



STUDY ON THE FARM CATTLE BEHAVIOUR

Shantha A R

Department of Zoology, Sahyadri Science College, Shivamogga, Karnataka, India.

ABSTRACT The Indian livestock sector is significant globally, holding 11.6% of the world's livestock. As an agrarian economy, India relies heavily on farmers. Throughout history, animals have played a crucial role in human life, with domestication leading to a symbiotic relationship between humans and animals.

Animal husbandry involves livestock raising and selective breeding for profit. Animal behaviour, studied in ethology, examines how animals react to their environment and other beings. This field is particularly important for farm animals, as it impacts production efficiency and ethical considerations.

Ethology explores both proximate and ultimate causes of behaviour, considering motivational mechanisms and evolutionary factors. It covers a wide range of topics, including animal communication, competition, cooperation, foraging, defence, migration, learning, genetics, personality, and reproduction.

Cattle, a common type of large domesticated ungulate, are widespread and classified as *Bos taurus* and *Bos indicus*. Understanding their behaviour is crucial for effective and ethical farming practices, particularly in areas such as feeding behaviour, which directly affects farm income.

Ethology is an exceptionally broad subject and includes the study of how:

- Animals communicate with each other
- Animals compete and cooperate during feeding and mating
- Animals forage and defend themselves when attacked
- Animals migrate and live in different environments
- Brain anatomy affects animal behaviour
- Animals learn and remember
- Genes affect the behaviour
- Animals differ in their personality and social structures
- Animals pair and reproduce

Cattle Rearing

Cattles is the most common type of large domesticated ungulates.

They are a prominent modern member of the subfamily Bovine, are the most widespread species of the genus *Bos*, and are most commonly classified collectively as *Bos taurus* and *Bos indicus*.

KEYWORDS : Ethology, Bovine, Rumination, Bos, Insemination, Olfactory, Husbandry, Domestication

OBJECTIVES

In this research, the objective is to primarily understand about behaviour of the cattle.

How in dairy cattle communicate between themselves and with their keepers, namely the stockmen, women and farmers who run their everyday lives.

This study focuses on some important cattle behaviour in several aspects such as there feeding behaviour, resting behaviour, Abnormal behaviour, and the social behaviour.

Furthermore, the knowledge of animal behaviour can help to reduce the frequency and intensity of abnormal and undesirable behaviours caused by management.

STUDYAREA

Koodali is a small village in Shivamogga District, in the Indian state of Karnataka.

Coordinates: 14°0'22"N - 75°40'27"E

Koodali is 16 km from Shivamogga, a place where rivers Tunga and Bhadra flow together, hence the name Kodali.

1. Shankara Mutt - It is a smantha monastery stated to have been founded in the 16th century by Jagadguru Narasimha Bharathi Swamigalu of Sringeri.

2. Koodali Arya Akshobhya Thirtha Mutt - The Mutt was established by Sri Akshobhya Thirtha (a Prominent disciple of Sri Madhvacharya) around the 13th or 14th

These are the two matts comprises of two study area for understanding farms which we chosen as our behaviour of Cattles.

BEHAVIOURALSTUDY*The Five Senses*

1. Vision

Cattle rely heavily on vision, which accounts for about half of their sensory input. They possess a wide 330° field of view, with binocular vision directly in front for clear sight and depth perception.

The majority of their visual field is monocular, excellent for detecting predators but less effective for judging distance. This makes approaching from the side, slowly, the best method to avoid startling them. A blind spot exists directly behind the tail; sudden movements in or out of this area can cause unpredictable behaviour.

Cattle have difficulty distinguishing objects based on light intensity and perceive red colour differently than humans. This results in heightened contrast perception, making shadows appear more extreme. Combined with limited depth perception, shadows can be mistaken for holes. Bright lights, shadows, and reflections can disrupt cattle movement.

Cattle prefer moving from dim to well-lit areas but avoid the opposite. When moving cattle, it's crucial to consider their visual perception. Providing even lighting, removing unfamiliar objects, and avoiding sudden movements can facilitate easier handling of both free-moving and tethered cattle.

Understanding and accommodating cattle's visual capabilities is essential for effective and stress-free cattle management, particularly when moving them through various environments.

2. Hearing

Cattle are very sensitive to high frequency sounds and have a wider range of hearing than humans (a human's auditory range is from 64 to 23 000 Hz, cattle from 23 to 35 000 Hz). Despite having a greater range of auditory detection than people, cattle have greater difficulty in locating the origin of sounds and will use their sight to assist them determine the Source.

High pitched noises such as whistling are also unpleasant to cows. Intermittent sounds such as clanging of metal (e.g. gates), shouting and whistling can be particularly stressful.

3. Smell

Due to their evolution as prey animals, cattle have a very acute sense of smell. Cattle select their feed on the basis of smell and can detect

odours many kilometres away. They will avoid places containing urine from stressed animals. and for this reason, may be reluctant to enter places where cattle have been previously handled such as raceways and cattle crushes. They dislike the smells of dung and saliva, so when housed, there with feeding area needs to be kept clean and smell fresh, not contaminated with dung, saliva or exudate from other cows' noses. Herd hierarchy is strongly linked to smell, as shown by studies where the social order among cows was unaltered by blindfolding them.

They have an olfactory sensitive vomeronasal organ, on the roof of their mouth. The reception of odours by this organ is used for the reinforcement and maintenance of the sexual interest.

When seeking and finding a suitable cow on heat, this is characterised by the 'flehmen expression' in mating bulls.

