



E-ISSN: 2320-7078

P-ISSN: 2349-6800

[www.entomoljournal.com](http://www.entomoljournal.com)

JEZS 2020; 8(3): 218-222

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Received: 01-03-2020

Accepted: 03-04-2020

**Parameshwara Prathapa Simha BV**

M.V.Sc. Scholar, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Shivamogga, Karnataka, India

**KC Veeranna**

Registrar, KVAFSU, Nandinagar, Bidar, India

**Manjunatha L**

Associate Professor & Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Hassan, Karnataka, India

**Vijayakumar B Shettar**

Professor & Head, Department of Animal Genetics and Breeding, Veterinary College, Gadag, Karnataka, India

**Gopala GT**

Assistant Professor & Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Shivamogga, Karnataka, India

**Krishnamurthy TN**

Associate Professor & Head, Department of Livestock Production and Management, Veterinary College, Shivamogga, Karnataka, India

**GS Naveenkumar**

Associate Professor & Head, Department of Animal Genetics and Breeding, Veterinary College, Hassan, Karnataka, India

**Corresponding Author:**

**Manjunatha L**

Associate Professor & Head, Department of Veterinary and Animal Husbandry Extension Education, Veterinary College, Hassan, Karnataka, India

## Breeding and feeding practices of malnad gidda cattle in malnad region of Karnataka

**Parameshwara Prathapa Simha BV, KC Veeranna, Manjunatha L, Vijayakumar B Shettar, Gopala GT, Krishnamurthy TN and GS Naveenkumar**

### Abstract

The results indicated that majority of the respondents detected animal in heat by bellowing symptoms (88.43%) and used natural service for breeding their Malnad Gidda cattle (56.48%). The lactation length was perceived to be more than seven months by majority of them (50.92%); about 6-7 months as perceived by one-fourth (26.85%) and the rest reported it to be about 5-6 months or below five months. Majority of the respondents followed grazing cum stall-feeding (86.12%) and provided concentrated feeds only to milking cows (80.09%) and mostly twice daily (61.57%). Heifers and calves were not given any concentrate feeds by almost all of them. Majority of respondents (77.31%) fed colostrum to newborn calves within one hour after calving. Only 20.83 per cent of them cut umbilical cord and treated it with tincture or turmeric powder. Majority of them allowed calves to suckle all the four teats (53.24%); did not wean the calves from their mothers (94.90%) and allowed the calves to suckle for the entire lactation period (96.30%). Majority of the respondents (68.98%) gave some sort of special feed to the calved mothers. Among various categories of farmers, viz. small, medium and large, significant variations were seen with respect to heat detection, cultivation of green fodder, feeding of concentrate feeds to milking cows, calf feeding and post parturient cow feeding.

**Keywords:** Malnad Gidda Cattle, constraints, breed improvement, Malnad region

### Introduction

Malnad Gidda cattle are native to heavy rainfall hilly areas of Western Ghat region in Karnataka and are recognized as a distinct breed (Ramesha, *et al.* 2013; Savalia, *et al.* 2019 and Veerendra, 2020) [10, 14, 17]. They are distributed in Shivamogga, Uttara Kannada, Chikkamagaluru, Dakshina Kannada, Udupi, Hassan, Kodagu, Belagavi, Chamarajanagara, Davanagere, Dharwad, Haveri, and Mysore districts of Karnataka. Phenotypically, they have small body size and weigh about 80-120 kgs. An open and kuccha type, tiled roofed housing is provided for these cattle. Normally, they are let for grazing in forest fringes and other grazing lands during rainy and winter, while, during summer they are fed with dry paddy and maize straws in addition to grazing. Natural service is used for breeding the cattle and use of artificial insemination is less common. They are well adapted to the local agro ecological systems of Western Ghats. Almost every agricultural household in the hilly areas of this region maintain these cattle from the point of view of manure and milk production for home consumption (Ramesha *et al.*, 2015) [9].

Thus, Malnad Gidda cattle play a major role in the rural economy of this region by providing manure, milk and draft power with negligible inputs. Breed conservation, and improvement is the need of the hour. However, scientific data on breeding and feeding practices followed by different categories of farmers is scanty. In this context, a study was conducted to understand the breeding, feeding and calf management practices followed in rearing of Malnad Gidda cattle by different categories of farmers in Malnad region of Karnataka.

### Materials and Methods

#### Selection of the location

Malnad Gidda cattle is found in coastal and hilly zones of Karnataka. Hilly zone was purposively selected since, Malnad Gidda cattle is considered to be native to the hilly region. Three districts in this zone with highest number of Malnad Gidda cattle were purposively selected, namely, Shivamogga, Chikkamagaluru and Uttara Kannada districts.

