



# ANIMAL HEALTH CARE SERVICE

Level -I

## Learning Guide #27

**Unit of Competence:** Apply knowledge of animal welfare and behaviours

**Module Title:** Applying knowledge of animal welfare and behaviours

**LG Code:** AGR AHC1 M8 LO4LG-27

**TTLM Code:** AGR AHC1 TTLM 0919V1

**LO4: Identify animal behaviour**

<b>INSTRUCTION SHEET</b>	<b>Learning Guide #</b>
--------------------------	-------------------------

**This learning guide is developed to equip you with the necessary information regarding the following content coverage and topics**

- Observing and interpreting animal and its body language.
- Identifying and documenting temperament, trait, health and wellbeing of animals.
- Assessing physical and social environment of animal.
- Determining *behaviour* of animals.
- seeking of assistance from supervisors and/or peers
- Following organizational policies, procedures and legislative requirements

This guide will also assist you to attain the learning outcome stated in the cover page.

Specifically, **upon completion of this Learning Guide, you will be able to:**

- Observe and interpret animal and its body language.
- Identify and document temperament, trait, health and wellbeing of animals.
- Assess physical and social environment of animal.
- Determine *behaviour* of animals.
- seek of assistance from supervisors and/or peers
- Follow organizational policies, procedures and legislative requirements

**Learning Instructions:**

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 6.
3. Read the information written in the information “Sheet 1, Sheet 2, Sheet 3 and Sheet 4, sheet 5 and sheet 6.”
4. Accomplish the “Self-check 1, Self-check t 2, Self-check 3, Self-check 4, self-check 5 and self-check 6”. **In page -6, 11, 13, 16, 17 and 20**” respectively.
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet
6. Do the “LAP test” (if you are ready).

**Information Sheet-1**

Observe and interpret animal and its body language.

Body language is an expression of the whole animal: how it holds itself, moves about and interacts with its surroundings. An animal may for example behave in a way that appears calm, nervous, tense, relaxed or distressed. Transfer of information between animals through any of the senses.

Animals meet with others in various ways; through reproduction and the raising of the young, in defining and observing rank, through defending territory, and mutual warnings against dangers and enemies. All this and much more depends on an animal understanding the moods and intentions of others of its kind, on adapting its own behavior to these cues, and influencing the behavior of others in turn.

Since animals, unlike humans, have no words to communicate with each other they use signs of all kinds. This nonverbal communication plays an important role for us humans, too, both as a complement to and a precursor, which means one that precedes and indicates, suggests, or announces someone or something to come, of language.

Most of the signs of "animal's language" are transitory (existing or lasting only a short time; short-lived or temporary), with facial expressions, gestures, and sounds.

Many animals also leave more permanent signs that others of their kind recognize and understand even when the animal leaving the sign is no longer there. Signs are meaningless if those they are intended for fail to perceive them, observe them, or understand them. Giving and interpreting signals is innate (possessed at birth; inborn), in all animals, including humans. Mammals, even if they spend most of the year without contact with others of their kind, still have to meet and understand one another during mating. The encounters with rivals and the subsequent rearing of their young make body language very important.

## **Cats Facial Expressions and Gestures**

The cat has muscles in its face that gives it great mobility in moving the nose, lips, cheeks, ears, and forehead, the rapid dilation and narrowing of the pupils, and whiskers that often accentuate, (to stress or emphasize), the muscle movements around the muzzle. These all combine to create a wide variety of expressions.

When cats use these muscles to position their heads, bodies, and limbs, including the tail, to carry a message or to give a signal, these movements are then called gestures.

### **Some common gestures of cats are:**

#### **Threat of attack:**

The ears are turned so that their backs are visible from the front; the head is held sideways and slowly sways from side to side at every step; and the eyes are glued on the enemy. When the head is stretched forward this indicates a readiness for contact.

#### **Yawning:**

Yawning is not as contagious in cats as it is in humans. Seeing another cat yawn does not make a cat sleepy. Instead, yawning is more of a sign of reassurance, expressing something as "I'm feeling peaceful, and I hope that you are too."

**Body:** If the body is stretched, the cat feels sure of itself or is prepared to attack. A contracted body or a back arched in typical cat fashion indicated fear and readiness for defense.

**Legs:** Legs that are stretched to their full length are a sign of self-confidence and even of readiness to attack. Bent hind legs, on the other hand, indicate uncertainty or even being timid.

