of feeding animals with thin rice gruel as a source of water while the least adopted indigenous feeding practice was that of feeding a fodder variety called "parappullu" in local parlance as roughage. The practices on having sheds with elevated mangers as well as that on having the floor of sheds half to one meter below the ground level was continued to be adopted by more than 98.33 per cent of respondents and hence were ranked first among all the indigenous housing practices related to Kasargod cattle. The practice of serving females after 3 years of age was the practice adopted to the greatest extent while that on feeding sprouted horse gram / black gram / green gram in cases where the animals did not show heat was the least adopted practice. The results of the present study points to the fact that it is important to have more in depth studies of the Kasargod cattle system in order to further explore the system of rearing and thus ensure the sustainable conservation of this breed.*

**Keywords:** kasargod cattle adoption indigenous practices

## 1. Introduction

The Kasargod dwarf cattle are a native breed of cattle found in Kasargod, the northern most district of Kerala. These animals are of the dwarf type, with a uniform coat of black and varied shades of red. The calves weigh only 10.5 kg at birth and males attain a weight of 86.8 Kg at one year and 194.3 kg at adult stage while females attain a weight of 61.1 Kg at one year and 147.7 kg at the adult stage. Kasargod bulls are on an average 107.3 centimeters tall while the cows have a height of 95.83 centimeters. Kasargod male calves gain about 7.8 times the birth weight at one year of age and this kind of growth rate has been reported to be the highest ever reported for any Indian cattle breed at this point of time (<http://www.vechur.org/Kasargod.html>). With the growing acceptance of the concept of zero-budget farming, the demand for Kasargod dwarfs has also gone up. The species has not entered the endangered list in a strict sense as the non-descript category of dwarf cattle found in the district are generally included under this category. As per the latest cattle census, (Times of India, Jul 4, 2012, ) there are 36,717 non-descript category of cattle in Kasargod. It is now well recognized that there is an urgent need to understand the state of Kasargod dwarf cattle population in order to develop well oriented policies and strategies for preserving all the values related to the maintenance of this breed. Keeping in mind the important cultural, social and environmental values of the breed it is important to explore strategies that focus on breeds and farming systems capable of maintaining the vigour and the potential to fulfill all conservation aims, including maintenance of genetic variability. Despite decades of research on farmer behavior there still remains a need to redefine the theoretical base of what motivates the

participation of farmers in agri-environmental programmes. It remains unsaid that there is a continuous need for further research to understand what motivates farmers to undertake conservation activities in order to improve existing programmes for addressing various issues in the agricultural landscape. Though the adoption of sustainable practices play an important role in this regard, simply increasing the adoption of best management practices is not enough to respond to complex environmental challenges, (Reimer *et al.* 2012). Keeping in mind the aforesaid facts a study into various aspects of the hitherto unexplored arena of Kasargod cattle keeping was undertaken to determine the extent of adoption of selected indigenous cattle rearing practices among the keepers of Kasargod cattle.

## 2. Methodology

Kasargod is the northern most district in Kerala. It is from this district that the Kasargod cattle have been reported. There are four blocks in Kasargod district viz., Manjeswaram, Kasargod, Kanhangad and Neeleswaram. In the first stage of sampling, Manjeswaram block was selected for the study since it had the highest population (Table 1: Government of Kerala, 2005) of indigenous cattle among the four blocks. Manjeswaram block is composed of twelve panchayats (Table 2). In the second stage of sampling, panchayats were taken as the sampling units and from the 12 panchayats, two panchayats viz ., Badiyadka and Enmagaje were selected by the procedure of simple random sampling. A list of farmers rearing Kasargod cattle in both these panchayats was prepared in consultation with local veterinarians, progressive farmers and panchayat officials. These lists formed the sampling frame. Simple random

sampling was then used to select 60 farmers rearing Kasargod cattle. Randomization of responses was hence ensured.

**Table 1:** Block-wise population of non-descript cattle of Kasargod district, (Government of Kerala, 2005)

Sl.no	Name of Block	Population of non descript cattle
1	Manjeswaram	15145
2	Kasargod	9697
3	Kanjangad	5992
4	Nileswaram	2481

In this study, triangulation -a multi method approach in which quantitative and qualitative research methods were combined to provide a more complete set of findings than could be arrived at through the administration of one of the methods alone - was used. Further, triangulation was used both as a technique for validation as well as a means to enrich the data and to ensure a comprehensive and deeper understanding of the present situation under investigation (Klein and Olbrecht, 2011). Five methods of data collection were used. These included observations, focus group discussions, SWOT analysis, in-depth interviews and questionnaires.