Thirthahalli and Sagara taluk, Koppa and Sringeri taluk and Sirsi & Siddapura taluks having highest cattle population from above respective three districts were selected. From these taluks two villages each were selected making a total of 12 villages.

### Selection of respondents (Sampling)

From all the 12 villages, across six taluks of three districts, six respondents, each belonging to small land holding ( $\leq 5$  acres), medium (5-12.5 acres) and large land holding ( $>12.5$  acres) were selected, thus constituting a total of 216 respondents. The senior most adult member of the selected family who was involved in management of Malnad Gidda cattle was taken as the ultimate respondent. Thus, a multistage stratified random sampling method was used for data collection.

### Research design and method of data collection

Considering the nature of the problem, an ex-post facto research design was used for the study. Interview schedule was used to elicit response from the farmers. The interview schedule was designed by consulting subject matter specialists, field veterinarians, experienced farmers and going through relevant literature. All the relevant aspects of breeding and feeding of Malnad cattle were included in the schedule. The schedule was pre-tested and necessary changes made before finalization. The personal interview technique

was adopted for the data collection.

### Statistical analysis of data

The data collected was tabulated and analysed using relevant statistical tools and methods. Simple tools like frequency, percentage, mean and chi-square test were applied using Microsoft Excel spreadsheets.

### Results and discussion

#### Breeding practices

Majority of the respondents (88.43%) detected animal in heat (Table 1) by bellowing symptoms. The findings are in line with Purnesh (2002) [8] who reported that 100 per cent of respondents detected animals in heat by observing bellowing symptoms. However, among different categories of farmers, a significantly high number of small farmers (18.05%) were not detecting heat at all. Since, animals would have conceived during grazing by themselves without difficulty, the farmers may not made conscious effort to identify the animals in heat and breed them. Natural service was the most common method used for breeding Malnad Gidda cattle by majority of the respondents (56.48%). Only 37.5 per cent of them used Artificial insemination (AI). Getting good quality calves and better use of sire was the major advantage perceived by majority (75%) of such farmers.

**Table 1:** Details of breeding management in Malnad Gidda cattle

Particulars	Small farmer (n=72)	Medium farmer (n=72)	Large farmer (n=72)	Total (n=216)
<b>Heat detection</b>				
Bellowing	56(77.78)	66(91.67)	69(95.83)	191(88.43)
Mounting	2(2.78)	2(2.78)	2(2.78)	6(2.78)
Mucous discharge	1(1.39)	1(1.39)	1(1.39)	3(1.39)
Not detecting the heat	13(18.05)	3(4.16)	0(0.00)	16(7.40)
Chi-square	18.83**			

# Figures in parenthesis represent percentage

\*\* Significant at one per cent level

Almost all the farmers practiced grazing of their Malnad Gidda cattle. During this period cows in heat would be naturally served by the bulls in the grazing herds. Since Malnad Gidda semen straws are available at the AI centers in the department of AH&VS, those farmers aware of necessity of better sire requirement might have opted AI. For planned improvement in Malnad Gidda cattle in terms of milk productivity, AI becomes an important tool. The results indicate a positive outlook of the farmers in the region. The present finding was in inline with Ramesha (2012) [11], Jaysingh and Saharan (2016) [3] and Shweta Choudhary *et al.* (2017) [15] who found that majority of the cattle farmers opted natural service for breeding their cattle in different parts of Rajasthan.

Majority of the respondents could diagnose pregnancy in Malnad Gidda cattle (94.44%) by relying on the symptom 'animal putting on weight' (81.94%). The close association of the farmers with the animal and personal experience would have helped them in acquiring this skill. The length of lactation period was more than seven months as opined by half of the respondents (50.92%); about 6-7 months as perceived by one-fourth (26.85%) and the rest reported it to be below six months. Ramesha (2013) [10] too has reported a lactation period of  $249.61 \pm 3.85$  days in Malnad Gidda cattle. Since Malnad Gidda cattle yield small quantities of milk, they would milk for a longer duration of more than seven months.

The reason for another half of the respondents stating lactation period as short might be due to stopping of milking and allowing the calves to suckle the entire milk, once the milk yield decreased.