**Tail:** The motion of the tail if moving quickly and jerkily from side to side shows high excitement. A still raised tail is a friendly greeting and an invitation to sniff. If the tail whips up suddenly this is a threat of attack.

**Communication** is when one animal transmits information to another animal causing some kind of change in the animal that gets the information.

Communication is usually between animals of a single species, but it can also happen between two animals of different species.

- Signaling between one animal & another
  - Greeting e.g. sniff, hug, kiss
  - Aggression e.g. charge, bite, hit, fight
  - Non-aggression e.g. patting, head butting, stroking
- Verbal signaling (vocalization)
  - E.g. bark, howl, hoot, chirp
- Non-verbal signaling
  - E.g. body, head, ear, & / or tail position
  - Showing teeth, smiling, sign language

Animals communicate using **signals**, which can include visual; auditory, or sound-based; chemical, involving **pheromones**; or tactile, touch-based, cues.

Below are some common types of signals:

- Pheromones—chemicals
- Auditory cues—sounds
- Visual cues
- Tactile cues—touch

**Dogs:** dogs also use body language that consists of a wide range of body and tail postures combined with various facial expressions. Eye contact is an important part of a dog's body language. A dog uses a direct stare as a threat or a challenge. On the other hand, a dog will break eye contact as a sign of surrender to a more dominant dog.

A good understanding of dog behavior and communication can help most people avoid dog bites. Most dogs treat their human owners as the boss. One way a dog shows you that you are the boss is by lying down with its ears back, it may whine, and its tail may wag.

If the dog also has its ears up, its mouth open, and its lips pulled back, watch out! It's ANGRY. If a dog's tail is between its legs, with its ears pulled back, and body low, that dog is probably scared. Be careful. It may be so scared that it's ready to bite!

### **Auditory signals**

Auditory communication—communication based on sound—is widely used in the animal kingdom. Auditory communication is particularly important in birds, who use sounds to convey warnings, attract mates, defend territories, and coordinate group behaviors. Some birds also produce birdsong, vocalizations that are relatively long and melodic and tend to be similar among the members of a species.

Monkeys cry out a warning when a predator is near, giving the other members of the troop a chance to escape. Vervet monkeys even have different calls to indicate different predators. Bullfrogs croak to attract female frogs as mates. In some frog species, the sounds can be heard up to a mile away. Gibbons use calls to mark their territory, keeping potential competitors away. A paired male and female, and even their offspring, may make the calls together.

Water, like air, can carry sound waves, and marine animals also use sound to communicate. Dolphins, for instance, produce various noises—including whistles, chirps, and clicks—and arrange them in complex patterns. The idea that this might represent a form of language is intriguing but controversial.

### **Visual signals**

Visual communication involves signals that can be seen. Examples of these signals include gestures, facial expressions, body postures, and coloration.

Gesture and posture are widely used visual signals. For instance, chimpanzees communicate a threat by raising their arms, slapping the ground, or staring directly at another chimpanzee. Gestures and postures are commonly used in mating rituals and may place other signals—such as bright coloring—on display.

Facial expressions are also used to convey information in some species. For instance, what is known as the fear grin—shown on the face of the young chimpanzee below—signals submission. This expression is used by young chimpanzees when approaching a dominant male in their troop to indicate they accept the male's dominance.

Changes in coloration also serve as visual signals. For instance, in some species of monkeys, the skin around a female's reproductive organs becomes brightly colored when the female is in the fertile stage of her reproductive cycle. The color change signals that the female can be approached by suitors. An organism's general coloration—rather than a change in color—may also act as a visual signal. For instance, the bright coloration of some toxic species, such as the poison dart frog, acts as a do not-eat warning signal to predators.

### **Sheep:**

Sheep vision is a dominant source of information about the social environment. .

Sheep are also responsive to the vocal sounds produced by other animals.

The vocalization in lambs is high.

During water deprivation, the incidence of “baaing” is correlated positively with the number of hours since water was removed.

The lamb will also vocalize, on occasion, if frightened or injured.