**Table 2:** Panchayat wise population of non-descript cattle in Manjeswaram Block (Government of Kerala, 2005)

Sl. No.	Panchayat	Population of non descript cattle
1	Mangalpady	1161
2	Verkodi	1820
3	Puthiga	1122
4	Meenja	1936
5	Manjeswar	628
6	Kumbla	1006
7	Paivalika	1706
8	Enmagaje *	2302
9	Badiyadka *	1679
10	Belloor	680
11	Kumbadaje	1105

\*Panchayats selected for the study

**Table 3:** Item wise analysis of extent of adoption of indigenous cattle selection practices

Sl. No.	Practice	Continued adoption (%)	Discontinued (%)	Not adopted (%)	Mean score	Rank
1	Selecting animals which have shaky horns.	90	10	0	2.9	I
2	Selecting animals with short legs.	90	3.33	6.66	2.83	II
3	Selecting animals with short front legs.	71.66	28.33	0	2.72	III
4	Selecting animals with flat horns rather than round.	56.66	43.33	0	2.57	IV
5	Selecting animals with long body.	48.33	61.66	0	2.48	V

The selection criteria of a long body was continued to be adopted by nearly half (48.33 per cent) of the respondents. More than 70 per cent (71.66 per cent) of respondents continued to select animals with short front legs whereas 23.33 per cent of them had discontinued this practice. Wollny (2003) also highlighted the importance of phenotypic preferences by pastoralists since this was one of the factors that explained the diversity and distribution of cattle breeds in sub-Saharan Africa.

Extent of adoption of selected indigenous cattle rearing practices among Kasargod cattle keepers were measured in terms of

- 1) The respondents' total score over all the selected technologies – respondent based.
- 2) The percentage of respondents who continued to adopt, discontinued, and had not adopted each practice – practice based.

In order to assess the extent of adoption of indigenous cattle rearing practices a preliminary inventory of prevalent indigenous practices in the Kasargod cattle keeping system were arrived through a pilot study involving personal interviews, focus group interviews and observations on farm visits. The practices that were identified through the pilot study were grouped under 5 broad domains viz., selection, feeding, housing, breeding and disease control. A total of 31 items were thus arrived at. The extent of adoption of each practice was arrived at by obtaining the responses of the respondents to each practice on a three point continuum viz., continued adoption, discontinued, and not adopted with scores of 3, 2 and 1 respectively. The total scores of each respondent were obtained by summing up the response to each item and the respondents were grouped under three categories viz., high, medium, and low based on Delenius and Hodges cumulative root f method.

### 3. Results

#### *Extent of adoption of indigenous cattle selection practices*

Data in Table 3 indicates that among the various indigenous practices on selection of Kasargod cattle, the practice of selecting animals with shaky horns was adopted to the highest extent whereas that on selecting animals with a long body was adopted to the least extent. Most of the respondents (90 per cent) had adopted the practice of selecting animals with shaky horns whereas rest of the (10 per cent) had discontinued it after prior adoption. Similar observations were made with regard to the practice on selecting animals with short legs as majority (90 per cent) continued to adopt this practice. Just over half (56.66 per cent) of respondents continued to select animals with flat horns rather than round horns and 43.33 per cent of them had discontinued this practice.

#### **Extent of adoption of indigenous feeding practices**

The extent of adoption of various indigenous feeding practices by keepers of Kasargod cattle is detailed in Table 4. It can be inferred from the data that the most extensively adopted practice was that of feeding animals with thin rice gruel as a source of water. The least adopted indigenous feeding practice was that of feeding a fodder variety called “parappullu” in local parlance as roughage. Majority of the

respondents (96.66 per cent) continued to feed rice gruel as a source of water. So also areca nut leaf feeding was also extensively adopted by the respondents (91.66 per cent).

**Table 4:** Item wise analysis of extent of adoption of indigenous feeding practices

Sl. No.	Practice	Continued adoption (%)	Discontinued (%)	Not adopted (%)	Mean score	Rank
1	Feeding thin 'Kanji' (rice gruel) as source the of water	96.66	3.33	0	2.97	I
2	Feeding of areca nut leaves	91.66	8.33	0	2.92	II
3	Feeding rich 'kanji (thick rice gruel)' to pregnant animals in the later stage of gestation.	61.66	35	3.33	2.58	III
4	Feeding of locally available grass known as 'parapullu' as roughage	51.66	46.66	1	2.5	IV

Just over 60 per cent of respondents (61.66 per cent) continued to adopt the practice of feeding rich, thick rice gruel to pregnant animals in the later stage of gestation while 35 per cent had discontinued this practice and a very few (3.33 per cent) number of respondents had not adopted this practice.

