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# **A Comparative Study on the Indigenous Traditional Animal Husbandry Practices among Four Major Animal Rearing Tribal Population of Wayanad District, Kerala**

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## **Authors' contributions**

*This work was carried out in collaboration between both authors. Author MJA carried out the surveys, did the necessary documentations, collated the data and prepared the manuscript. Author RLR conceived the study, designed the questionnaires, scrutinized and analysed the data, edited and approved the manuscript.*

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## **ABSTRACT**

**Aim:** The present study was taken up to gain insights on the husbandry practices of four major animal rearing tribal communities of Wayanad district namely, Adiyar, Kuruma, Urali and Kattunaykka, tribes.

**Study Design:** Details regarding animals reared method and purpose of rearing, marketing and economy of animal rearing, materials and designs used for construction, of animal houses were collected by visiting the tribal colonies and conducting informal interviews with the village head and other elders in the community. The findings were documented analysed and discussed.

**Place and Duration of Study:** The study was conducted from 7<sup>th</sup> January 2019 to 19<sup>th</sup> April 2019 in Sulthan Bathery Taluk of Wayand district, Kerala.

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**Methodology:** The tribal settlements were visited and data collected by conducting informal interviews with the village head and other elders in the community. Structural designs and peculiarities were photodocumented for comparison between communities. The findings were documented, analysed and discussed.

**Keywords:** *Indigenous traditional knowledge; animal housing designs; Wayanad.*

## 1. INTRODUCTION

Wayand, a hilly district of Kerala located 11.6854 degree north latitude and 76.1320 degree east longitude with a geographical area of 2125 Sq. Km of which 73.19 Per cent is forest. The district shares its border with the states of Tamil Nadu and Karnataka in the North and East, respectively and Kozhikkode district in west and south. The district is known for presence of large number of tribal communities. The district boasts of 18.53 per cent tribal in its total population, which accounts for 36.5 per cent of the total tribal population of the state (census of India, 2011). Hence Wayanad is affectionately called as the tribal hamlet of Kerala. Even though the district ranks second with respect to milk production in the state, Animal husbandry is limited to a select few communities only.

Tribal economy in the region revolves around the procurement and trade of forest produce like honey and other spices. Animal husbandry is involved in providing nutrition as well as a means of economic sustenance of those tribes who traditionally rear animals. Although the sociological, cultural aspects and their interaction with the ecosystems around them are well studied, their indigenous traditional knowledge with respect to animal husbandry and allied sector has never been documented, at least in Wayanad.

The present paper deals with the documentation and analysis of indigenous traditional knowledge regarding animal housing systems and designs, farming practices, marketing of the animals or products and animal healing practices of four animal rearing communities of Wayanad viz. Adiyani, Kuruma, Urali and Kattunaykkas.

## 2. MATERIALS AND METHODS

The study was conducted from 7<sup>th</sup> January 2019 to 19<sup>th</sup> April 2019 in Wayand, Kerala. A total of eight tribal settlements, two each from Adiyani, Urali, Kuruma and Kattunaykka tribes were visited and responses from a conveniently

sampled 32 households, four from each settlement, including that of the village elder were collected. Data was collected by conducting informal, open ended interviews based on a non-structural questionnaire and discussions based on that, as per Sinha and Lakra [1], with minor modifications. The Methodology was applied to establish a good rapport with the respondents and to allay any apprehensions regarding data collection. Details regarding housing and management, marketing of animals and animal products were enquired. Details regarding common ailments of the animals and its interventions were also collected using a non-structured interview with the elders of the village. Help from members of local administrative bodies were sought for easy communication and rapport making with the members of the settlement.

Data obtained from interview were collected and collated. Photographic records and documentations were made for future reference. Data obtained were compared to bring out the similarities and dissimilarities in animal husbandry practices between the tribes.

## 3. RESULTS AND DISCUSSION

### 3.1 Adiyani

The adiyani tribe is an agriculturally oriented community that is linguistically and ethnically related to the 'Yevara' tribe of neighboring Coorg District of Karnataka [2].

#### 3.1.1 Animals reared and purpose of Animal Husbandry

Respondents agreed that cattle were their most important domestic animal, followed by goats. It was observed that most of the household had chicken coop and kept poultry. Buffaloes were also reared by the members of the group. Dogs formed a major pet animal and the respondents opined that the dogs serve as a guard animal and warn presence of wild animals and strangers.

