

Traditional Cattle Management Systems and Indigenous Veterinary Medicine of Sri Lanka

Introduction

Sri Lanka having an agriculture-based civilisation with an agricultural history of over 13,000 years, the archaeological evidence to confirm the existence of a nomadic era is very scanty or nil. There are still doubts about the indigenous cattle in Sri Lanka, as to whether they are truly indigenous or have been introduced during sometime in the history from our neighbouring countries. However, the so called "Local cattle" or "indigenous breeds" which are locally known as "Batu harak" was found to be a sub species of the Indian cattle (*Bos taurus*). But they are phenotypically different to the true Indian cattle. Therefore, our archaeologists categorised them as a sub species of Indian cattle and named them as *Bos indicus sinheleyus* (Deraniyagala, 1992). A descriptive account on the phenotypic characteristics of true indigenous cattle has been given by J. Dela H. Merret in 1973. The true indigenous cattle had been extinct in the late 1930's according to literature, due to excessive slaughter for beef during the World War II. The present so called "indigenous" or the "Batu harak" are not typical true to type phenotypes, but they are the cross between the true indigenous and Indian cattle. Therefore, there is no harm if we call these breeds as "local cattle" instead "indigenous" (here after they will be called as local cattle in this text) (Perera, 2005).

Rearing of dairy cattle has been an integral component in our traditional agricultural system.

Cattle have assisted immensely in rural agricultural practices from land preparation, threshing to transporting of agricultural produce from the field to the storage. In addition, these species, especially the cattle, became so close to the rural peasantry society that they were treated as a part of the family. They were well looked after and taken care of. The little calves became a playmate of the rural children. During their use in the field, especially land preparation, they were called as "children" "beloved" or even "divine ones". In addition to their assistance in providing "power", they also provided valuable plant nutrients through urine and dung to nourish their crops as valuable fertilisers. Their milk made the Sri Lankan people a healthy nation, to give strength to tilt the soil to make Sri Lanka self sufficient and to fight against the foreign invaders and save and sustain a free mother Lanka in the past.

Milk provided most precious five tastes, "Pasgorasa" or "Panchagoarara" (milk, cream, whey, curd, and butter) considered as noble food in the cuisine of the past in elite menus. This is well reported in the ancient documentation by both local and foreign scholars. Ancient kings and noblemen have offered cattle and buffalo to temples to use their products as food (*Panchagorasa*) and to lit lamps with butter fat.

Traditional Classification of Cattle in Sri Lanka

Many Asian countries (Malaysia, Indonesia, etc.) have many wild

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relatives of cattle in addition to the domesticated species. However, in Sri Lanka, there are records of a wild relative of the indigenous cattle. This species is known as the historically well-known "Gavara" (*Bos gaurus*). A wild relative of this species is still present in the foothills of Nilgiri in India. This was a wild species and some names of locations in the country, such as, "Gavarapitiya", "Gavara Ella" "Gavara Kanda" "Gavaratenna", etc., explains the presence of this animal in Sri Lanka. Even in accounts of Robert Knox, this animal has been mentioned during the period of the Kandyan kingdom. Though no records are found to confirm the domestication of this species, there is evidence to say that this animal was used as a combat animal to test the endurance of the Sinhala warriors. However, by the latter part of the 19th century, this animal was reported to be extinct due to unrestricted slaughter as game.

Traditionally, the cattle were grouped into seven castes (groups) based on the body characteristics and behaviour. They are; *Raja, Bamuru, Velanda, Govi, Gaja, Sita* and *Uposatha*. Therefore, based on the purpose of use, the cattle were

chosen from the respective caste (group). The belief was that, by choosing the animal this way, it will make them more efficient and prevent animals from being ill or have accidents.

Society and Cattle Management

In the ancient society, cattle belonged to many groups in the social strata. The king had his own cattle herds to provide power and milk to the royals. The general public also owned cattle herds for power, draught, fertiliser and a source of food supply (*beef was never consumed or promoted by the civilised society; the people who consumed beef was considered as low social status or outcaste*).

