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Review Article

A REVIEW OF THE BEHAVIOUR OF FARM ANIMALS: A PRELUDE TO THEIR HANDLING AND MANAGEMENT

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ABSTRACT

This paper attempts to address the subject: animal behaviour and its importance, which is sine qua non to their handling and management. Animal behaviour comprises all the ways and manners in which animals relate with members of their species, organisms of other species and their environment. It is a very pivotal area of animal production and yet most neglected by many farm owners, farm attendants and farm workers either due to ineptitude or sheer neglect. Animal behaviour has to do with their eating and drinking habit, thermoregulation, communication, courtship, reproduction, parturition, agonistic, care-giving and care-soliciting, eliminating, gregariousness, allelomimetic, investigative, shelter-seeking, avoidance, territoriality, hearing and sight, maladaptive behaviour among others. In depth knowledge of the above and other behaviour of farm animals are indispensable to their handling, productivity, profitability and sustainability.

Keywords: Knowledge, Livestock, Production, Safety.

INTRODUCTION

Livestock production is beset with multifarious problems which are; high cost of production, disease outbreak, poor credit facility (capital), limited land, technical know-how (unskilled man power), unstable government policies (somersaulting policies) etc. Among these problems, technical know-how can be singled out as one of the most important that deserves serious and urgent continuous attention. There are lots of pretty problems taking roots on livestock farms that are grossly avoidable and manageable if farm owners, managers, supervisors and attendants are skilful in the art of animal behaviours. This according to (Damron, 2013) is of great economic importance to animal industries. Untold wastage, unbearable and incalculable losses are being experienced by most farmers as a result of inefficient and ineffective farm animal management that stem out of ignorance and lack of proper knowledge of the behaviour of farm animals. According to (Lengnick *et al*., 2015), it has been estimated that by the year 2050 approximately 9.6 billion people will be in existence and hence feeding the teeming multitude will be a great challenge. To get out of this quandary as reported by Pywell *et al*. (2015), will be intensive food production (crops and animals) and welcoming of modern technologies in agricultural practices. These technologies entail adequate knowledge of animal behaviour, which without any shadow of doubt is a key to handling them and of course has been an overlooked area (Damron, 2013); hence, the essence of this review.

MATERIALS AND METHODS

Several revered journals and text books consulted served as veritable and invaluable sources of information for this review work.

Definition of Animal behaviour

Animal behaviour includes all the ways animals interact with other members of their species, with organisms of other species, and with their environment. Behaviour can also be defined more narrowly as a change in the activity of an organism in response to a *stimulus*, an external or internal cue or combination of cues. For example, your dog might start drooling; a change in activity, in response to the sight of food; a stimulus (Pattaro *et al*., 2016). Animal

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behaviour according to Wiki-books is the scientific study of the wild and wonderful ways in which animals interact with each other, with other living beings, and with the environment. It explores how animals relate to their physical environment as well as to other organisms, and includes topics such as how animals find and defend resources, avoid predators, choose mates, reproduce, and care for their young. The concept of animal behaviour, broadly considered, referring to everything animals do, including movement and other activities and underlying mental processes. Initially, animals were probably observed for practical reasons because early human survival depended on knowledge of animal behaviour. Whether hunting wild game, keeping domesticated animals, or escaping an attacking predator, success required intimate knowledge of an animal's habits (Grandpierre, 2014). Understanding the predator-prey relationship was important to early humans, who occupied both roles (Damron, 2013). Animals are closely associated with development of human civilization. The primitive nomadic men lived exclusively on the meat of wild animals. Later as civilization progressed they started cultivation and mastered the art to tame some animals like cow, sheep, goat etc. These animals were domesticated for milk, meat, wool etc (Bohre *et al*., 2015). Behaviour is one of the most important properties of animal life. It plays a critical role in biological adaptations. It is how we humans define our own lives. Behaviour is as much a part of an organisms as its coat, wings etc. The beauty of an animal includes its behavioural attributes (Petersen *et al*., 2017). A comprehensive study on behaviour of farm animals under diverse conditions is now considered to be very relevant to increase their reproductive and productive efficiency. A veterinarian practicing medicine has to depend greatly on the behaviour of animals for the diagnosis of diseases and treatment (Bohre *et al*., 2015). Managers who understand how animal behaviour is shaped can harness and direct foraging of sheep, goats, and cattle to create powerful tools for vegetation management (Slawson *et al*., 2006).