Olfactory and gustatory events function as cues for sheep,

Females adopt the young of other through transfer of *odor*. Smearing the Calf/Lamb with Amniotic Fluid

<b>Self-Check -1</b>	<b>Written Test</b>
----------------------	---------------------

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define communication in animal? (5points)
2. Write one common gesture of cats? (5points)

**Note: Satisfactory rating - 5 points      Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_



Temperament is assumed to be multidimensional, and due to the complexity of behavioural traits there is no single objective measurement that is able to capture all behavioural characteristics. Furthermore, it is discussed that the asking of unfavourable behavioural traits like nervousness, flightiness or excitability by adaption to the human-created environment of livestock production hinders the selection for behavioural traits like temperament. One possibility for over-coming these problems is the analysis of the genetic back-ground of cattle behaviour, which could contribute to the successful integration of temperament in breeding programs by the use of temperament associated markers (marker-assisted selection or genomic selection) and further help to evaluate the correlation between temperament and performance.

Temperament: a person's or animal's nature, especially as it permanently affects their behaviour. The characteristic phenomena of an individual's emotional nature, including his susceptibility to emotional stimulation, his customary strength and speed of response, the quality of his prevailing mood, and all peculiarities of fluctuation and intensity of mood; these phenomena being regarded as dependent on constitutional makeup and therefore largely hereditary in origin.

As a consequence of the adaption and selection for different production and housing systems, a large variability in temperament exists today in farm animals, resulting from differences in reactions towards human contact and new surroundings. Fear is considered one of the main psychological factors underlying temperament traits in general, and in particular, fear of humans affects the human-animal relationship considerably. Just as the production system promotes certain behavioural characteristics, animal-specific temperament can likewise affect relevant parameters in livestock production.

A breeding goal should include the following aspects: increased income (higher production of milk/beef); reduced costs (better fertility, fewer diseases, reduced culling rates); ease of management (temperament, milking speed); and advantages regarding the sale of products (animal welfare, ethics, consumer concerns). Complex breeding goals also require information on a wide range of relevant traits that can be measured economically.

A character (or trait) can be considered as a characteristic of an organism shared by all or some of the individuals of a species that can vary, although not necessarily, among these individuals (we consider character and trait as synonyms; see Wagner, 2001, on the diversity of the character concept). Measured individual values for that character are called phenotypes.

**We divide temperament traits into five categories:**

1. Shyness-boldness- an individual's reaction to any risky situation, but not new situations such as predators and humans.
2. Exploration-avoidance, an individual's reaction to a new situation. This includes behaviour towards a new habitat, new food, or novel objects
3. Activity, the general level of activity of an individual- Activity can interfere with the measurement of exploration or of boldness; it has thus been proposed to obtain a measure of activity in a non-risky and a non-novel environment.

Last two trait categories are expressed in a social context;

4. Aggressiveness, an individual's agonistic reaction towards conspecifics;
5. Sociability, an individual's reaction to the presence or absence of conspecifics (excluding aggressive behaviour).

Animal wellbeing: An animal's present state with regard to its relationship with all aspects of its environment, both internal and external. It implies a positive mental state, successful biological function, positive experiences and freedom from adverse conditions. Animal wellbeing relates to evidence of how an animal is coping with a given situation and a judgment as to how the animal feels in these circumstances.

Assessment of wellbeing involves using a combination of behavioural and physiological measures that indicate: the animal's health status• evidence of species-specific behaviours• the status of the key indicators of the physiological and behavioural responses to a stress. Animal behaviour is an important indicator of how an animal is interacting with its environment: changes in patterns of behaviour are often the first pointer as to how an animal is responding to and coping with change. Animal behaviour can be assessed by observation and during interactions with the researcher or animal carer.

### **The essential animal wellbeing issues to consider**

- ✓ Using food and water as rewards after restriction:

Controlling the delivery of food or fluids can influence the behaviour of a wide variety of animals. Food or fluid can be used as a reward, even in well-fed (satiated) animals. Food or water restriction is usually achieved by limiting the daily quantity available to the animal, or limiting the animal's daily period of access. This will cause the animal to experience hunger and thirst. If the restriction is prolonged, the animal may become dehydrated or lose bodyweight.

- ✓ using aversive stimuli or punishment to motivate behaviour:

Aversive stimuli or punishment cause animals to experience fear, distress, anxiety or pain. The basic behavioural and physiological (fear and stress) responses are minimized if the animal is able to control the aversive stimulus. Situations in which animals cannot influence or control the aversive experience are particularly distressing to them. Fear and stress behavioural responses include:

- escape (eg stopping contact with an aversive stimulus, such as an electrified cage floor)
- avoidance (a learnt behaviour that prevents an aversive encounter, such as not stepping on an electrified floor, or pressing a lever that turns off the electric shock)
- decreases in grooming, food intake, level of activity, exploration, sexual activity, mothering behaviour and loss of bodyweight
- Increases in 'freezing' behaviour. These response behaviours are species typical or 'hard wired', but the aversive stimuli that evoke them are

learned. Severe negative or aversive sensory stimuli must not be used, and painful or noxious stimuli should be avoided. If their use is necessary, the level and duration of the stimulus must be minimized, and escape from the stimulus must be available.