During ancient times, the royal palace had a separate administration to manage its own herd of "White Cattle" and this was known as "Rajakiya Sudu Harak Panthiya". These were not local breeds, but were imported from India, may be with the introduction of Indian Queens to Sri Lanka. This importation is confirmed by the 16th century Natha Devale rock inscription. The royal cattle herd was under a Royal Official known as "Muhandiram" and was managed by many other low ranking officials, the "Vidanas". As a result, a position named "Patti Vidana" was involved among the royal officials. These animals were allowed to free graze since there were many open grazing fields available in the past. The grazing of animals was the duty of the people belonging to "Pannadura" Caste during the Kandyan kingdom, in the society, and this was equally placed with the so called highest caste in upcountry "Govigama" (Wimaladharm, 1981).

A herd of cattle in the traditional management system were known as "Pattiya" and the owner of the herd was named as "Gosamika", whereas the caretaker was known as "Gopalaka". The stud bull who serves for the progeny of the herd

was known as "Gopari Naika". Some names for places have been derived from the term "Pattiya" is used even today, for example "Pattiyagedara", "Pattipola", "Pattiyahandiya", etc.

The ownership of the cattle that belong to the public was identified by "hot branding" or moxibustion. In addition to the personal identity, they also had the branding signs to denote the social caste of the owner. During ancient times, with the system of division of labour, duties were delegated to people of respective castes in the society. People from different castes had privileges and restrictions. Therefore, inclusion of the sign of the caste in the animal identification became important.

In the dry zone of Sri Lanka, due to the availability of excessive extents of natural grazing lands, the cattle owners had a large herd, sometimes exceeding one thousand animals. Today, even if not that large, there are herds of at least up to 500 heads grazing together and owned by one or few owners. Earlier, this system was called "Gambara". These large herds are kept either for financial security or as a symbol of social status.

Noosing and Training of Cattle and Buffalo

In the early history, animals were domesticated for agricultural purposes by capturing wild animals and taming them. In traditional cattle production, since there are no wild cattle in our forests, noosing was done to capture wild buffaloes (*Sri Lankan wild buffalo is the same species as domesticated species Bubalus bubalis*). This was done by trained men known as "marikaraya". The noose is made out of deer skin, of which one end is the noose and the other end a strong antler of a Sambur with one side branch attached as hook. The total length of the noose is about 40 feet with a thickness of 1.5 inches with 3 - 4 strands of twisted

deer skin strips. To make this noose, one needs 4 - 5 skins of fully grown deer. If the noose can be used in the neck, leg or horns, it is called "Ismadu", "Paamadu" and "Angmadu" respectively. Preparation and use of these noose is a traditional science. Every individual cannot perform this. Therefore, there are specialised families who acquire the knowledge and science from their ancestors through their family and generations.

Setting of the noose is a combination of skill, astrology and spiritual belief. Noose setter has to follow strict religious customs and rituals, and have to prepare for a few days before, since this is a life and death exercise. There are many chanting among them for the success of the noosing and also for the release of the noosed animals. Noosing is done with the help of a tamed buffalo, and this animal is known as "stalking buffalo" or locally "dadameema". Once the noose is set on the wild animal, it is tied to a tree and allowed to starve the animal for few days to make him physically weak. Thereafter, the animal is coupled with a well-tamed and trained animal and both animals are tied together for few days before separated. Gradually the wild buffalo becomes docile, and thereafter, it will be further tamed to put it into use.

When the captured buffalo or already domesticated male animals are not docile enough to put them into work, or occasionally some animals become suborned, and their masculinity is controlled by castrating them. Castration refers to the inactivation or destroying of one or both testicles so that the male hormone production of the animal is ceased and become more docile, thus easy to handle. Traditionally, this is done by tying all four legs together and casting the animal sideways. The upper scrotal area is gripped with two thick smooth poles tied together from one end (*Pilidandu*). Then with a heavy flat wooden mallet or by fist

gently tap on both testicles until they cease the hardness and feel as semi-liquid or jelly nature. This is a painful operation and even practised today for draught cattle and "thavalam" cattle. This process is traditionally known as "Pliikedema" or "Kappadukereema" or "Kara embeema". After recovery, this gives the animal an extra vigour and the animal tends to fatten and become more docile (Perera, 2005).

