Unit 1

Restraining Farm Animals

Introduction

In this Unit, we will learn about the common body parts of cattle and the purposes of restraining and handling of farm animals. You will also learn how to safeguard the animal handler when the animal becomes agitated. A good animal handler understands the basic behaviour of the farm animals to facilitate better handling, reduce stress, and improve the safety of the handler as well as welfare of the animals.

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Session 1: Body Parts of Cattle and Basics of Animal Handling

Major body parts of cattle

First and foremost, the animal health worker must understand the various body parts of the animals. Fig. 1.1 illustrates the various body parts of cattle.

Purposes of handling the animals

There is no magic to having well-behaved and controlled animals, except a handler who is confident and willing to work with the animals. Farm animals are usually handled or restrained for various purposes, as given in Fig. 1.2.

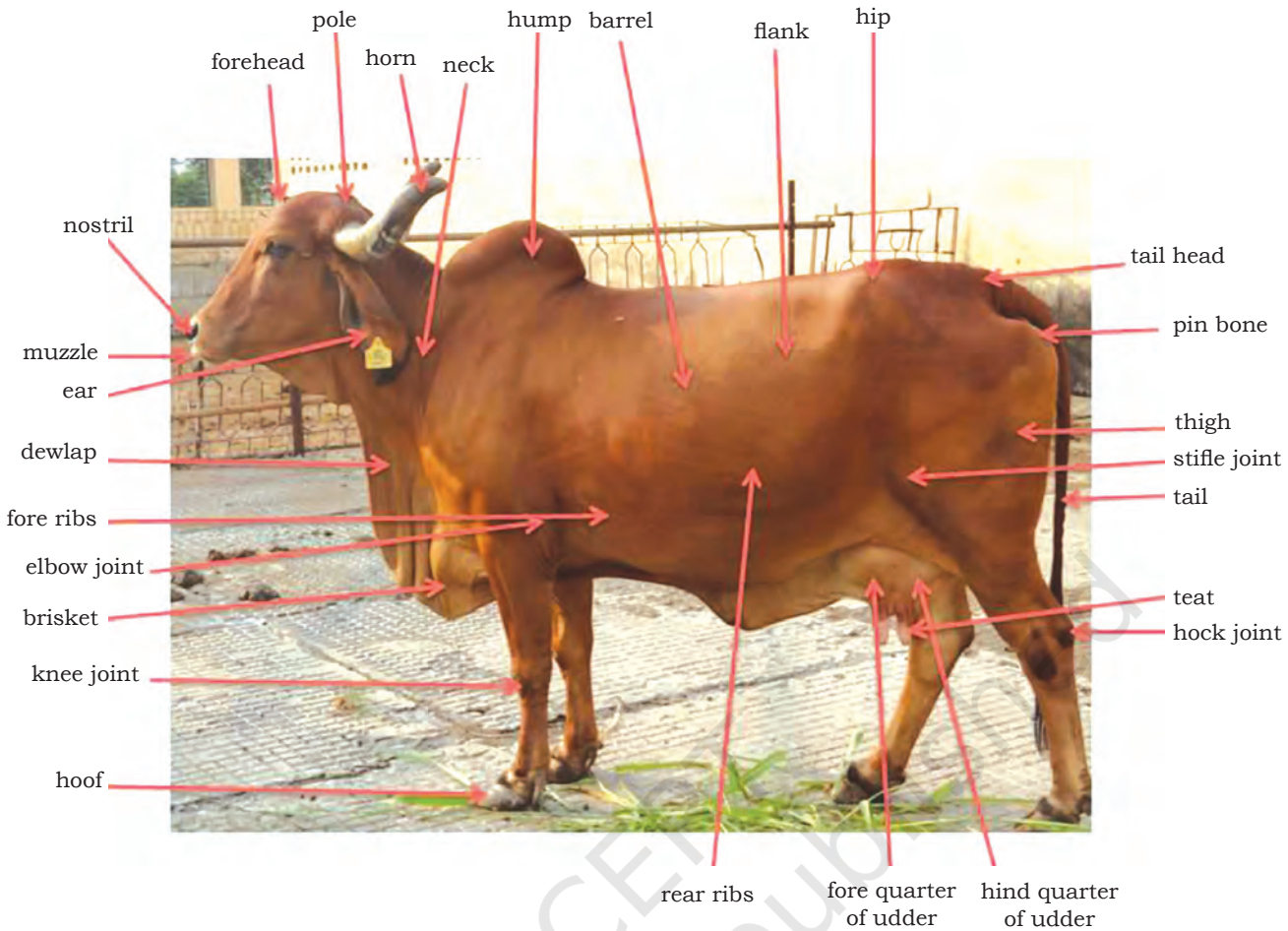

Fig. 1.1: Body parts of cattle

Purposes of handling the farm animals

- Physical examination of animals
- Administration of medicine and vaccines
- For carrying out operation like dehorning, castration, etc.

Fig.1.2: Purposes of handling the animals

General principles of animal handling

A general principle of animal handling is to avoid getting the animal excited (Fig. 1.3) and thus, maintaining safety of the animal handler. Working in close contact with dairy cattle is a necessary part of most of the dairy

operations. A good animal handler not only understands the psychology of his animals for better animal handling but also ensures his/her own safety.

Fig. 1.3: Instances of excited cattle in a farm

Herd instinct: Farm animals have a tendency to stay together in herds and this is called their herd instinct (Fig. 1.4). Therefore, farm animals become agitated when they are isolated from the herd. If an isolated animal becomes overexcited, it is allowed to go back to the herd.