A brief history and basic concepts of animal behaviour

The origin of the scientific study of animal behaviour lies in the works of many European thinkers of the 17th to 19th centuries in the likes of John Ray and Charles Darwin (British naturalists) and Charles LeRoy (French naturalist). These people appreciated the complexity and apparent purposefulness of the activities (and actions) of animals, and they knew that comprehending behaviour demands long-term observations of animals in their natural habitats (Bohre *et al*., 2015). The natural history approach of Darwin and his predecessors gradually translated into the twin sciences of the study of the interactions between animal and its environment (animal ecology) and the biological study of animal behaviour (ethology). Therefore, without mincing words the roots of ethology can be traced to the late 19th and early 20th centuries (Damron, 2013). However, animal behaviour did not actually emerge as a science until the last half of the 19th century. The most notable stimulus was the work of Charles Darwin and others who proposed the theory of evolution by natural selection. This was followed by the development of the comparative method of study, which was a method of comparing the behaviour of two or more species systematically. The final piece happened to be the work of Gregor Mendel and other scientists on genetics (Slawson *et al*., 2006). From these, underlying roots have evolved four major approaches to the study of animal behaviour. Comparative psychology: the study of the mechanisms controlling behaviour, learning, sensation, perception and behavioural genetics. Sociobiology: the study of the biological basis of social behaviour. Of special interest is the behaviour that helps pass on the gene pool to the next generation. Behavioural ecology: the study of the relationships between a species' behaviour and its environment. Ethology: the study of behaviour of animals in their natural surroundings, with its focus on instinctive or innate behaviour. Originally, ethology was the study of wild animals, but domestic species are now also studied in their surroundings. Associated with ethology is ethogram, which is a catalouging of all the behaviour an animal exhibits in its natural environment.

In addition, the contribution of the work of a scientist called Tinbergen to the study of animal behaviour was to stress that ethology is like any other branch of biology, in that a comprehensive study of any behaviour must address four categories of questions, which today are called "levels of analysis," including causation, ontogeny, function, and evolutionary history. Although each of these four approaches requires a different kind of scientific investigation, all contribute to solving the enduring puzzle of how and why animals, including humans, behave as they do. A familiar example of animal behaviour; a dog wagging its tail serves to illustrate the levels of analysis framework. When a dog senses the approach of a companion (dog or human), it stands still, fixates on the approaching individual, raises its tail, and begins swishing it from side to side. Why does this dog wag its tail? To answer this general question, four specific questions must be addressed with respect to causation, ontogeny, function, and evolutionary history (Petersen *et al*., 2017). a (i). Causation (physiological mechanisms): Sensory cells detect a human companion, and the dog's central nervous system sends impulses to motor neurons that activate the dog's tail muscles. a (ii). Causation (cognitive mechanisms): The dog recognizes the human companion and decides to wag its tail. b. Ontogeny: Tail-wagging behaviour is genetically programmed into the dog, but he learns which individuals are his companions. c. Function: Tail wagging signals the dog's friendly intentions to members of its social group, thereby maintaining the group and fostering the dog's survival and reproduction. d. Evolutionary History: In the past, tail wagging occurred sporadically when dogs interacted physically. Over time, tail wagging became modified into a signal produced only during greetings. Obviously, these areas are not traditionally areas of interest for production animal scientists or veterinarians. Rather, they have been studied by psychologists, zoologists and cognitive scientists as a very basic science rather than an

applied science. However, sometimes around the middle of the 20th century, interest grew in the study of livestock behaviour. Reproductive physiologists began studying reproductive behaviour and nutritionists began documenting eating behaviours and patterns. The tools of ethology were adapted and applied ethology was born as a field of study (Slawson *et al*., 2006).

