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## Study of milking temperament in Gir cows

**Rahul Shehar, Bishwajit Roy, Aditya Mishra, Amir Amin Sheikh and Rakshanda Bhagat**

### Abstract

Dairy cows are different in temperament as well as in economic dairy attributes. Cows with docile temperament are good milk yielder and on an average have longer lactation period. The temperament of animal is important in the handling of animals and in improving their productive and reproductive abilities. The aim was to study the milking temperament in Gir cows. The experiment was conducted on 32 milking Gir cows which were divided into four equal groups on the basis of their parity. The overall average temperament score observed was 1.90 for Gir cows. Majority of Gir cows (50.30%) in present study had docile temperament indicated that aggressive and nervous cows can be converted in to docile temperament by better management for long duration. Temperament had great influence on all the milking attributes. Aggressive cows took maximum time for both let down time as well as milking time with less milk flow rate and milk yield, while docile cows performed best.

**Keywords:** Docile, Gir, milking, temperament

### Introduction

Milk and milk products are widely accepted source of animal protein in the diet of Indian people. Milk harvesting is an art and science as well as it is the most important aspects on a dairy farm management, which has direct bearing on the profitability of dairy business [1]. In India, livestock farming, especially cattle plays vital role in its agrarian economy. The country's milk production is estimated to have touched 100 million tonnes (mt) [2] and ranks first in the world.

Dairy cows are different in temperament as well as in economic dairy attributes. The temperament and activity during milking facilitate the management care on dairy farms [3]. The milk yield and dairy temperament are interrelated [4]. Cows with docile temperament are good milk yielder and on an average have longer lactation period. The temperament of animal is important in the handling of animals and in improving their productive and reproductive abilities. Moreover, the dam's temperament at parturition exerts an influence on neonatal mortality [5]. Temperament has been an important contribution to the domestication process of our livestock species, in that our ancestors certainly took advantage of selecting animals with calmer dispositions. Under the present livestock production scenario, temperament is also extremely important due to its welfare implications, since calmer animals are likely to be less stressed and less prone to injury than wilder animals during handling and restraint. Research studies linking productivity to temperament also show that this is another area where producers benefit from selecting calmer animals. Though there remains some debate on the ways to measure and define temperament of animals, temperament is generally viewed as an animal's response to being handled. Measuring temperament via subjective assessments has been predominantly used in past and temperament is often ranked on a continuous scale [6]. Secretion of milk is a continuous process, while milk harvesting is usually performed twice daily. Normally, the let down reaction to the stimulus is effective in 45 seconds and it remains effective only for about 7-10 minutes. Thus, only efficient and rapid removal of milk from the udder should be the goal of every milking programme. This is directly concerned with traits like milking behaviour of animal, ability of milker, facilities for and management of milking operations and their control.

### Materials and Methods

#### Location and climate

The present experiment was conducted at Kasturba Gandhi National Memorial Trust, Dairy

Farm, Kasturba Gram, Indore (M.P.). The district comes under Malwa plateau and enjoys sub-tropical, semi-arid climate having temperature of 4 °C and 21 °C as minimum and 29 °C and 43 °C as maximum in winter and summer season respectively and is situated at 553 meters above the Mean Sea Level. January month remains coldest month while the temperature attains the peak towards the end of May. The average annual rainfall of the area is 952.2 mm. Maximum part of annual rainfall is received during mid June to mid September, winter rains are occasional and uncertain and South West monsoon is responsible for major part of precipitation. Its geographical coordinates are 22° 49' 0" North, 75° 56' 0" East. The area comes under semi-arid tropical climate.

### Management of animals

The experiment was conducted on 32 milking Gir cows which were divided into four equal groups on the basis of their parity. The cows were selected on the basis of 15 days to 2 months after calving before starting the experiment. During the experimental period the cows were subjected to uniform routine feeding and management practices followed at the farm. The cows were milked in 27 m x 10 m, East-West directional milking shed having a R.C.C floor. Remaining area of the farm

is open and partially covered with shady trees, surrounded by wire fencing. The centrally located parlour is built on conventional housing pattern with tail to tail type arrangement. The parlour has a cemented sheet roof at the height of 3 meter above the floor at borders. Remaining area of the parlour is open and surrounded by brick wall of 1.5 m height. To study the milking temperament in Gir cows, the data were collected on two consecutive days in a week (Tuesday and Wednesday), both during morning and evening milking. The experiment was started on first July (Tuesday), 2008 and completed on last week of 24<sup>th</sup> September (Wednesday) 2008. Thus, the experiment was conducted for about three months (13 weeks).

### Temperament

The dairy animals in addition to high standard of milk production should have docile temperament for their efficient management. Docile temperament of milking cow is a significant character as minimum disturbance is desired by the milker also during milking and routine farm operations. Dairy temperament has also a great influence on all the milking attributes. Before and during milking, the temperament of cows was recorded according to score card developed by [7] presented in Table 1.

