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## An analysis of traditional dairy farming practices of Tamil Nadu State, India

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### Abstract

Traditional dairy farming practices can vary significantly depending on the region and culture. Hence an attempt was made to document the prevailing dairy farming traditional practices prevailing among dairy farmers in the areas where cattle population is high. Tirunelveli, Namakkal, Vellore and Tiruppur districts of Tamil Nadu State were selected for the study based on the highest livestock population. A sample of 240 farmers were interviewed through structured interview schedule to document the traditional practices prevailing among the dairy farmers. Majority (67.92 percent) of the respondents prefer natural service to their dairy cows than artificial insemination. About 16.25 percent of the traditional farmers clean the cattle shed once in a week and plastering it with cow dung on Fridays. In conclusion, analyzing traditional dairy farming practices offers a way to honor and utilize historical knowledge while addressing contemporary challenges. It helps bridge past and present practices, potentially leading to more sustainable, economically viable, and culturally rich dairy farming systems.

**Keywords:** Traditional practices, documentation, dairy farming, cow dung, ITK

### Introduction

Indigenous Technical Knowledge (ITK) has positive social implications, is financially accessible, sustainable, involves minimal risk and emphasizes the efficient use of eco-friendly resources (Boruah *et al.*, 2023) [1]. Traditional dairy farming practices vary widely depending on the region and cultural practices. Traditional dairy farming often involves a strong focus on animal welfare and husbandry practices. This includes providing proper housing, feeding and healthcare for the animals. Traditional dairy farms often use local or indigenous breeds of cattle, which are well adapted to the local environment and have been bred for their milk production. Traditional dairy farming typically involves feeding animals a diet based on locally available fodder, such as grass, hay, and crop residues. In some cases, animals may also be fed supplementary grains or concentrates. Milking is usually done by hand, although some traditional farms may use simple milking machines. Milking times and frequencies can vary, but cows are typically milked once or more times per day. Animals are usually housed in simple shelters or barns, which provide protection from the elements and predators. Housing can vary from region to region but often includes access to pasture or grazing land. Animal manure is often used as a natural fertilizer on traditional dairy farms, helping to improve soil fertility and reduce the need for chemical fertilizers. Traditional dairy farming practices often involve the whole community, with families working together to care for the animals and manage the farm. While these practices have been followed for generations and are still used in many parts of the world, modern dairy farming practices, such as the use of specialized breeds, mechanization, and intensive management techniques, are becoming more common. Hence a study was undertaken to find out the common dairy farming traditional practices followed by local farmers for documentation purpose.

### Materials and Methods

Action research or small group research technique was resorted to collect the prevailing traditional farming practices. The researcher visiting the different localities of the study area and had discussion with small groups of dairy farmers regarding the traditional practices. A total number of four villages with highest cattle population were selected from each district.

From each village, traditional healers were selected in consultation with concerned Veterinary Assistant Surgeon. From each traditional healers, 15 farmers were selected in each village. This constituted the total samples of 240 farmers. After documenting the traditional practices, an interview schedule was carefully designed and the same was used to collect the data among the farmers in different villages. Data were collected from the respondents by

personal interviews.

## Results and Discussion

A total number of 30 traditional dairy farming practices have been documented in the table 1 which were used by the respondents that could help not only in the management of different types of livestock diseases and ailments but also for efficient livestock production and management.