Classification and description of farm animal behaviours

The gross behaviours of farm animals have been classified under the following headings according to Basudeb (2015) as ingestive behaviour (feed or water intake), thermoregulatory behaviour, communicating behaviour, sexual behaviour in male and female, agonistic behaviour, care-giving maternal behaviour, care-soliciting behaviour of young, eliminating behaviour, gregarious behaviour, allelomimetic behaviour, investigative behaviour, shelter seeking behaviour, avoidance behaviour, territorial behaviour, maladaptive/abnormal behaviour and hearing and Sight among others.

Ingestive behaviour (feed or water intake)

The living cell depends on virtually uninterrupted supply of nutrients for its metabolic activities. Food stores however, will become exhausted unless the animal takes up nutrients regularly from outside. Behavioural expressions of the animal during feeding for this purpose are termed feeding behaviour (Slawson *et al*., 2006). Studying the way animals consume feed and water has implications in production systems and day-to-day farm animals (Pattaro *et al*., 2016).

Feeding behaviour in cattle

Cattle, because of their overall size and mouth design, are better adapted to grazing than browsing (Owen Smith, 1982). Cattle have a large muzzle and lips and a tongue that is used as a prehensile foraging tool (Van Dyne *et al*., 1980). Cattle have large rumens, giving them the ability to digest lower quality roughage. That makes them superior to goats or sheep for managing fibrous and abundant herbaceous vegetation like dormant grasses (Slawson *et al*., 2006). Cattle wrap their tongue around grass and tear it off with a forward motion of the head, cutting it between the lower teeth and upper dental pad. Because they have thicker lips, they do not graze as closely to the ground, preferring grass that is at least six inches high (Kawasaki, 2002). During 24 hours period, cattle spend from four to fourteen hours period in grazing and ruminate about 15- 20 times but duration of each period differs considerably depending upon the type of diet (Lengnick *et al*., 2015). A typical behaviour pattern of cattle is to spend some time grazing followed by rumination and then return to grazing, again followed by rumination.

Feeding behaviour in sheep

Sheep are classified as intermediate feeders. They possess a narrow muzzle and a large rumen relative to body mass, allowing them to graze selectively and still tolerate substantial fibre content. Sheep, like all ruminants, have incisors only on the bottom with a hard dental pad in their upper jaw. Sheep also possess a relatively small mouth allowing them to graze relatively close to the ground and take small bites to select specific parts of a plant, such as small leaves or buds. These anatomical differences give them an advantage over cattle to harvest prostrate plants or strip leaves or flowers from stems (Olson & Lacey, 1994). Compared with cattle, it is more difficult for sheep to graze tall dense stands of forage than short dense stands (Slawson *et al*., 2006). Sheep graze by cutting off the plant between their lower teeth and upper dental pad and then gather it into their mouth with their lips. Sheep graze closer to the ground than cattle. Because cattle prefer grasses and sheep prefer leafier, coarser plants, current management practices of controlled grazing allow raising cattle and sheep on the same land. Sheep spend about nine to eleven hours per day in grazing and about seven to ten hours per day ruminating. Grazing and rumination periods for sheep usually occur in shorter intervals than those for cattle (Bohre *et al*., 2015). According to Grandpierr (2014), the most intensive grazing in sheep is observed in early morning and in late afternoon. They have well developed sense of smell, taste and power of visual recognition of food. On an average a sheep consumes food about 2-5 % of their body weight.