Grazing and Feeding of Cattle

Traditional feeding of cattle is by free ranging and on natural forages. The *gambara* system, as mentioned before, is a very popular management system even today in the dry zone. Animals feed on scrub jungles, wastelands, fallow rice fields, tank bunds and beds, etc. Unlike today, no cut and carry system was in practice. They had extensive common grazing lands with plenty of forages. The village tank provided drinking water and water for wallowing. But the animals are not allowed to stalk along the tank bund or to damage it. If the tank bund is damaged, the cost of the repair had to be borne by the cattle owner. The cattle are allowed to the village tank only from one entry point, which is especially reserved for use of the cattle and known as "Gonmankada", other than this specified area, cattle are not allowed from any other entry to the village tank. Anybody who violates this rule had to pay heavy fines.

For the stud bull of the herd or the "gopari naika", a small amount of coconut poonac, gingerly poonac (*thala muruvata*) or Mee oil poonac (*Mee muruvata*) is given to maintain the body condition. The calves during the suckling age allowed drinking milk from the mother as they wish without any restriction. Milk of the cow was considered to be the right of the calf.

Traditional Management of Cattle

Traditionally, the cattle are not managed, but well looked after as

a close family companion. Good care was taken on their nutrition, health and other aspects. In most instances, when the herds become large, they never bother to sell the excess until they become a too big herd to handle. Even then, they are not sold, but lend to another family whom they think that they will be looked after well or on an "ande" system that they can recover when the farmers need. Often, when the cows are old and become unproductive, they are allowed to live a free life with owner until they die.

Cattle were allowed to free graze and never confined to sheds and fed. It is the responsibility of the village cultivators to fix their fences around the cultivated farmland and protect the crops from cattle and other intruders. There are norms and traditions followed by the traditional cattle farmers. To list few

- i. Cattle are allowed to freely graze during day and night.
- ii. Every farmer has to protect their rice fields and other cultivated areas by fixing proper protective fences against cattle and other animals (*Dandu and Veta - every farmer have to abide by this law*).
- iii. Not to harm any cattle by any means, and offenders are punished by the law enforcing authorities. These regulations provided cattle with ample grazing opportunities to roam freely with their offspring.

It is the responsibility of the herdsmen to keep the cattle shed free of dirt, and before the cattle return to their night resting places, to smoke the area with herbs so that the flies and the mosquitoes are repelled. When the cattle are returned to the night rest, they are to be inspected individually for pricks and wounds. If any prick or wound is found, immediately they should be properly treated.

Changing of grazing fields, leading to fresh water sources, when feeding and drinking water, leading them so that there will be no

competition between the strong and the weak, is the responsibility of the herdsmen. This system of cattle management, what we practice with present day scientific knowledge, has been introduced and well documented in the old text "Papagnasudani" and "Samanthapaidika", a Pali text written by Venerable Buddhaghosha Thero, in the 5th century AD.

This testifies the extraordinary knowledge we had in cattle management in the past. The white cattle in the Eastern province have been recognised by the International Cattle Breeders Association as a breed indigenous to Sri Lanka. However, their ancestors must have been brought from Indian continent and introduced to the Eastern region many centuries ago. These white cattle are presently identified as a breed and known as "white cattle" or "Thamankaduwa" breed. These cattle had been imported to Sri Lanka from Indian subcontinent by one of the kings of the Kandyan kingdom and had brought to Eastern region by sea route, and allowed to settle in the East. In the past, Eastern region was under the Kandyan kingdom. Is there any relationship between the "Royal white cattle herd" and this "Thamankaduwa" breed? However, according to literature, Thamankaduwa area had been popular for cattle breeding. The people in the Thamankaduwa area are predominantly Muslims, and by profession, they are experienced bullock cart owners who transport goods, islandwide. Therefore, for their draught purposes, they must have had their cattle bred by themselves (Davy, 1821).

Animal Health and Hygiene

There is a long history for animal health and traditional veterinary medicine in Sri Lanka. Sri Lanka is well famous for animal treatment, not only for cattle, but also for other animal species too. This system of diagnosis and treatment derived from our own local knowledge which is generations old and time tested.

This is one branch of "helavedakama". According to the history, a great warrior king, much before the advent of King Vijaya in 6th century BC. the "Dasis" or King Ravana was considered to be a veterinarian as well as a human medicine practitioner who had written many valuable medical texts which are used in present day medicinal practices in Ayurvedic medicine. In addition, there are many popular Kings of Sri Lanka during the past who themselves practise veterinary medicine by themselves or promoted by appointing qualified doctors to attend to the needy and even built hospitals to treat and care for them.