✓ Social behaviour:

Social grouping has both potential beneficial and adverse behavioural and physiological effects:

- The positive effects of social grouping include grooming and parenting, social attachment (bonding), and promotion of infant development. Stimulating the brain with sensory inputs affects the growth and interconnectedness of the brain, thereby affecting function. Social deprivation can result in stunted growth
- Negative effects include aggression, fighting, and immunological and cardiovascular changes and depression induced by social stress. In many cases, the negative effects on subordinate animals in social-dominance hierarchies subside over time. However, if food or water is restricted, subordinate animals may continue to be adversely affected.

**Self-Check -1****Written Test**

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the five categories traits in animal? (5 points)
2. Write the essential animal wellbeing issues to consider? (5 points)

**Note: Satisfactory rating - 5 points      Unsatisfactory - below 5 points**

You can ask your teacher for the copy of the correct answers.

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Physical environment:**

## Microenvironment and Macroenvironment

The *microenvironment* of an animal is the physical environment immediately surrounding it—the primary enclosure with its own temperature, humidity, and gaseous and particulate composition of the air. The physical environment of the secondary enclosure—such as a room, a barn, or an outdoor habitat—constitutes the *macroenvironment*

**Housing:**

*Primary enclosures*- Acceptable primary enclosures may include:

- ✓ Allow for the normal physiologic and behavioral needs of the animals, including urination and defecation, maintenance of body temperature, normal movement and postural adjustments, and, where indicated, reproduction.
- ✓ Allow adequate ventilation.
- ✓ Allow the animal's access to food and water and permit easy filling, refilling, changing, servicing, and cleaning of food and water utensils.

Housing Systems should have special caging and ventilation equipment, including filter-top cages, ventilated cages, isolators, and cubicles in order to minimize the spread of airborne disease agents between cages or groups of cages. They often require different husbandry practices, such as alterations in the frequency of bedding change, the use of aseptic handling techniques, and specialized cleaning, disinfecting, or sterilization regimens to prevent microbial transmission by other than the airborne route.

**Ventilation**

The purposes of ventilation are to supply adequate oxygen; remove thermal loads caused by animal respiration, lights, and equipment; dilute gaseous and particulate contaminants; adjust the moisture content of room air.

**Social Environment:**

Consideration should be given to an animal's social needs. The social environment usually involves physical contact and communication among members of the same species (conspecifics), although it can include noncontact communication among individuals through visual, auditory, and olfactory signals. When it is appropriate and compatible with the protocol, social animals should be housed in physical contact with conspecifics. For example, grouping of social primates or canids is often beneficial to them if groups comprise compatible individuals.

<b>Self-Check -1</b>	<b>Written Test</b>
----------------------	---------------------

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are purposes of ventilation in animal? (5points)

**Note: Satisfactory rating - 5 points      Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Information Sheet-4**Determine *behaviour* of animals.

**Behavior:** is anything an animal does involving action and/or a response to a stimulus. Blinking, eating, walking, flying, vocalizing and huddling are all examples of behaviors.

**Normal behavior** is the way an animal's acts in its natural environment. Enough space, proper shelter and housing, as well as company of the animals own kind, allows and encourages the expression of normal behaviours. It is also that expected of physically and psychologically health animals. Changes in behavior and the presence/absence of particular behaviours can provide a valuable indication of the animal's welfare. Conflict is a natural or normal part of the behavior of many social animals.

Primates should be housed in stable groups of suitable size and composition to allow the full expression of these behaviours. Self-grooming is a normal behaviour, but over-grooming (which has been linked to tension and anxiety) can result in hair loss and skin sores. Primates should display self-grooming, feeding and drinking behaviours relevant to the species concerned. Primates should display physical activities relevant to the species concerned.

These include:

Walking, running, climbing, turning, reaching, stretching, bending, pushing, pulling, swinging, jumping. It is important that animals are given the opportunity to be able to express their natural behaviors. If an animal is not able to express their natural behaviors, they may suffer emotionally and physically.