Feeding behaviour in goats

Goats graze in the same manner as sheep but tend to prefer browse (shoots, twigs and leaves of brush plants found on range-land). Browsers, like goats, have a narrow, strong mouth with a dexterous dentition well designed for chewing branches and stripping individual leaves from woody stems. For this reason, goats are used extensively throughout the United States to manage invasive woody plants like juniper, salt-cedar, and oak brush. Their smaller mouths give them the ability to selectively consume the highest quality leaves and stems, generally resulting in higher quality diets than cattle when grazing on the same range. A goat's adaptation for browse often results in diets with higher crude protein but lower digestibility compared to sheep (Norton *et al*., 1990). Relative to body weight, goats also have larger livers than cattle or sheep, so they can more effectively process plants that contain secondary compounds like terpenes or tannins. This could explain why goats consume a higher percentage than sheep or cattle of leafy spurge, which contains a host of plant-defensive chemicals. Browsers are equipped with salivary glands that produce saliva, which binds tannins. They also possess specialized rumen microbes to break down alkaloids and other toxins in many situations. Goats are physically agile animals that can stand on their hind legs to reach high-growing forage or use their forefeet to pull down branches to strip leaves. Smaller goats can even climb trees to gain access to higher forage. Their athletic nature enables goats to handle rougher and steeper terrain than sheep or cattle (Slawson *et al*., 2006).

Feeding behaviour in horses

Horses have both upper and lower teeth, so they bite off grass, chew it and then swallow it. They are not ruminants so they do not regurgitate their feed for rumination. Horses graze closer to the ground than do cattle. They typically graze over a wider area than cattle or sheep (Van Dyne *et al*., 1980).

Feeding behaviour in swine

Swine have both upper and lower teeth so they chew and swallow their feed (Owen Smith, 1982). On pasture, rooting is a salient behaviour in pigs, a behavioural pattern from the time before their domestication when their main diet consisted of roots, seeds, nuts, grubs and insects (Norton *et al*., 1990). The snout is a highly developed sense organ and olfaction plays a part in feeding behaviour in pigs. Pigs fed in group are found to consume more than when fed individually. Pig increases water intake when supply of feed is restricted (Pywell *et al*., 2015).

Feeding behaviour in poultry

Poultry have no teeth. Chickens and turkeys peck at their feed to ingest it. Ducks scoop up their feed with their bills. Except for geese, poultry generally do not use significant amounts of forage in their diet. Feed and water intake generally occur in short but frequent intervals over a 24-hour period (Slawson *et al*., 2006).

Thermoregulatory behaviour

Thermoregulatory behaviour of farm animals is under the control of hypothalamic centre and other parts of the brain. During condition of high ambient temperature, animals dissipate more heat from the body by way of conduction, convection and evaporation of body water. They also reduce feed intake and metabolic activity. During cold, animals conserve heat by minimizing heat loss by way of conduction, convection and evaporation. Animals increase feed intake and accelerate metabolic activity to generate more heat and thereby maintain homeothermy (Lengnick *et al*., 2015). The conservation of heat in newborn creates some problem due to their immature neural mechanisms. Hence, they huddle against each other close to their mother to reduce body surface area. Hens and roosters also huddle and dust bath to conserve heat and dissipate heat respectively. This behaviour leads to social attachment. Ruminants can rest under tree shade, while pigs do go to wallow as means of regulating their body temperature (Ratnakaran *et al*., 2017).

Communicating behaviour

This involves the exchange of information between individual animals. Examples of communicative behaviour include distress calls, lambs bleat, calves bawl, pigs squeal and chicks chirp. Distress calls are normally used when the young are separated from their mothers and also by matured animals under stress (Faber *et al*., 2016). Visual, auditory and chemical cues transmit information between animals and are considered to be special communicating system. Dog, in particular takes help of smell as the best way of communication (Bohre *et al.*, 2015). Dogs have over a billion olfactory receptor neurons compare to human of 10 - 40 millions, this accounts for their ability to be more sensitive to smell 300-10,000 times more than human (Faber *et al*., 2016).

Pheromones

It is a type of chemical that helps in the communication system. Pheromones are mostly involved in sexual behaviour. The attraction of male dog to oestrus bitch is the most common observation. The attraction of a mother to its offspring is said to be mediated through pheromones. Mostly the pheromone is detected through olfactory system. The involvement of vomeronasal organ in sensing pheromone is also a possibility (Damron, 2013). Vomeronasal system is separate from the main olfactory system anatomically and functionally. It is specialized for detecting high molecular weight, relatively non volatile chemicals. Vomeronasal receptors use a different signal transduction pathway than the main olfactory receptors (Faber *et al.*, 2016).