Women are engaged in most of the livestock rearing activities in the community [3]. On enquiring about the purpose of livestock rearing, respondents of the community replied that animals, especially cattle, buffalo and goats served as an instant source of money in times of need. Cattle is usually reared, and sold in the last trimester of pregnancy. Dung is sold to outside communities who engage in agriculture. Respondents also reported that they prefer curd over milk and also sell the milk in nearby dairy co-operative society. Hoof and horns of the animals were used to make handles for the utensils and tools. Chicken reared in the household are seldom sold. Egg and meat are consumed domestically. Dogs served as guard dogs for the community and warned of approaching wildlife and strangers.

### 3.1.2 Management

Cattle were reared as free range. The animals are let loose in the morning, where they go to graze in the nearby forest lands and return by evening. These animals are provided with paddy straw at night hours in the shed. Semi intensive grazing system was also practiced by some members of the tribe. In this system, animals are tethered on open fields or under shade from morning till noon, washed and cleaned and taken to the shed in the noon. Afternoon, such animals are provided green grass and concentrates within the shed.

### 3.1.3 Housing

Local availability of resources judged the design of the cattle shed. The construction of sheds depended on locally available wood, areca nut wood and bamboo for this purpose. Paddy straw or coconut leaf fronds were used to thatch the roof. Two designs were found to be commonly

followed by Adiyans (Fig. 1). When the construction is mainly dependant on locally available wood, the floor and corner posts of the cowshed were made of such wood and the frame of roof was made from arecanut wood. There were no partition between the animals and a common a manger was used. In such sheds, dung was removed occasionally and a dung pit was found adjacent to the shed. The second design (Pic.2) depended heavily on bamboo and the almost all structures, including floor, wall and frame of the roof were constructed with bamboo. Even frames constructed from bamboo that served as partition for animals could also be observed. Dung was frequently cleared from these sheds and dung pit was located away from such sheds.

Similar principles of design were noted among goat sheds also. Notable difference was that the goat sheds were constructed on elevated platforms. No separations could be observed within goat sheds (Fig. 2).

Kennels and chicken coops were constructed adjacent to the houses. The coops were made from overlaying bricks with an improvised roof ranging from plastic and asbestos sheet to wood splinters. (Fig. 3) Kennels were made from wooden planks and bricks. Steels grills sourced from urban markets were served as doors when ever present (Fig. 4).

## 3.2 Kuruma

The Kurumas are one of the numerically predominant tribe in Wayanad District. They are subdivided into various groups based on their predominant profession. The tribe traditionally had a community organisation that lacked social stratification and class contradictions [4].

**Wood dependant design**



**Bamboo dependant design**







**Fig. 1. Cattle shed designs used by Adiya community**

**Wood dependant design**



**Bamboo dependant design**



**Fig. 2. Goat shed designs used by Adiya community**



**Fig. 3. Chicken coop-adiya community**



**Fig. 4. Kennel-adiya community**

### 3.2.1 Animals reared and purpose of animal husbandry

On interviewing, the respondents replied that cattle was their most important animal, followed by goat and poultry. Dogs were traditionally kept as a pet as well as a guard animal.

On enquiring about the purpose of rearing animals, respondents replied that dairy cows, buffaloes and goats were reared for economical purposes only. Cow milk is primarily sold to the society and goat milk is preferred for domestic consumption. However, cow milk is further processed to make curd and ghee and used in household. Respondents replied that these animals act as a source for instant cash in terms of economic emergencies. Poultry meat and their eggs are consumed domestically, while dogs serve as guards of the settlement.

### 3.2.2 Management

The Kuruma tribes were found to rear cattle in a semi-intensive system. The animals are milked early in the morning and let out for grazing in the field. Since they have land for paddy cultivation, the animals are let out to graze in paddy fields and adjacent areas instead of letting into the forest. The animals are bathed in nearby streams and taken back to the sheds, milked and again let out to graze in the fields. Commercially available concentrates are fed after milking. Goats are also let out or teathered in paddy fields of the tribes and brought back to the sheds in evening, where they are provided with water and jackfruit leaves for the night. Poultry birds are let out in the morning, and reared in a free range system, but are caged in the dusk. The birds are offered the leftover food in the household. Dogs are allowed to roam freely and community takes

the responsibility of all the dogs. Respondents agreed that kennels are a new phenomenon in their community, as they started to leave outside their traditional settlements.