For instance, dust bathing is a natural behavior performed by chickens several times per day. It occurs when a chicken finds a dirt patch and digs themselves into it, covering their entire bodies with dirt. Similarly, chattering, the act of making a chirping sound at birds, is a completely normal behavior in cat but it would be considered an odd behavior if a horse was found chattering at birds!



**Abnormal behaviour in animals-** can be defined in several ways. Statistically, abnormal is when the occurrence, frequency or intensity of a behaviour varies statistically significantly, either more or less, from the normal value. Less formally, 'abnormal' includes any activity judged to be outside the normal behaviour pattern for animals of that particular class or age. For example, infanticide may be a normal behaviour and regularly observed in one species, however, in another species it might be normal but becomes 'abnormal' if it reaches a high frequency.

**Fear and aggression:**

The animal is afraid or displays an aggressive response during handling. Fear responses can lead to unpredictable actions in equids such as shying, leaping away, bolting, etc. which can be dangerous for the animal as well as the handler and/or bystanders. It is therefore important for animal welfare and human safety that signs of fear are recognized by those handling equids, and handling adjusted accordingly.

Fearful and aggressive behaviours will often provoke a negative human reaction as owners become angry or afraid. Fear or aggression responses indicate the animal is becoming stressed. Chronic stress leads to immunosuppression, which can make it more difficult for the animal to fight disease, making illness more severe or longer lasting.

**Self-Check -1****Written Test**

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Define behaviour in animal? (5points)
2. What is the difference between normal and abnormal behaviours? (5points)

**Note: Satisfactory rating - 5 points      Unsatisfactory - below 5 points**

You can ask your teacher for the copy of the correct answers.

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date: \_\_\_\_\_

<b>Information Sheet-5</b>	seek of assistance from supervisors and/or peers
----------------------------	--

Assist with work demands, including clear work goals, Provide all workers with adequate information, Provide workers with training and development opportunities, Conduct performance reviews and include constructive feedback, Provide additional assistance when workers are undertaking challenging tasks, such as new duties or roles, Where possible, ensure adequate backfilling of roles or redistribution of work when workers are out of the office or away on leave.

Provide and promote an employee assistance service that responds to individual issues or concerns, both work and non-work related. Assist workers to come up with practical solutions for any task-related issues that arise.

<b>Self-Check -1</b>	<b>Written Test</b>
----------------------	---------------------

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the objective of seeking assistance supervisor? (5points)

**Note: Satisfactory rating - 5 points      Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = _____ Rating: _____
--------------------------------

Name: \_\_\_\_\_

Date: \_\_\_\_\_

**Information Sheet-6**

Follow organizational policies, procedures and legislative requirements.

A policy is a course of action or guidelines to be followed whereas a procedure is the 'nitty gritty' of the policy, outlining what has to be done to implement the policy.

All organizations should have written policy and procedures, and staff training in the following areas:

- a confidentiality policy
- a clearly defined process for identifying and regularly updating a Community Resource Index so that all workers are aware of what other services are available to refer to (the index contains basic contact details and information about what each service provides)
- processes for networking with other agencies, including attending relevant inter-agencies (meetings of local service providers)
- guidelines for case conferencing (this will be discussed in more detail a bit later)
- referral protocols, including how referrals should be made, the kind of information that can be shared with other services and any ongoing roles and responsibilities of each service with regard to the client
- A policy for how long client information is kept after clients are no longer involved with the service. For example, different government departments produce documents that outline legal requirements for their staff in relation to storing and maintaining information.

Policies and procedures are an essential part of any organization. Together, policies and procedures provide a roadmap for day-to-day operations. They ensure compliance with laws and regulations, give guidance for decision-making, and streamline internal processes. Following policies and procedures is good for employees and your organization as a whole.

## **The Importance of Following Policies and Procedures:**

As your organization's leaders create and enforce policies, it's important to make sure your staff understands why following policies and procedures is critical.

Here are just a few of the positive outcomes of following policies and procedures:

### **Consistent processes and structures**

Policies and procedures keep operations from devolving into complete chaos.

When everyone is following policies and procedures, your organization can run smoothly. Management structures and teams operate as they're meant to. And mistakes and hiccups in processes can be quickly identified and addressed.

When your staff is following policies and procedures, your organization will use time and resources more efficiently. You'll be able to grow and achieve your goals as an organization.