Sexual (reproductive) behaviour in male and female animals

Reproductive behaviour is the summary of all activities directed toward perpetuation of a species. Reproductive behaviour in animals includes all the events and actions that are directly involved in the process by which an organism generates at least one replacement of itself Encyclopedia Britannica (2012). Sexual behaviour can be greatly influenced in farm animals by genetic selection for other traits, management practices, confinement rearing and association with other species, especially humans (Damron, 2013).

Courtship

Courtship is the behaviour that results in mating and eventual reproduction. Courtship may be rather simple, involving a small number of chemical, visual, or auditory stimuli; or it may be a highly complex series of acts by two or more individuals, using several modes of communication. An understanding of animal sexual behaviour (courtship and mating) is important for the proper management of breeding programs and maximizing production efficiency in livestock enterprise (Owen Smith, 1982). Sexual behaviour patterns vary among species, but there are behaviours that are common to many species. Mating calls, mating dances, visual cues and pheromones (scents and odours) are often a part of sexual behaviour pattern of animals. Courtship and mating behaviours among animals appear to be primarily instinctive. These behaviour patterns have evolved to improve the survival of the species. Hormones (oestrogen in females; testosterone in males) play a role in sexual behaviour patterns (Owen Smith, 1982). A typical visual cue that is common in most

mammals and indicates a readiness to mate is the appearance of the external female genitalia; swelling of the vulva and mucous discharge often indicate the onset of oestrus. Bulls, rams, and stallions have a nasal organ that can detect pheromones in the urine and vaginal discharge of the females of their species (Owen Smith, 1982).

Poultry engage in a type of mating dance that indicates a readiness to mate. Most domesticated livestock and poultry are polygamous; they do not mate exclusively with one partner. This permits the livestock producers to use only a few males for reproductive purposes. A few species of animals, generally not common farm animals, are monogamous; they do form pair-bonds. In some species these pair-bonds persist only during the current breeding season and in other species they are life-time bonds. Some of the larger breeds of geese do breed best in pairs or with two females; ganders of lighter breeds will mate with up to five females (Axelrod & Suedfeld, 1995).

Courtship and mating behaviour in Cattle

Cows become nervous at the onset of oestrus (heat). They attempt to mount other cows, and become more vocal. When the cow is fully in oestrus, she will stand when mounted by other cows or the bull. A bull is attracted to a cow coming into heat by these visual cues. The sexual behaviour of bull is shown by his approach to the genitalia of female. The male then licks the vulva and under-side of the tail (Pywell *et al*., 2015). The bull will follow the cow that is coming into heat, rest his chin on her rump, lick and smell the vulva and hold his head in a horizontal position while curling the upper lip in behaviour called flehmen (Axelrod & Suedfeld, 1995). Bulls with a high libido (sex drive) may mate with the cow several times during oestrus. If several cows in the heard are in oestrus at the same time, some bulls will mate with each cow; other bulls may stay with only one of the cows that are in heat. Cattle producers who use pasture breeding often run several bulls with the herd to ensure that all cows are bred as they come in heat. Pasture breeding is more commonly practiced in beef herds. Dairy producers generally use artificial insemination to breed their cows. Cattle farmers can determine the proper time for breeding cows through artificial insemination by observing the signs of oestrus (Owen Smith, 1982).

Courtship and mating behaviour in Sheep

Ewes generally do not exhibit visual signs of coming into oestrus. Most breeds of sheep are seasonal breeders. Rams exhibit more signs of sexual behaviour than ewes. A ram will follow a ewe that is coming to heat, smell and lick the external genitalia, perform flehmen, rubs his head along her side, and raise and lower one front leg in a striking motion (Axelrod & Suedfeld, 1995).

Courtship and mating behaviour in Goat

Angora and dairy goats are seasonal breeder; Spanish goats will breed the year round. Does coming into oestrus may show signs of restlessness, tail shaking, mounting other goats, frequent urination, swelling of the vulva and more frequent bleating. The doe produces a characteristic odour during the breeding season; this odour is not evident during other times of the year (Owen Smith, 1982).