### 3.2.3 Housing

Kurumas use both locally available and commercially available materials for their animal house construction. Unlike the Adiyaans, they do not provide separation walls for individual animals. Flooring was made by either stone paving or bamboo planks (Fig. 5).

Goat shed are made on elevated platforms. Locally available wood formed the corner posts for the platform on which arecanut wood or bamboo planks were laid to form floor of the shed. Separation was made along the length of the shed, which acted as the manger. Tin sheet was used as the roofing material invariably among all the goat sheds visited. Coconut fronds or tarpaulin sheets were laid over the roof as a protection from sun (Fig. 6).

Another type of goat shed was made of wooden pillars. The floor was elevated from the ground and was made of arecanut tree logs. Manger was present in these sheds. The side walls are made of the logs used for the flooring purpose. The roofing was made using metallic sheets over bamboo frame work (Fig. 6).

Traditional Housing for poultry used wooden planks. The poultry shed is kept away from the building and in a raised platform (Fig. 7A). Modern day construction materials were also observed for housing poultry (Fig. 7B). These type of sheds employed steel grills for floor and was kept on elevated posts. Both poultry sheds were used for housing the birds only during night time and for brooding purposes.



Fig. 5. Cow shed in a Kuruma settlement





**Fig. 6. Goat shed-Kurumas**



**Fig. 7A. Traditional shed using wooden materials**



**Fig. 7B. Shed made using steel grills**

**Fig. 7. Poultry sheds used by Kuruma people**

### 3.3 Urali

The Urali tribe is traditionally known to be basket weaving and mat weaving community [5]. They were also known to do farm labour. Their expertise in using reed and bamboo was well reflected in their animal house constructions also.

#### 3.3.1 Animals reared and purpose of animal husbandry

The tribe is settled along the forest margins and the respondents of this tribe reported that goat and poultry were the major animals that they reared. They also reported that they do not prefer cattle rearing owing to loss of animals to wild predators.

#### 3.3.2 Management

Goats provide milk and manure to the community. Respondents stated that they do not use goat meat. However, they sell the goats for meat purpose. Pregnant goats are also sold in case of urgent need for money. The flock is released to the forest for browsing and are brought back by evening. Once back, the animals are given water, taken back and tied inside the shed to be provided with jack tree leaves or grass during night hours. The tribe mainly depends on the forest and house hold wastes as feed for the animals. They reported that market- brought feed and concentrates were seldom used to rear animals.

Poultry are reared free-range. The birds are kept in cages only during the night hours and remaining time they are left free and they feed on the house hold wastes. The tribe practise poultry

breeding and brooding of eggs using brooder hens. Respondents said that even though 8-10 eggs can be hatched at a time, only 5-6 chicks will survive due to predation and other factors.

#### 3.3.3 Housing

Goat sheds were made from bamboo, wooden logs, areca tree logs and coconut tree leaves. The sheds were constructed in an elevated platform, of which the corner posts were made from arecanut logs. Floor was made primarily from bamboo, but arecanut planks were also observed in some sheds. Roof was made from thatched coconut leaves arranged on wooden frame work.. Tarpaulin sheets were laid over the roof to make the sheds waterproof. The shed usually had a ramp that allowed access into the shed. The sheds had mangers constructed from bamboo planks. Jack tree leaves were tied on the walls wherever manger was absent.

Poultry cages are made as a raised platform with wooden floor. Walls are made using split-up bamboo planks. The planks that made the walls were found to be much closer than that of goat sheds, so as to prevent the access to snakes. The birds are let out to roam in backyards early in the morning and are put back into the cages at dusk. The roofs were made of locally available wood. Respondents also disclosed that they regularly produce and sell their poultry cages to neighbouring markets and are used by non-tribal households to house their backyard poultry birds also.

Dogs, though owned by the community, does not have a designated housing structure. Canine companions could be found resting on the front courtyards and verandas of the families



Fig. 8. Goat shed, made of bamboo by Urali tribes





**Poultry coup made of bamboo**



**Poultry coup under construction**

**Fig. 9. Poultry shed made of bamboo by urali tribes**

### 3.4 Kattunayikans

The Kattunayikan tribe of Wayand are dependent on forest and forest products for sustenance. Though they continue their hunter-gatherer lifestyle to some extent, they also cultivate land as well as rear cattle, goats and dogs. The Kattunayakan community is found nowadays in Wayanad, Kozhikode and Malappuram districts[6].