Consistency in practices is also right for employees individually. They know what they're responsible for, what's expected of them, and what they can expect from their supervisors and co-workers. This frees them up to do their jobs with confidence and excellence.

### **Better quality service**

When employees follow procedures, they perform tasks correctly and provide consistent customer service.

### **A safer workplace**

When your staff is following policies and procedures, workplace accidents and incidents are less likely to occur

<b>Self-Check -1</b>	<b>Written Test</b>
----------------------	---------------------

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are The Importance of Following Policies and Procedures? (5points)

**Note: Satisfactory rating - 5 points      Unsatisfactory - below 5 points**

You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date: \_\_\_\_\_

#### REFERENCE 4:

- Susan, fadler. (1995). Animal Body Language NaaldlooshiBits'iisSaad: ICHA 90-429-041-8.
- Réale, D., Reader, S. M., Sol, D., McDougall, P. T., and Dingemans, N. J. (2007): Integrating animal temperament within ecology and evolution, *Biol. Rev.*, 82, 291–318.
- Sutherland, M. A., Rogers, A. R., and Verkerk, G. A. (2012): The effect of temperament and responsiveness towards humans on the behavior, physiology and milk production of multi-parous dairy cows in a familiar and novel milking environment, *Physiol. Behav.*, 107, 329–337.
- Adamczyk, K., Pokorska, J., Makulska, J., Earley, B., and Mazurek, M. (2013): Genetic analysis and evaluation of behavioural traits in cattle, *Livestock Science.*, 154, 1–12.
- Phocas, F., Boivin, X., Sapa, J., Trillat, G., Boissy, A., and Le Nézet, P. (2006): Genetic correlations between temperament and breeding traits in Limousin heifers, *Animal Science.*, 82, 805–811.
- Bo, N. (2009). Practical cattle breeding in the future—commercialized or cooperative, across borderlines between countries and organizations. Retrieved 28 March 2014, from <https://journal.interbull.org/index.php/ib/article/viewFile/1122/1113>
- Webster, A. J. F. and Main, 2003. Proceeding of the 2<sup>nd</sup> international workshop on the assessment of the animal welfare farms at farm and group level. *Animal welfare*, 12: 429-731.:
- Oxford dictionary of english (2005). Revised edn. (Ed. C. Soanes and A. Stevenson). Oxford University Press, Oxford
- Allport, G. W. (1937). *Personality: A Psychological Interpretation*. Henry Holt, New York.
- Boissy, A., FISHER, A. D., BOUIX, J. HINCH, G. N. and LENEINDRE, P. (2005). Genetics of fear in ruminant livestock. *Livestock Production Science*-93, 23–32
- Mettke-hofmann, C., Winkler, H. and Leisler, B. (2002). The significance of ecological factors for exploration and neophobia in parrots. *Ethology* 108, 249–272.
- Renner, M. J. (1990). Neglected aspects of exploratory and investigatory behaviour. *Psychobiology* 18, 16–22.

ASAB (Association for the Study of Animal Behaviour), (2003). Guidelines for the treatment of animals in behavioural research and teaching. *Animal Behaviour* 65:249–255

Toth, L. A and Gardiner T. W (2000). *Food and water restriction protocols: physiological and behavioural considerations*. Contemporary Topics 39(6):9–17

NIMH (National Institute of Mental Health), (2002). Methods and Welfare Considerations in Behavioral Research with Animals, Report of a National Institutes of Health Workshop, Morrison

NHMRC (National Health and Medical Research Council) (2004). *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*, 7th edition, NHMRC, Canberra.

Besch, E. L. (1980). Environmental quality within animal facilities Lab. *Animal Science*. 30:385-406.

ASHRAE.(1993). Chapter 9: *Environmental Control for Animals* .American Society of Heating, Refrigeration. and Air-Conditioning Engineers. Inc.

Gust, D. A., T. P. Gordon, A. R. Bridie, and H. M. McClure. 1994. Effect of a preferred companion in modulating stress in adult female rhesus monkeys. *Physiol. Behav.* 55(4):681-684.

National academy of science.(2019). *Institutional Policies and Responsibilities*. Washington, DC 20001

Melissa Logan. (2017). 5 – Freedom to Express Normal Behavior/blo

Abnormal behaviour". Retrieved April 6, 2013.

Website [workcover.nsw.gov.au](http://workcover.nsw.gov.au)