Courtship and mating behaviour in Swine

The general knowledge of pig behaviour can facilitate reproduction in swine. Pigs have detailed memories and therefore remember both pleasant and unpleasant experiences and may react to this memory (Faber *et al*., 2016). Boars must serve the purpose of aiding in detecting females in oestrus, or by production of fertile semen. Both of these needs are dependent upon boar behaviour. For oestrus detection, the aspects of a boar that impact the ability to elicit the oestrus response in gilts are vocalization or chanting in the presence of the female, especially face to face, boar odour or androgen, the aerosolized androgens in saliva and urine, the physical sight of the boar, and tactile pressure from nosing the flank, and applying pressure on the back. In a collection situation, where boars are expected to mount a dummy or an oestrus female after an appropriate training period, association with pleasure is again important. Unfriendly personnel or flooring equipment that are painful, make the animal nervous or apprehensive about mounting. This may inhibit the mounting behaviour to occur in a reasonable time period, if at all. Further, unnatural or unpleasant stimulation of the penis when extended may prevent an animal from extending the penis or from completing ejaculation. The experience of the boar before dummy training can impact the potential for successful training (Faber *et al*., 2016).

Sows may or may not exhibit external signs of oestrus. When exhibited, these signs include nervousness, mounting other sows, frequent urination, swelling of the vulva with slight discharge and occasional loud grunting. The sow in heat seeks the boar, attracted by the pheromones emitted in the saliva and the preputial pouch (loose fold of skin that covers the penis). The sow in oestrus will stand in front of the boar and flick her ears. The boar nudges the sow around the head and flanks and vocalizes grunting sounds. If a sow is in heat, she will allow him to mount her for mating (Van Dyne *et al*., 1980).

Courtship and mating behaviour in Horses

Horses are partially seasonal breeders; the breeding season is generally March to May. Some of the indications of oestrus in the mare include frequent urination, raising the tail and relaxation of the vulva with a slight mucous discharge. The vulva exhibits a rhythmic opening and closing. Sexual behaviours of the stallion include smelling the external genitalia of the mare and performing flehmen, neighing and biting at the croup area of the mare (Van Dyne e*t al*., 1980). The mare will allow the stallion to smell and bite her. It is a good management to expose the mares to teaser stallions every day or two during the breeding season to determine when she is in heat. The stallion approaches the mare from the front. A mare that is not in heat will kick at the stallion and run away. If the

mare is in standing heat, she will crouch and allow the stallion to mount her (Van Dyne *et al*., 1980).

Courtship and mating behaviour in chickens and turkeys

Oestrus does not appear to occur in poultry. Courtship and mating is ritualized behaviour usually initiated by the male. The action of the male elicits a specific response from the female, which in turn elicits an action from the male until mating finally occurs. The male approaches the females fluttering his wings and in a waltzing or dancing manner; he may approach and seize her by her comb or hackle. If she is receptive, she will crouch and spread her wings. The male mounts the receptive female, grasping her comb or hackle for balance and treading her back. The female raises her tail and everts her cloaca; the male lowers his tail and everts his cloaca, the vents meet and ejaculation occurs, depositing the semen into the female reproductive tract. The male steps forward off the female and may waltz or walk in a circle; the female stands and shakes herself and may run (Van Dyne *et al*., 1980). The rooster has a small phallus that becomes engorged with lymph to form a copulatory organ. The copulatory organ is rudimentary and at the time of mating there is practically no penetration. The hen everts her vagina during copulation, which helps to transfer the semen into the oviduct. Ducks, geese and some other birds have more well-defined copulatory organs. The male turkey has a conspicuously bright colouring of plumage. It is usually iridescent brown. In the way of attracting females, they are very much like peacocks. They have fan-like fancy tails and a cocky strut. Courtship ritual is reminiscent of some exquisite dance. An adult male can grow up to 4 feet long from his beak to his tail. Hens incubate an average of 10-12 eggs for 27-28 days. Females first breed as yearlings.