**Table 1:** Score card for temperament

Temperament score	Temperament	Description
1	Docile	The cows which stand quietly at feeding and milking rarely move except to raise or lower their heads. Do not give any trouble. Extremely docile during milking preparations. The ideal milker and generally unaffected by the whole procedure.
2	Restless	The cows which move almost continuously pulling and pushing at feeding and disturbing the side animals. Flick tail, frequently snort. May lift feet during preparation for milking but do not kick, may be stubborn.
3.	Nervous	Appear very restless during preparation, milking and at feeding. Generally quiver when hand is placed on their back. Defecate on feeds and fodder. Flick tail frequently and kick at handlers occasionally.
4.	Aggressive	Very restless cows which struggle violently, bellows and froths. Attack observers/milkers by kicking or butting. Move from side to side always and very difficult in handling.

### Results and Discussion

In the month of July, the frequency of docile, restless, nervous and aggressive temperament recorded was 301 (47.03%), 146 (22.81%), 99 (15.47%) and 94 (14.69%) respectively. In the month of August, the frequency of docile, restless, nervous and aggressive temperament was found to be 259 (50.59%), 114 (22.26%), 70 (13.67%) and 69 (13.48%) respectively.

In the month of September, the corresponding frequencies were 277 (54.10%), 114 (22.27%), 65 (12.69%) and 56 (10.94%) respectively. The average temperament score for month of July, August and September were found to be 1.98,

1.90 and 1.80 respectively.

The overall average temperament score observed was 1.90 (Table 2). It was found that the frequency of docile temperament was high in the month of September 54.10% and low in July 47.03%. The frequency of restless temperament was high in the month of July 22.81% and low in month of August 22.26%

The frequency of nervous temperament was high in month of July 15.47% and low in September 12.69%. Similarly the frequency of aggressive temperament was high month of July 14.69% and low in September 10.94% (Table 2).

**Table 2:** Relative Frequencies of Different Milkings, Temperament Score and Average Temperament Score for Different Months

Month	Temperament	Temperament score	Frequency	Percentage (%)	Total temperament score point
JULY	Docile	1	301	47.03	301
	Restless	2	146	22.81	292
	Nervous	3	99	15.47	297
	Aggressive	4	94	14.69	376
	Total		640	100	1266
	Average Temperament Score				1.98
AUG.	Docile	1	259	50.59	259
	Restless	2	114	22.26	228
	Nervous	3	70	13.67	210
	Aggressive	4	69	13.48	276
	Total		512	100	973
	Average Temperament Score				1.90

SEPT.	Docile	1	277	54.10	227
	Restless	2	114	22.27	228
	Nervous	3	65	12.69	195
	Aggressive	4	56	10.94	224
	Total		512	100	924
Average Temperament Score					1.80
Pooled		1664	100		3163
Overall average temperament score					1.90

In the present investigations, the overall average temperament score observed was 1.90 for Gir cows. It was found that the frequency of docile temperament was highest in the month of September (54.10%) and lowest in July (47.03%). The frequency of restless temperament was the highest in July (22.81%) and the lowest in the month of August (22.26%). The frequency of nervous temperament was high in month of July (15.47%) and lowest in September (12.69%). The frequency of aggressive temperament was highest in the month of July (14.69%) and lowest in September (10.94%). However, statistically these differences were not significant as revealed by Chi-square test of independence attributes. The average temperament score for the month of July, August and September were found to be 1.98, 1.90 and 1.80 respectively with an overall average of 1.90. There appears no report on frequency of different temperaments and average temperament scores during different months in cattle. In the pooled data, the frequency of docile, restless, nervous and aggressive was 50.30%, 22.40%, 14.06% and 13.16%. The overall temperament score of Gir cows recorded was 1.90 which is in agreement with the findings of [8] in Holstein (1.90), [9] and [10] in Red Sindhi cows (1.85).

Difference in temperament due to parity was significant. In the present study, it was found that the frequency of docile temperament was highest in animals of 4<sup>th</sup> parity (64.90%) and lowest in animals of 1<sup>st</sup> parity (38.94%). The results indicated that as the parity advances the temperament of cow improves i.e. they become comparatively more docile. It might be due to the fact that as the age advances the cow becomes more familiar with the routine farm operations, particularly milking. The survey of relevant literature revealed that there is no report on association of parity and temperaments. During every month frequency of docile temperament increased with parity. The trend during different months was more or less same. There appears no report on frequency of different temperaments for different parities during different months

## Conclusion

Majority of Gir cows (50.30%) in present study had docile temperament indicated that aggressive and nervous cows can be converted in to docile temperament by better management for long duration. Temperament had great influence on all the milking attributes. Aggressive cows took maximum time for both let down time as well as milking time with less milk flow rate and milk yield, while docile cows performed best.

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