#### 3.4.1 Animals reared and purpose of Animal Husbandry

It was noted that the Kattunayikkans mainly rear cattle, goats and dogs. They have discontinued rearing poultry owing to predatory loses. The population of animal in the tribal community was low when compared with other three tribal group, which could be because of the settlements being inside the forest.

It was responded that animals were primarily reared for food purposes. Cow and goat milk is

used for regular consumption. The respondents said that they make dairy products like curd and ghee as well. Excess milk is given to nearby milk societies. Cow dung was used as manure. The animals are sold during financial emergencies. The tribe uses animals as an instant source of money than a steady source of income. Poultry meat and eggs were consumed when the bird were reared. Dogs served as sentinels for warning approaching wildlife.

#### 3.4.2 Management

The tribe depend on forest and their cultivation lands for feeding the animal. The cattle and goats are fed with the house hold food waste in the morning. Then they are taken to the fields to be tethered for grazing or let loose inside the forest (Fig. 11 & Fig. 12). The animal is taken back in evening hours and given water. Then the animals are tied in the sheds and are fed with green grass. Fallen leaves of the areca nut tree, plantain leaves and stem are given when grass availability is short.

The dogs are reared mainly for protecting the humans and their livestock from the wild animals. The dogs act as scavengers for whatever food is left that cattle cannot eat. They are not housed as well.

### 3.4.3 Housing

#### 3.4.3.1 Cattle shed

The few cattle sheds observed in the kattunaikka tribal settlement were found close to the houses so as to keep a close watch on their animals. The sheds were less roomy than what was required. Dung pit was not seen and respondents said they would clear the dung as and when needed. The corner posts were made from forest logs and side-walls made of arecanut wood. Sheds usually had a wooded framework with thatched roof and was covered with a plastic sheet (Fig. 13).

#### 3.4.3.2 Goat shed

Goat sheds were made using bamboo and arecanut planks. It was an elevated type house

with wooden pillars to elevate the floor from ground. The floors were made of arecanut palm logs and the walls were made of bamboo. The roof was built with coconut palm leaves and plastic sheets aligned on frame work made of bamboo.

It was found that all the tribal communities under the present study relied heavily on forest products and indigenous traditional knowledge regarding their construction and husbandry practices in rearing animals. The market for their products is largely limited to transactions within the respective communities and was not intended to make financial profits. However, it was observed that the increased interaction of the tribal farmers with the mainstream population has resulted in adaptation of certain modern construction materials and sales to outside the communities in certain tribes like chicken coups made of bamboo and bamboo products like basket , mat etc The findings are in accordance with the observations of Benazeer [7]. It was also observed that respondents across all the tribes studied reported that their livestock holding capacity has come down because of increased



Fig. 10. Entrance to kattunayikka colony situated inside the forest



Fig. 11. Cattle reared by tying in the forest by kattunayikka tribes



**Fig. 12. Flock of goats reared by kattunayikka tribe along with a guard dog**



**Fig. 13. Cattle shed made of bamboo by kattunayikkan tribe**



**Fig. 13(A). A litter of puppies owned by kattunayikka tribe**

man- animal conflicts. Increased man animal conflicts in traditional tribal settlements were reported by [8 and 9]. This could be because of increased exploitation of forestland and increased urbanisation of human settlements near forest areas.



#### 4. CONCLUSION

The indigenous traditional data on animal husbandry practice and animal house construction are found to be scarce. The present paper documents the animal housing and husbandry practices followed by the four major animal rearing tribes of Wayanad. Need exists for scientific evaluation regarding the soundness of construction of the houses, cost effectiveness of the management and welfare of the animals reared in these husbandry practices that makes use of indigenous traditional knowledge. Documentation of traditional designs can help in local adaptation of existing technologies for animal housing. Studies may be undertaken for modifications of existing traditional practices based on known scientific facts, which would in-turn, improve the farming standards of the economically struggling tribes of the region.

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#### CONSENT

As per international standard or university standard, respondents' consent has been collected and preserved by the author(s).

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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