Agonistic/combative behaviour

Agonistic behaviour can be defined as a group of behavioural adjustments associated with fighting, which includes attack, escape, threat, defense, appeasement and establishment of social dominance in the group. This behaviour occurs in all species of farm animals and poultry, with the males of the species more inclined to engage in it than females (Van Dyne *et al*., 1980). Agonistic behaviours have the following components: threat, dominant behaviour, submissive behaviour and aggression (https: //www.unaab.edu.ng).

Care giving maternal behaviour and Care soliciting behaviour of young

Care giving behaviour of farm animals is mostly displayed by the female of the species (Kawasaki, 2002). Cows, ewes, does and mares lick their young immediately after they are born while sows do not like to lick their young when they are born. This helps form a strong bond between mother and offspring; it also encourages the young to stand and nurse. The mother learns to recognize her young by sight, smell and sound (Abdulsalam *et al*., 2018). The visual, tactile, taste and olfactory cues serve to establish this maternal care giving behaviour (Bohre *et al*., 2015). The young of most species of farm animals will emit distress cries when they feel threatened. The mother will often aggressively attack people or other animals that appear to be a threat to her offspring. The baby chicks in danger or in distress emit a 'fret call' inviting the mother to appear and save the situation (Bohre *et al*., 2015). People working with animals with newborn (young) must therefore exercise due caution when approaching or handling the young animals to avoid being injured by the mother as she attempts to protect her young (Abdulsalam *et al*., 2018).

Eliminating behaviour

Eliminating behaviour includes pattern of behaviour concerned with evacuation of urine from the bladder and elimination of faeces from the gastro intestinal tract. Cattle, sheep, horses, goats and chickens eliminate faeces & urine indiscriminately. Hogs eliminate faeces in definite areas of a pasture or pen (Bohre *et al*., 2015).

Gregarious and Allelomimetic behaviour

Gregarious behaviour is an instinctive behaviour that probably developed to produce better protection of the group from predators and to defend territory used by the group (Axelrod & Suedfeld, 1995). Under range conditions, some species tend to graze in large groups; others, such as cattle, tend to divide into smaller sub groups for grazing purposes. Gregarious behaviour makes it possible to manage groups of animals more efficiently. There is a tendency within the group for animals to follow (or do the same thing at the same time) or mimic the behaviour of a leader. This is called allelomimetic behaviour (Faber *et al*., 2016). Cattle and sheep tend to graze at the same time, rest and ruminate at the same time. Cattle grazing over an extensive area of land tend to congregate at the watering spot at the same time of the day (Van Dyne *et al*., 1980).

Investigative behaviour

This entails animals exhibiting curiosity about their environment. The degree to which this investigative behaviour is shown varies among species and by the age of the animal. Cattle, pigs, horses and dairy goats are highly curious. They investigate any strange object, approach carefully, slowly, sniffing and looking as they approach especially when placed in new surroundings. Sheep and poultry are less curious and more timid about exploring their environment or reacting to objects, including people, which enter their area. Younger members of a species tend to exhibit more investigative behaviour than older members. This behaviour is done by smelling, observing, listening, touching and tasting to satisfy their curiosity (Axelrod & Suedfeld, 1995).

Shelter seeking behaviour

Farm animals especially cattle and sheep seek for shade in hot weather to rest and ruminate. Swine will seek a wet area in the shade where they will lie in the mud to cool off. Sheep become listless and lie down on their sides in an extended position. Cattle like to sleep close to their families and sleeping arrangements are determined by individuals' rank in the social hierarchy (Van Dyne *et al*., 1980). Cattle pant, drool, sweat and increase their water consumption at elevated ambient temperature. Poultry display less shelter-seeking behaviour than other farm animals. Baby chicks will huddle together and may pile up and suffocate if the temperature is too cold; they have to be confined close to the brooder during the first few days to avoid this problem (Slawson *et al*., 2006). The provision of shelter for cattle is an important management practice that has shown benefits such as improved growth rates and milk production and reduced mortality. Farmers, managers and those in charge of livestock have a responsibility to provide shelter so that the health and welfare of livestock is not compromised.