**Table 1:** Distribution of respondents on traditional dairy farming practices N=240

Sl. No.	Traditional dairy farming practices	Frequency	Percentage
1	Natural service is preferable.	163	67.92
2	Artificial Insemination done on <i>Amavasai/Pournami</i> . (New moon/Full moon day)	141	58.75
3	Selection of cows based on “whorls”	124	51.67
4	Mouth cover for calves and bullocks	120	50.00
5	Tying animals in nearby trees	97	40.42
6	Naturally manuring the fields by <i>Matukidai</i> (cattle penning)	94	39.17
7	Calves are not weaned from its mother	88	36.67
8	White bullocks for carting is preferable	85	35.42
9	Tying bell around the neck of the cattle	83	34.58
10	<i>Jallikattu</i> (Bull taming festival)	82	34.17
11	Using nose ring to control animals	77	32.08
12	Non dissection of umbilical cord of new born calf	75	31.25
13	Feeding of locally available fodder tree leaves	74	30.83
14	No proper sheds are constructed for rearing cows in villages	74	30.83
15	Selection of cows by its colours	69	28.75
16	Shoeing done for work bullock	68	28.33
17	Feeding rice gruel to the animals	67	27.92
18	Using dentition to age cattle	66	27.50
19	Black cow suits the family	59	24.58
20	Newly born calves are not fed with colostrum immediately	58	24.17
21	Cattle grazing are preferable	48	20.00
22	Cow dung used as fuel for cooking purpose	47	19.58
23	Cattle urine and dung used as organic manure in agriculture	45	18.75
24	Castration done by crushing the testis manually	43	17.92
25	Fumigating camphor or incense smoke twice a week in cattle shed	39	16.25
26	Feeding of <i>cumbu</i> (pearl millet) gruel with jaggery to newly calved cows	38	15.83
27	Stacking of paddy straw for long term use	36	15.00
28	Spraying the cow dung as disinfectant (plastering agent)	32	13.33
29	Feeding kitchen wastes to cattle	28	11.67
30	Knuckling milking method is preferable	22	9.17

### Natural service is preferable

Majority (67.92 percent) of the respondents prefer natural service to their dairy cows than artificial insemination. The main reason for this activity was justified by the fact that most of the farmers practicing animal husbandry as a secondary occupation. Moreover, these farmers were practicing organic agriculture farming for which cattle dung was must (not for milk production).

### Artificial insemination done on new moon or full moon day

More than half of the respondents (58.75 percent) believed that their cow/buffalo would come to heat during *ammavasai* (new moon day) or *pournami* (full moon day) and sent their animals for artificial insemination to veterinary dispensaries. The reason behind the increased number of animals showing oestrus signs during these days needs to be explored by the researchers. The farmers believed that 100 percent conception occurred if artificial insemination done on these days).

### Selection of cows based on “whorls” (Twists or hair marks on cattle)

When a Hindu purchases the cattle, the first thing he observed was *Suzhi* or twist (whorls). Those who have cattle with good

marks will prosper whereas those with bad ones will not. *Suzhi* is observed chiefly by those who go in for a single animal for his house or those who want work animals for drives. The findings of cow “whorls” was recorded by Krishnasamy, 1950<sup>[2]</sup>.

A twist, common in cattle, is the one situated in line with the umbilicus on the line from the head to the tail back of the animal. In some animals the twist is nearer the hump and in some nearer to the hip joint. Generally cattle have the ability to stir their coats behind the hump. If the twist is on this portion, it was bad; but if it was a little away to the right or left of the ridge mark it is not considered bad.

If there are bad marks or twists on an animal, nobody will purchase it; therefore to hide these bad marks the sellers usually brand the skin over the marks.

### Mouth cover for calves and bullocks

The mouth of a young calf was covered or protected with a coconut rope net in order to protect them to eat sand or lick the mud floor. This method was practiced by 50.00 percent of the respondents. Some of the calves ate foreign bodies such as plastic paper which would result in digestive disorders. This practice would minimize the occurrence of intestinal worms in the young calves.

**Tying animals in nearby trees**

Each and every household had open space in which they had few trees such as *Pongamiaglabra*, neem, etc. More than one-third (40.42 percent) of the respondents tying their animals in these trees as they didn't have specific cattle shed.

**Naturally manuring the fields by cattle penning (*Maattukidai*)**

Cattle penning (*Maattukidai*) means cattle were kept overnight in the field and urine and fecal matter added to the soil. More than one third of the respondents followed *maattukidai* practice. It was a good old traditional practice. In this method, the cattle would be held in the empty fenced agricultural ground during night time after returning from the day grazing. During the night time, the animals would pass the dung and urine in the field to get organic manure, which was considered to be a need of the hour.

**Calves were not weaned from its mother**

Day old weaning was advised for effective calf rearing in the scientific husbandry practices. More than one-third of the respondents allowed calves along with the mother till the cow/buffalo was in lactation.

**White bullocks for carting is preferable**

In general, for carting the white bullocks were highly preferred by the respondents. This is due to the fact that white color resembles peace and fortune.