According to the traditional veterinary practices, a buffalo and cattle could suffer from 4448 and 16400 disease conditions, respectively. The major ailments are categorised into "Adappan" and "Veppu" caused by the imbalance of the internal biological system of the animal. The diagnosis is done by the external symptoms and the animal behaviour, and sometimes the behaviour of the messenger (*Dutha Lakshana*) or the rate of the pulses (*Naadi Saasthra*).

Traditional medicinal system is not based only on medicine. It involves astrology, spiritual powers, rituals, chanting and offerings, etc. As medicine, herbal (Plants/leaves, stems, roots, flowers, fruits, whole plant, plant exudates/resins), minerals (salts and other mineral based compounds) and animal products (urine, faeces, horn, skin, blood, milk, bones, hair, secretions, boer stones, etc.) are used. Some deadly poisons mineral compounds (Arsenic, Mercury, Silver, Gold, Copper, etc.) are used after processing it to eliminate the poisonous effect.

As methods of treatment, decoctions, extractions, pastes, powders, oils, *mellun*, *paththu*, smoke, vapour of volatiles, etc. are used. These are given as orally, through nose (*nasna*), paste (*alepa* and *paththu*), smoke and volatiles

(inhales), pressure (*katuchikithsa*), etc.

In selection of medicines, especially the plants and plant parts, there are rituals to be followed. These include the location, day, time and the direction of harvest. Also the person by whom the harvesting is done, have to be prepared according to the spiritual and other rituals.

Treatment methods include medicine, heat treatment of vital points (moxibustion), chanting (*yanthra* & *manthra*), offerings to the gods and deities (*baara haara*). Some of the common and most tested treatments are; chanting to mustard seeds for infested wounds, tying of sour orange in the mouth for throat infection, hanging of medicinal ball in the neck for bone fractures, burning of "*yanthra*" (sign of the trident) on the back for paralysis and resins with human hair for broken horn. This is only a small account on this subject. This knowledge has been with us generations before and is been practised even today in occasions where veterinary surgeons are difficult to find or when the modern veterinary medicine give up the hope of recovery.

Regarding our traditional veterinary practices, documentation is very scanty. Few old texts were present in ole leaf and some have been translated into printed form, but the present day availability of such knowledge is very remote. To name few books for the readers benefit "*Gava Veda Potha*" written in 1599, "*Gavasidhisaraya*", "*Gorathnaya*" and "*Gavarathnaya*" were the old text that are available. The first author has compiled this information from available ancient texts. and interviewing 250 traditional practitioners, prepared and documented a comprehensive text in 2005 (Perera, 2005).

Gods and Deities in Cattle Production

Traditional agriculture is associated with spiritual practices such as

requesting blessings and offering thanksgiving to gods and deities. Livestock production is no exception. There are many gods and deities involved in cattle production. Some are venerated islandwide and some are specific to certain locations. Some gods and deities have the origin locally and others derived from India with the Hindu culture. The vehicle of God *Eswara* is the cow; therefore, the Hindus have a great respect for the cow.

In cattle farming, the most venerated gods are the "*Gopalla*" and "*Mangara*". *Gopalla*, is considered as a god as well as a devil. God *Gopalla* helps to improve the milk production of the cows and the god *Mangara* helps to improve the reproduction of the cows so that the cattle herd expands rapidly.

The other gods that are responsible for the cattle production and their blessings are God *Bandara*, *Kosgama Bandara*, *Ulapane Kiriamma*, *Aiyanayaka*. In addition to these gods, the blessings of the other gods in Hindu religion are also requested. Buddhists ask for the blessings of the lord Buddha by chanting several *suthra* and *pirith* phrases (Perera, 2005).

Cattle Products Used in Traditional Medicine

In addition to power, draught, manure, milk, cattle also provide essential ingredients for traditional medicine. Sri Lanka *Helavedakama* is more ancient than Ayurvedic medicine. Unfortunately, we do not have or have not yet explored the documentary or other form of evidence to testify this fact. But our legends and folklore indicate about the generations-old system of medicine what is different to Ayurvedic and unique to us.