This is thought to aid odour sampling by allowing air to contact the roof of the mouth during inhalation.

4. Taste

There are four primary tastes identifiable in cattle. These are:

1. Sweetness (associated with energy supply)
2. Saltiness (associated with electrolyte balance)
3. Bitterness (assists to avoid toxins and tannins that reduce the nutritive value of plants)
4. Acidity (linked to pH balance).

The taste receptors are located in specific areas of the tongue, with differences between cattle and humans in their taste discrimination, sensitivity and location on the tongue. Cattle have two to three times as many taste buds as humans, and are so sensitive to tastes. Cattle can be apprehensive when comes to eating novel food – feed with unfamiliar tastes and smells. For example, they need artificial sweeteners to mask bitter tastes such as zinc in water.

5. Touch

Skin receptors are used to detect pressure, movement, temperature and some damaging pathological conditions such as inflammation. Cattle perceive extreme ambient temperatures, relative humidity and/or wind speed through thermoreceptors, skin dryness and mechanoreceptors. They learn their comfort and thermoneutral zones, above and below which they must use physiological processes to sustain their core body temperatures. They then modify their behaviour accordingly, such as seeking cooler locations during hot weather to find more favourable microclimates. As the lower critical temperature of adult cows is - 23°C, they are rarely affected by cold stress. Heat stress is a common problem, at 21°C cattle increase their respiration rate, and at 25°C, above which they reduce feed intake to reduce metabolic heat production from rumen fermentation.

Feeding Behaviour

Feeding behaviour in cattle encompasses various aspects such as meal frequency, duration, intake, and rate. It differs between wild and captive environments, with wild cattle exhibiting more developed food selection and seeking behaviours. Cattle require energy from carbohydrates, fats, and proteins, driven by both external (e.g., food smell, observing others eat) and internal factors.

As ruminant herbivores, cattle typically graze 8-9 hours daily in the wild, following a diurnal pattern. Their feeding behaviour is influenced by climate, dental health, competition, and food quality. Generally, feed consumption decreases as temperature rises under normal conditions.

Cattle prefer leafy material and graze the upper grass layers. They use their tongue to gather grass, pressing it between their lower front teeth and upper palate before cutting it off with a neck movement. They can achieve up to 70 bites per minute. Unable to graze grass shorter than 1 cm, cattle maintain their grazing rate by reducing grass height, accepting lower quality forage.

In captivity, feeding behaviours are more constrained, with less emphasis on food seeking. Understanding these behaviours is crucial for effective cattle management, as it impacts their nutrition, health, and overall well-being. Farmers and animal husbandry professionals must consider these factors when designing feeding strategies and managing grazing areas to optimize cattle health and productivity.

Drinking.

Water is crucial for cattle survival, especially for dairy cows. Bovine

bodies comprise 50-60% water, with milk containing 87%. Water aids in waste excretion through urine. Grazing cows naturally drink by dipping their muzzles 3-4 cm into water at a 60-degree angle. Water consumption is primarily affected by dry matter intake, milk production, sunlight, and water temperature, with factors like sodium intake having lesser influence. Cattle typically drink during daylight hours, often in conjunction with feeding and milking for dairy cows. The factors affecting water consumption are dry matter intake, milk yield, sunlight and water temperature.

Rumination

Rumination is considered as a natural process for ruminants and the process involves breaking down the feed in order to make it pass through the digestion channel.

Some studies show that the rumination pattern and changes in rumination maybe used to evaluate the responses of animals to acute stressors. Moreover, changes in rumination can be a sign of disease (Devries, 2009). Cattle normally spend 6-7 hours a day ruminating and each period takes about 45 minutes. When cattle ruminate, they become drowsy and their alertness is reduced. Also, they can either lie down or ruminate while doing other activities such as standing, walking, scratching, urinating, defecating and nursing. Rumination can be influenced by nutritional reasons, for example, quality of forage, digestibility of the feed.

Social Behaviour

Cattle are the social animals that live in large highly organized groups with a stable social relationship under normal conditions of a permanent group the dominant relationships are stable and to help resolve the conflicts between animals caused by proximity. Isolation cause animal to be distressed and panic. The effect of isolation is additive with animals being more stressed during husbandry procedures when isolated. Therefore, it is always best to keep several animals together during activities like veterinary treatment, artificial insemination or movement from one place to another.

Vocal communication is used in recognition, eliciting contact as well as greetings, threats and fear display.

CONCLUSION

Behaviour is what animals do to interact with, respond to, and control their environment. Behaviour is generally the animals' "first line of defence" in response to environment change. It can also be important in reducing illness, pain, fear, stress or tension. If possible, animals will remove themselves from a fear-producing stimulus by fleeing or seeking cover. They use behaviour mechanisms to also deal with short term stressors like social interactions. Sick animals show a number of behavioural changes like sleepiness, depression, anorexia, a reduction in grooming activity etc. An understanding of the range, causes and functions of special typical behaviours of animals will be critical. With careful observation and study, we can tell a great deal about what animals do when they are frightened, ill, in pain, as well as what they prefer and dislike.

REFERENCES

1. Dr. John Moran and Dr. Rebecca Doyle. The cow talk, understanding dairy cow behaviour to improve their welfare on Asian farms.
2. Albright JL, Arave CW (1997). The behaviour of cattle, Oxford, UK.
3. European Food Safety Authority(2009) Scientific opinion on overall effect of farming system on dairy cattle welfare and disease.
4. <https://dahd.nic.in/about-us/division/cattle-and-dairy-development>.