**Tying a bell around the neck of the cattle**

As most of the respondents preferred community grazing, the alpha male of the group would be tied with a small bell around the neck. The grazing field contained bushes and trees. The cattle might be grazed in these areas. The bell sound would help to identify the place where the cattle along with its group members were grazing and also in night, bell sound gave alarm to herdsman.

**Jallikattu (Bull taming festival)**

The centuries-old tradition of Jallikattu, which means "bull-taming" sees bulls let loose as young men compete to subdue them to win awards/cash prize etc. Tamil historians claim the sport dates back to the second century AD and predates the Spanish matadors. Jallikattu also known *Eruthazhuvuthal* (in tamil) or *Manjuvirattu* (in Tamil), a bull's game day event happening in Tamil Nadu as a part of Pongal celebrations on *Mattu Pongal* day.

**Using nose ring to control animals**

A ring made of silver/iron was used to fix in the nose of the animal for easy control. The nose rings were usually used for the cattle that were difficult to control while milking.

**Non dissection of umbilical cord of new born calf**

Once the calf is born, the external part of the umbilical cord begins to shrink and dry up. Eventually, it falls off, leaving a modified scar we call the navel. This natural process works especially well when calves are born in a clean, dry birth giving area. The first step to prevent these infections is to make every effort to keep the neonatal umbilical cord free of contamination. This is best accomplished with clean, dry bedding in the birthing pen. The scientific livestock farming recommended that the umbilical cord should be severed using a sterile scissors after leaving one inch and subsequently should be cleaned using povidone iodine. But 31.25 percent

of the respondents practiced the practice of non-dissection of umbilical cord and covered with a white cloth to protect against injury. This factor needs to be taken for consideration and suitably sensitized the issue while offering training to the farmers of study area. Sabapara *et al.*, (2015) [7] recorded majority (96.33%) of respondents did not practice ligation, cutting and disinfection of the naval cord of calves at rural dairy farms in Surat District of Gujarat State.

**Feeding of locally available fodder tree leaves**

The cattles were fed with locally available fodder tree leaves as each and every house in the study area possessed two or three fodder trees. Feeding locally available tree leaves would help to satisfy the nutritional need of the cattle.

**No proper sheds are constructed for rearing cows in villages**

The cows were tied under the trees only. Sometimes they used to tie the cattle under kutchha shed or debilitated house especially during rainy season. As scientific practices recommend proper housing for the cattle, these areas need to be educated while giving training to the farmers of this area.

**Selection of cows by its colours**

More than one-fourths (28.75 percent) of the respondents felt that certain coloured cows were good milk yielders. e.g. gray/brown colored cows were considered as good milk yielders. Hence these cows were sold for good and remunerative prices.

**Shoeing done for work bullocks**

The working bullocks were shod as their hooves are cloven. Two shoes are required for each hoof. The bullock shoes were usually of approximately half-moon or banana shape with caulkins (protrusions at the heels of the shoe to provide additional traction) and were fitted in symmetrical pairs to hooves. The shoeing was performed by an experienced shoe man once in six months.

**Feeding rice gruel to the animals**

The practice of feeding 1/2 lit rice gruel mixed with 10-15 *Poovan* bananas (local varieties) along with jaggery to the cattle was performed during sickness was noticed among 27.92 percent of respondents.

**Using dentition to age cattle**

The tooth method of aging cattle was more accurate. Becoming proficient at aging cattle by the tooth method requires practical experience and a lot of practice. The farmers (27.50 percent) were using the dentition standards to purchase and predict the age in cattle.

**Black cow suits for family**

A total number of 59 respondents (24.58 percent) felt that black cow suits for family. This was really contrary to the general belief that black resembles bad luck and a symbol of sadness.

**Newly born calves are not fed with colostrum immediately**

Contrary to the recommendation by the scientific dairy farming, 24.17 percent of the respondents were not feeding with colostrum to the newly born calves. The respondents used the colostrum for their family use and also sold the same at remunerative price. They were not aware of the importance of feeding the colostrum to the new borne calf. They were in

the wrong notion that feeding colostrum would lead to diarrhea, which eventually might cause death of the calves. Similar findings were recorded by Manivannan *et al.*, (2014)<sup>[5]</sup>.