The cattle products that are used in the traditional medicine and agricultural rituals can be listed as "*Gorochana*" (cattle bile stones / boer stones), Hair balls (*Gava Goraya*), cattle urine (*Ela muthra*), *Gom pas* (cattle dung), cattle horn (*Gava anga*) (Perera, 2005).

Cow Milk and Traditions

Cow milk is the most important and valuable product in cattle production. Cow milk is the most natural wholesome food that one can have in the nature after the mother's milk. But, knowing this fact, many are trying to exploit Sri Lankan poor nation based on cow milk (*this theme is not to discuss in this matter but other occasion this will be discussed critically*). Many Sri Lankans cannot drink fresh milk by nature. Global "lactose intolerance" map, except India, many other Asian nations have this lactose intolerance condition in more than 60% of the population. This must have been known to our ancestors. Therefore, nowhere in our history, drinking of cow milk is mentioned by everybody in the society as in India. But instead, we consumed cow milk as curd or as other products of "pasgorasa". We relished *pasgorasa*, but not fresh milk. Fresh milk is given to young and old aged people as a nutritional supplement, but as a whole food. Infants and very young were nourished with mother's breast feeding. Breast feeding was practised until the child is 3 - 4 years old. This practice physiologically acted as a birth control measure or as "natural and biological contraceptive".

We had a tradition that, fresh raw milk was never sold or offered to another house, believing that this can bring bad evil or considered as bad omen. If offered to another house, it was either boiled or converted into a product (curd, whey, or other). In the traditional Tamil Hindu community, they add water to milk before offer or sold, so that it will not pure milk, but adulterated.

According to the typical traditional food habits and food composition, milk or dairy products are not necessary. Their protein and calcium requirements were satisfied by other animal proteins (eggs, game meat, marine/fresh water fish) and vegetable sources (green leaves, pulses, nuts, fruits).

Osteoporosis in older or pregnant women and under developed cerebral conditions or poor intelligence due to malnutrition were never heard of. Therefore, traditional people allowed only the younger generation and the older generation to consume milk, and the rest was given to the calf without restriction.

Cow milk allergy cause many health disturbances among Sri Lankans. This allergy is due to a certain milk protein present in cow milk. Cow milk is not naturally produced for humans, but for calves. Therefore, incompatibility in some individuals is inevitable. This is one of the main problems why fresh milk is refused to be consumed by the people and opt for processed milk products. According to the traditional medicine and food science, milk from the indigenous cows of Sri Lanka is free from the milk protein that trigger the "cow milk allergy" in human. Unfortunately, we have consumed to extinct all our indigenous cattle species. This was known to our ancestors and therefore, they naturally processed cow milk prior to consumption to overcome this limitation in consuming milk.

Milk is made of blood. Therefore, both traditional Sri Lankans and Hindus never used milk for propitious occasions for prosperity or at auspicious times. In boiling and spilling of milk (traditional *Kri Ithiriweema*) during auspicious occasions, traditionally "cow milk" was never used. In such auspicious occasions always "coconut milk" was used. Even in the traditional "*Kiri Koraha Manglaya*" of Veddha, communities, only coconut milk is used. In the Hindu religious rituals, milk is used because of its close association to the blood. The "*Siva Lingum*" is bathed with milk, and the women who have difficulties in getting pregnant will get the blessing of god Siva and blessed with a pregnancy. Many other gods and goddess of Hindu religion who wishes offerings based on blood are offered with milk.

Conclusion

Traditional cattle production is unique to Sri Lanka, and this system has been with our ancestors for many generations. This is unique because the system of management and the other aspects such as caring for them and looking after their health cannot be found in other countries. The classification of cattle, capturing and treatments for ailments are advanced and even accepted by the modern veterinary science. Products made out of milk, what we relished today, have been identified many centuries ago. Some of these value addition processes contribute to the milk producers to enhance their level of income. Unfortunately, this centuries-old industry is day by day degrading due to the lack of genuine interest of our leaders and policymakers. A country, once that was flourished with milk and honey towards prosperity, presently, has fallen to a sad state. Today we are self sufficient in milk up to a level of less than 15% and are not too late to become a nation of self sufficient if we make up our minds by taking our neighbour India as an example. We wish mother Lanka all success.

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