#### Extent of adoption of indigenous cattle housing practices

A cursory look at data in Table 5 reveals the extent of adoption of various indigenous practices pertaining to the housing of Kasargod cattle. The practices on having sheds with elevated mangers as well as that on having the floor of sheds half to one meter below the ground level was continued to be adopted by more than 98.33 per cent of respondents and hence were ranked first among all the indigenous housing practices related to Kasargod cattle. Table 5. Item wise analysis of extent of adoption of indigenous housing practices

**Table 5:** Item wise analysis of extent of adoption of indigenous housing practices

Sl. No.	Practice	Continued adoption (%)	Discontinued (%)	Not adopted (%)	Mean score	Rank
1	Sheds with elevated manger	98.33	1.66	0	2.98	I
2	Floor of sheds ½- 1 meter lower than the ground level	98.33	1.66	0	2.98	I
3	Gobbora system of rearing (keeping animals over the leaves and later that is used as compost)	96.66	3.33	0	2.97	II
4	Sheds with three sides covered and a door on one side and a manger in the uncovered area	76.66	19.69	1.66	2.75	III
5	Having holes on the covered area of the shed	71.66	25	3.33	2.68	IV
6	Provision for keeping 'parapullu' just below the roof of the sheds	40	16.66	26.66	1.8	V

The practice of keeping a particular type of grass referred to as *parappullu* in local parlance just below the roof of cattle sheds was adopted to the least extent. Just forty per cent of respondents had adopted this practice while 26.66 per cent had not adopted it.

Kasargod animals are traditionally reared on what is termed as the *Gobbora* system of system of rearing animals. In this system, animals are reared in sheds which have a floor half to one meter below ground level on which leaves of a particular composition are spread. Animals are allowed to remain on this litter of leaves and dung and urine is allowed to fall on the litter for days. The resultant manure that is

produced is shovelled out of the sheds and used in the adjoining agricultural fields of the farmer. This practice unique to the Kasargod cattle rearing system - termed as the *Goborra* system of rearing- continued to be adopted by 96.66 per cent of respondents. Very few respondents (3.33 per cent) had discontinued this practice. The practice of having a three sided shed with cover and a manger in the uncovered area was continued to be adopted by 76.66 per cent of respondents whereas nearly one-fifth of respondents (19.69 per cent) had discontinued this practice.

#### Extent of adoption of indigenous cattle breeding practices

**Table 6:** Item wise analysis of extent of adoption of indigenous breeding practices

Sl. No.	Practice	Continued adoption (%)	Discontinued (%)	Not adopted (%)	Mean score	Rank
1	Female animals are served after three years of age	70	10	20	2.5	I
2	Natural service with the Kasargod bulls	41.66	46.66	11.66	2.3	II
3	Natural service with the unrelated bulls	40	38.33	21.66	2.18	III
4	First calving between 3 to 4 years	46.66	13.33	40	2.07	IV
5	Feeding sprouted horse gram / black Bengal gram/ green gram in cases where the animal does not show heat	1.66	48.33	50	1.52	V

Table 6 depicts the extent of adoption of various indigenous breeding practices by the respondents of the study. The practice of serving females after 3 years of age was the

practice adopted to the greatest extent while that on feeding sprouted horse gram / black gram / green gram in cases where the animals did not show heat was the least adopted

practice. It is evident from data in Table 6 that just over forty per cent (41.66) of respondents continued to adopt the practice of serving their animals by Kasargod bulls whereas 46.66 per cent had discontinued this practice and 11.66 per cent had never adopted this practice. Most of the respondents (70 per cent) continued to serve their animals after 3 years of age whereas twenty per cent had not adopted it. The practice of having the first calving between three and

four years of age continued to be adopted by just 46.66 per cent of respondents. Forty per cent of respondents continued to adopt the practice of serving their animals with unrelated males while 38.33 per cent had discontinued this practice and 21.66 per cent had not adopted the practice.

**Extent of adoption of indigenous disease control practices**

**Table 7:** Item wise analysis of extent of adoption of indigenous disease control practices

Sl. No.	Practice	Continued adoption (%)	Discontinued (%)	Not adopted (%)	Mean score	Rank
1	Saturated salt solution in hot water is applied over hoof lesions	90	10	0	2.9	I
2	Administration of Kumbalanga (Ash gourd)in conditions of agalactia due to some toxic ingestion	75	18.33	6.66	2.68	II
3	Hot saturated salt solution is applied on maggot wounds	68.33	30	1.66	2.67	III
4	Feeding a paste of bitter gourd leaves and salt to 5 day old calves	36.66	53.33	13.33	2.3	IV
5	Application of hot coconut oil over the spinal area of the cow for ephemeral fever	13.33	53.33	0	2.13	V
6	Turmeric mixed in hot oil is applied over the areas of hair loss.	0	61.66	38.33	1.62	IX
7	Powdered charcoal in gingelly oil for skin lesions	0	55	45	1.55	XI

The extent of adoption of various indigenous disease control practices is presented in Table 7. The practice of applying hot saturated salt solution over hoof lesions was adopted to the greatest extent whereas the practice of applying powdered charcoal mixed with gingelly oil for any type of skin lesion was the least adopted.

**4. Conclusion**

The result of the present study points to the fact that it is important to have more in depth studies of the Kasargod cattle system in order to further explore the system of rearing. This has been the experience in other parts of the world where native cattle have been reared and the past and present neglect of local knowledge regarding farm animal genetic resources and traditional breeding practices has been the cause of major difficulties in developing and implementing adequate participatory conservation strategies at the national and local level (Wollny, 2003).

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