#### Feeding management

Majority of the respondents followed grazing cum stall-feeding (86.12%) in rearing Malnad Gidda cattle. Majority of them (96.76%) fed their cattle with both green and dry fodder. Naturally grown fodder was the major source of green fodder for majority of them (89.35%) (Table 2). The small stature of Malnad Gidda cattle, availability of forest grazing lands and dry fodders on farmers' farms would have contributed for an emergence of grazing cum stall feeding system. Interestingly, 10.65 per cent of the respondents cultivated green fodder, who were predominantly from medium (12.49%) and large farmer (16.65%) categories. However, small farmers (97.22%) exclusively relied on naturally available green fodder and this could be due to their poor irrigation resources. The findings are similar to that of Rathore *et al.* (2010) [12] and Sunilkumar *et al.* (2017) [16] who reported in their studies that majority of respondents preferred grazing cum stall feeding. On contrary, Chandran *et al.* (2012) [1] have reported that Red Purnia indigenous cattle were mostly stall fed in Bihar state of India. Only a small proportion of the farmers (6.94%) chaffed the fodder probably due to lack of awareness of its

importance. In any case, 19.44 per cent large farmers were using chaff cutters purchased under various schemes of

department of AH&VS, Agriculture and KMF.

**Table 2:** Details of feeding practices in Malnad Gidda cattle

Particulars	Small farmer (n=72)	Medium farmer (n=72)	Large farmer (n=72)	Total (n=216)
<b>Source of green fodder</b>				
Cultivated	2(2.78)	9(12.49)	12(16.65)	23(10.65)
Naturally grown	70(97.22)	63(87.51)	60(83.35)	193(89.35)
Chi-square	7.82*			
<b>Provision of concentrate ration</b>				
Milking cow	47(65.28)	62(86.11)	64(88.89)	173(80.09)
Heifer	1(1.39)	0(0.00)	0(0.00)	1(0.46)
Calf	0(0.00)	0(0.00)	3(4.17)	3(1.39)
Not given	24(33.33)	10(13.89)	5(6.94)	39(18.06)
Chi-square	29.70**			
<b>Frequency of feeding concentrate mixture</b>				
Once in 24 hours	18(25.00)	12(16.67)	16(22.22)	44(20.37)
Twice in 24 hours	30(41.67)	50(69.44)	51(70.84)	133(61.57)
Not given	24(33.33)	10(13.89)	5(6.94)	39(18.06)
Chi-square	22.65**			

# Figures in parenthesis represent percentage

\*Significant at five per cent level

\*\* Significant at one per cent level

Majority of the respondents (80.09%) provided concentrate feed only to milking cows. About one – fifth of them (18.06%) did not provide any concentrate feed at all. This trend was significantly high among small farmers (33.33%). Since milk is one of the outputs which could be quickly transformed into real or money income the focus of the respondents could have been on feeding concentrate ration only to milking cows. Jarial *et al.* (2015)<sup>[2]</sup>, Sunilkumar *et al.* (2017)<sup>[16]</sup> too have reported that concentrate feeds are given only to milch cows. Heifers and calves were not given any concentrate feed by almost all of the respondents. Similar findings have been reported by Sabapara *et al.* (2015)<sup>[13]</sup> and Prajapati *et al.* (2017)<sup>[7]</sup> where almost all the respondents did not provide feeds to calves. Likewise, majority of the respondents (61.57%) provided concentrate feed to their cattle twice a day. Providing concentrate ration during milking would calm down the animal and thus prevents the animal kicking the milker. This was significantly high among medium (69.44%) and large (70.84%) farmers. On contrary,

significantly high proportion of small farmers (33.33%) did not provide concentrate feed at all. Poor resources of this category of farmers could be the reason for such a result.

#### Calf feeding management

Majority of the respondents (77.31%) fed colostrum to newborn calves within one hour after calving (Table 3). Better education in Malnad region and awareness about the same fact could be the reason for such results. Between the groups, significantly high proportion of large farmers (38.89%) fed colostrum to calves 1-2 hours post parturition. Large farmer's engagements with other routine agricultural works and dependency on labour could have forced them to attend the new-born calves little late. The present findings are similar with that of Purnesh (2002)<sup>[8]</sup>, Manjunatha (2003)<sup>[5]</sup> and Malsawmdawngliana and Rahman (2016)<sup>[4]</sup> who reported that 100 per cent, 91.43 per cent and 100 per cent of the respondents fed colostrum within one hour after birth, respectively.

**Table 3:** Details of calf management

Particulars	Small farmer (n=72)	Medium farmer (n=72)	Large farmer (n=72)	Total (n=216)
<b>Feeding of colostrum to new born calves</b>				
With in 1 hour	66(91.67)	58(80.56)	43(59.72)	167(77.31)
1-2 hour	5(6.94)	14(19.44)	28(38.89)	47(21.76)
2-4 hour	1(1.39)	0(0.00)	1(1.39)	2(0.93)
Chi-square	23.05**			
<b>Allowing calf to suckle</b>				
Before milking 1 teat	23(31.94)	5(6.95)	8(11.11)	36(16.67)
Before milking 2 teats	26(36.11)	15(20.83)	21(29.17)	62(28.70)
Before milking 4 teats	22(30.56)	52(72.22)	41(56.94)	115(53.24)
After milking 1 or 2 teats	1(1.39)	0(0.00)	2(2.78)	3(1.39)
Chi-square	33.45**			