#### **Cattle grazing was preferable**

One-fifth of the respondents prefer cattle grazing as herd. As majority of farmers (98.80 percent) reared livestock for their secondary income, they preferred natural grazing. The cattle were sent in groups in the morning for natural grazing and returned to their home in the evening for milking. Moreover, most of the respondents possessed native breeds than eycross breeds of dairy cows.

#### **Cow dung as fuel for cooking purpose**

One-fourths (19.58 percent) of the respondents used cow dung as fuels for cooking. *Cakes of cow dung* were made by mixing dung with straw, pieces of wood, paper or crop residue. Then these were stuck on walls, or ground to dry them for cooking fuel purpose. Similar findings were documented by Mushtaq *et al.*, (2020)<sup>[6]</sup>.

#### **Cattle urine and dung used as organic manure in Agriculture**

The dung of the cattle was collected daily and heaped in a pit. The collected dung was used in their agricultural field for organic manuring.

#### **Castration done by crushing the testis manually**

Castration was done manually by an experienced person in a village using clamps made up of wood which crushes the blood vessels around the testes, cutting off blood supply and causing them to die and drop off. The villagers sought the help of this person when they were living far away from veterinary dispensaries. Otherwise, they preferred to go for castration using Burdizzo castrator.

#### **Fumigating camphor or incense smoke twice a week in cattle shed**

About 16.25 percent of the traditional farmers clean the cattle shed once in a week and plastering it with cow dung on Fridays. They perform poojas and fumigate the cattle shed with camphor and incense sticks. Farmers feel that the camphor/incense smoke will drive out evil forces and other disease causing agents from the cattle shed. Benzoin resin powder was sprinkled on glowing red charcoal taken in a *sambrañi* incense pot made up of brass and shown on the face of the animal. This would help to prevent respiratory diseases and also act as fly repellent that prevented the entry of mosquitoes and other flies which produce maggots in the wound of the cattle. Similar findings were recorded by Manivannan *et al.*, (2014)<sup>[5]</sup>

#### **Feeding of cumbu gruel with jaggery to newly calved cows**

The newly calved cow was fed with minor millets (*cumbu or ragi*) along with jaggery. About 15.83 percent of the respondents practiced this technology and they believed that this laxative diet would help in exorcising the body waste as well as expelling the placental membrane. Similar practice was reported by Kumar (2000)<sup>[3]</sup>.

#### **Stacking of paddy straw for long term use**

About 15.00 percent of the respondents practicing this technology to preserve the paddy straw for future use. Paddy straws were dried (on bunds and dry areas) as soon as

possible after threshing in order to ensure the best possible straw for livestock feed. The dried paddy straw was heaped and stored on raised wooden platform and covered with coconut leaves or palm leaves for protection against rain. Sometimes the entire heap was covered with plastic sheets also.

#### **Spraying the cow dung as disinfectant (plastering agent)**

About 13.33 percent of the respondents still using the cow dung as a plastering agent for their homes. But all the respondents were having the habit of spraying cow dung mixed water in front of their home in the early morning as a plastering agent. This clearly showed that most of the respondents believed that cow dung was having disinfectant activity.

#### **Feeding kitchen wastes to cattle**

The cattle reared by the respondents were fed with available kitchen waste as a low-cost feeding method. The cows were fed with leftover cooked rice, cooked vegetables mixture and the rice and urid dhal washed water daily in the evening after they were back from grazing. One of the respondents went to fast food catering centre located near the town to collect vegetable waste. He then mixed the waste with vegetables and fruit peels; and shoves the mixture into an oval-shaped aluminium tub. When he started to feed the cows, his neighbour's began to adopt this practice for their cows also. Similar finding was recorded by Madhavan (2015)<sup>[4]</sup>.

#### **Knuckling method of milking method was preferred**

Knuckling is pressing the thumb against the teats while the teats are in between thumb and fingers. Nearly one-tenth of the respondents were practicing this method of milking. But this method is not advisable and is least recommended of all milking methods.

#### **Conclusion**

An effort has been made to document various traditional dairy farming practices in some parts of Tamil Nadu. The results indicate that the respondent livestock farmers possess significant knowledge about these practices. These traditional and indigenous practices should not be dismissed as outdated, as they have evolved over time through experience and trial and error by our ancestors. Therefore, further exploration by researchers in these areas is warranted to understand the reasons behind these practices.

#### **Conflict of Interest**

Not available

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