Avoidance behaviour

This involves the type of activity seen in animals exposed to adverse stimuli, in which the tendency to act defensively is stronger than the tendency to attack. Alternative usage defines avoidance behaviour by describing a number of patterns: active avoidance (fleeing), passive avoidance (freezing stock-still or hiding). In general, among birds and mammals, brain sites for fleeing of the first type occur in hypothalamic and mesencephalic zones. The adrenocorticotropic hormone (ACTH) from the pituitary glands of many animals may facilitate avoidance behaviour.

Territorial behaviour

Territorial behaviour include methods by which an animal, or group of animals, protects its territory from incursions by others of its species. Territorial boundaries may be marked by sounds such as bird song, or scents such as pheromones secreted by the skin glands of many mammals. If such advertisement does not discourage intruders, chases and fighting follow.

Maladaptive /Abnormal behaviour in animals

Abnormal behaviour can be defined as any activity judged to be outside the normal behaviour pattern for animals of that particular class or age. Knowledge of normal behaviour of livestock allows an observant producer to detect abnormalities. Abnormal behaviour can be used to identify clues to illness, stress, inadequate nutrition, and other problems. Abnormal behaviour in dogs include destructiveness, self mutilation, tail chasing, phobias, car chasing, digging, jumping up on people and vomiting. Abnormal behaviour in horse includes stall kicking, head shyness and photophobias. Kicking is observed in cattle, bar biting in sows and wool chewing in sheep (Faber *et al*., 2016). Lairage-induced fretful disposition or phobia and its consequences on the wholesomeness of the carcass cuts upon slaughter were reported by Aro (2019).

Hearing and Sight

Cattle and sheep are more sensitive to high frequency noises than humans. The auditory sensitivity of cattle is greatest at 8,000 hertz (HZ), sheep at 7,000 HZ and human at 1,000 to 3,000 HZ. Hence, unexpected loud or novel noises can be highly stressful to livestock. If sheep is continuously exposed to sounds over 100 decibels (dB), it leads to reduction in daily weight gain and would likely affect other animals the same way (Slawson *et al*., 2006). Thus, it is important while feeding and caring for the animals that one talk to them in calm and reassuring voice. Cattle, pigs and sheep have a field vision of in excess of 300 degrees. They have their eyes set on the side of the head, have a narrow field of binocular vision in front of their head and wide peripheral fields of monocular vision (Agriculture Knowledge Centre). The area at the back of the sheep's head is a blind spot when their head is raised. When approached from the rear, a handler can remain undetected visually and have a better chance at catching the animal. With its head down in a grazing position they can see in all directions; a good defensive adaptation whereby the sheep can see predators from all sides while grazing (Agriculture Knowledge Centre, 2017). According to Stephen (2009), cattle, pigs, sheep and goats are dichromats; having cones sensitive to blue-green and yellowish green colour.

CONCLUSION

'Knowledge they say is wealth'. But the knowledge acquired but not transformed to usage leads to impoverishment. Hence, it is applied knowledge that brings wealth. When all the acquired knowledge from the study of animal behaviour is properly, judiciously and religiously utilized, handling and management of farm animals become easier. It will help the producers/farmers to be more efficient in managing livestock enterprises which will be safer and more productive. The animals themselves will be comfortable and will be at the best condition for optimum performance.

RECOMMENDATIONS

The following recommendations are made for animal production and productivity: A person should know an animal's disposition before making initial contact with it. Producers should treat animals with care to promote a positive disposition. Handlers must try as much as possible to prevent animals from becoming excited and nervous as this can lead to the animal attacking the handlers. Excitation and nervousness in animals can also cause lower weight gains and reduce the quality of their products (example is meat). Animals with wild dispositions are a threat to personal and herd safety: may damage facilities, and can excite/injure other animals. Animals with extremely wild and abnormal dispositions should be culled from the herd.

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