# Figures in parenthesis represent percentage

\*\* Significant at one per cent level

Further, only about one-fifth of them (20.83%) cut umbilical cord and treated it with tincture or turmeric powder. Lack of awareness about the practice may be the reason for majority not practicing it. The present findings were similar to that of Purnesh (2002)<sup>[8]</sup>, Manjunatha (2003)<sup>[5]</sup>, Patel *et al.* (2014)

<sup>[6]</sup>, Jaysingh and Saharan (2016)<sup>[3]</sup> and Vikas Godara *et al.* (2017)<sup>[18]</sup> who observed that majority of respondents left naval cord to dry off naturally.

None of respondents carried out disbudding operation in Malnad Gidda calves. Horns are encouraged in indigenous

cattle for aesthetic reasons, and for protection against any predation by wild animals. Patel *et al.* (2014) [6] have made similar observations. Majority of the farmers (53.24%) allowed the calves to suckle all the four teats before milking, while, 28.70 per cent of them allowed the calves to suckle two teats and 16.67 per cent of them allowed only one teat to be suckled before milking. Between the groups, majority of the medium (72.22%) and large farmers (56.94%) let their calves to suckle all the four teats before milking. Getting healthy calves could be their objective and hence they allowed calves to suckle all the four teats before milking. Whereas, among small farmers, one third of them each allowed their calves to suckle one teat (31.94%), two teats (36.11%) and four teats (30.56%) before milking. Economic utility of milk could have overridden the purpose of producing healthy calves in this category of farmers.

Majority of the respondents did not wean the calves (94.90%) and allowed them to suckle for the entire lactation period (96.30%). These results are in consonance with the previous practice of 'allowing calf to suckle'. Suckling by calves is needed for milk let down in Malnad Gidda cattle. As manure production was the top priority for the farmers in the region, they wished that the calves suckle sufficient milk and grow healthily. Likewise, majority of respondents (92.59%) did not practice castration at all in the male Malnad Gidda calves. Since majority of farmers do not use Malnad Gidda cattle for drought purpose, castration is not practiced.

Post calving, majority of the respondents (68.98%) gave some sort of special feed to the cows. Two-fifth (43.52%) of them fed the cows with rice gruel as rice being staple cereal of the region. One-sixth of them (16.67%) provided concentrate feed, which, they would have purchased. Such farmers would have had cross-bred cows or other cattle breeds. The rest of them provided some sort of supplement, such as khara, jaggery, egg, calcium liquid, bran, mineral mixture, etc. that formed the traditional practices of the region wherein they understood the importance of giving supplementary feed to Malnad Gidda cows post calving. Malsawmdawngliana and Rahman (2016) [4] too have reported that almost all respondents of their study gave special care to cows post calving in Mizoram state. However, one-third of them (31.02%) did not give any special feed, post calving indicating the inherent capability of Malnad Gidda cattle to withstand post parturient stress. This could also be due to negligence of the owners of such cows.

### Conclusions:

A study on breeding and feeding practices of Malnad Gidda cattle was conducted among 216 farmers rearing Malnad Gidda cattle, who were selected using multi-stage random sampling, spanning three districts, six taluks and 12 villages of Western Ghats region of Karnataka. The results indicated that natural service was majorly used for breeding Malnad Gidda cattle. The lactation length of the cattle was about seven months. Semi range system including both grazing cum stall-feeding was the predominant feeding system followed by majority of the farmers. Concentrate feeds were provided only to milking cows by majority of the farmers and mostly twice daily. Heifers and calves were not given any concentrate feeds by almost all of them. Majority of them fed colostrum to newborn calves within one hour after calving. Only one fifth of them cut umbilical cord and treated it with antiseptic. Majority of the respondents allowed the calf to suckle all the four teats; did not wean the calves from their mothers and

allowed the calf to suckle for the entire lactation period. Majority of the respondents gave some sort of special feed to the calved mothers. Among various categories of farmers, viz. small, medium and large, significant variations were seen with respect to heat detection, cultivation of green fodder, feeding of concentrate feeds to milking cows, calf feeding and post parturient cow feeding. In all these practices, the small farmers mostly fell short in complete adoption of the practices. Thus, the results are indicative that there is scope for improving the breeding and feeding practice and thereby overall productivity of the breed, so that it is further integrated into the strong mixed farming system of the Malnad region.

### Acknowledgment

The study is part of M.V.Sc. dissertation of the first author under the supervision of Major Advisor Dr. K.C. Veeranna. Unfortunately, the scholar expired untimely and all the other authors deeply acknowledge his efforts for the above research.

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