(a) *(b)* *(c)*

Fig. 1.4: Herd instinct in cattle (a), buffaloes (b) and young calves (c)

Practical Exercises

Visit a nearby livestock farm.

1. Note down the important body parts of different livestock species.
2. Talk to the animal workers at the farm about day-to-day handling of animals and note down their practical feedback.

Check Your Progress

A. Multiple choice questions

1. Principles of animal handling involve
   (a) To avoid getting the animal excited
   (b) Reducing stress during handling
   (c) Improve productivity and performance of the animal
   (d) All of the above
2. Muzzle is located in the
   (a) head region
   (b) neck region
   (c) leg region
   (d) tail region
3. A good animal handler understands the basic behaviour of the farm animals to
   (a) facilitate better handling
   (b) reduce stress
   (c) improve both handler safety and animal welfare
   (d) All of the these
4. Elbow joint is present in
   (a) fore leg
   (b) hind leg
   (c) head
   (d) tail

B. Fill in the blanks

1. Never handle _____ animals.
2. Total number of teats in a cow is _____.
3. Total number of hoofs in a buffalo is _____.
4. Hock joint is located in _____ leg.

C. Mark True or False

1. Handling of animals is done for their physical examination.
2. Pole region of a cow is located in its tail.
3. Flank region of a buffalo is located in its head region.
4. An isolated animal becomes overexcited.
5. Farm animals have a tendency to live in herds.

Session 2: Behavioural Considerations in Animal Handling

Basics of animal behaviour in relation to handling

Reaction of animals to a stimulus is called behaviour. Different farm animals react to the same stimulus in different ways. The behaviour of animals determines their ability to survive in nature.

The study of animal behaviour is known as ethology. Ethology is the scientific and objective study of animal behaviour under natural conditions.

Study of farm animal behaviour is useful for health, welfare and training of animals. Understanding the behaviour of domestic animals and their relationship with humans has greatly contributed to easier handling of animals and increased economic benefits in animal husbandry. It is therefore important for the dairy farmer to have in-depth knowledge of behaviour of livestock as it helps in efficient breeding, feeding and management of farm animals.

The animal health worker must always bear in mind the following aspects of farm animals' behaviour in their day-to-day work.

(i) *Fundamental animal instincts*: Animals experience hunger, thirst, fear, sickness, injury and strong maternal instincts. They also develop individual behaviour patterns such as kicking or biting. A good animal handler knows about such animal behaviour and takes necessary safety precautions, including use of personal protective equipment.

(ii) *Sensitivity to contrasts*: Cattle and swine are generally colour-blind and have poor depth perception. This results in an extreme sensitivity to contrasts, which may cause an animal to stop at shadows or when the animal experiences sudden changes from light to dark. Sheep are also considered colour-blind, but they do have good depth perception.

(iii) *Kicking habit*: Horses and mules commonly kick-out their hind-legs, while cows kick-in forward and then kick-out outwards. Cows also have a tendency to kick sideways in case of pain, inflammation or injuries. For example, if a cow is suffering from Mastitis in one quarter of the udder, it should be approached from the side of the non-affected udder.

(iv) *Maternal instinct*: Livestock with newly born offspring exhibit strong maternal instinct. Such animals are usually more defensive and difficult to handle. Wherever possible, the newly born calf should be allowed to stay close to its mother at the time of handling.

(v) *Hesitation towards unfamiliar environment*: Farm animals usually develop a very characteristic comfortable attachment to areas such as pastures and buildings, water troughs and feedlots. Forcible removal from these areas can cause animals to react unexpectedly. Considering these characteristics, it is easier to understand why animals often hesitate while going through unfamiliar areas. Similar problems occur when animals are moved away from feedlots, separated from the herd or approached by an unfamiliar person.

(vi) *Aversion to unnecessary movements*: Moving or flapping objects can also make the handling of animals difficult. A cloth or coat swinging in the wind or turning fan blades can cause animals to stop abruptly.

(vii) *Other considerations in handling*: Animals that are blind or deaf on one side need to be dealt with cautiously. They favour that side and can suddenly swing around to investigate disturbances. If standing too close, a person could easily be knocked down and trampled. Animals respond to the way they are treated and draw upon past experiences when reacting to a situation. For example, animals that were chased, kicked, hit or frightened when young, will naturally fear being approached.

Three essential elements of animal handling

Although the area of animal behaviour and control is quite vast, an animal health worker must be well conversant with the following three essential elements of animal behaviour and control *viz.* flight zone, blind spot and point of balance.

Flight zone

All animals have a flight zone which is the animal's "personal space". It is the space in which the animal feels comfortable. It is the minimum distance the animal tries to maintain between itself and any perceived threat. The size of the flight zone varies depending on how calm or aggressive the animal is. Cattle confined to a small space have a smaller flight zone than cattle kept in a large area. The size of the flight zone slowly diminishes when animals receive frequent gentle handling. An understanding of the flight zone of the animal can help the handlers to reduce stress and prevent accidents.

Blind spot

It is necessary to remember that the area immediately behind the tail of the animals extending up to 15° on either side (i.e., total 30°) is treated as the "blind spot", where the animal cannot perceive the handler. An efficient handler never approaches the animal in the area of blind spot as it may get frightened and cause injury to the handler.

Point of balance

This is another important concept of livestock handling (see Fig. 1.5). Farm animals have a wide angle of vision. Point of balance is the imaginary point located on the animal's shoulder which divides the animal's body into two portions, i.e., front portion and rear portion. If the handler crosses this hypothetical point in the direction of front portion, the animal generally moves

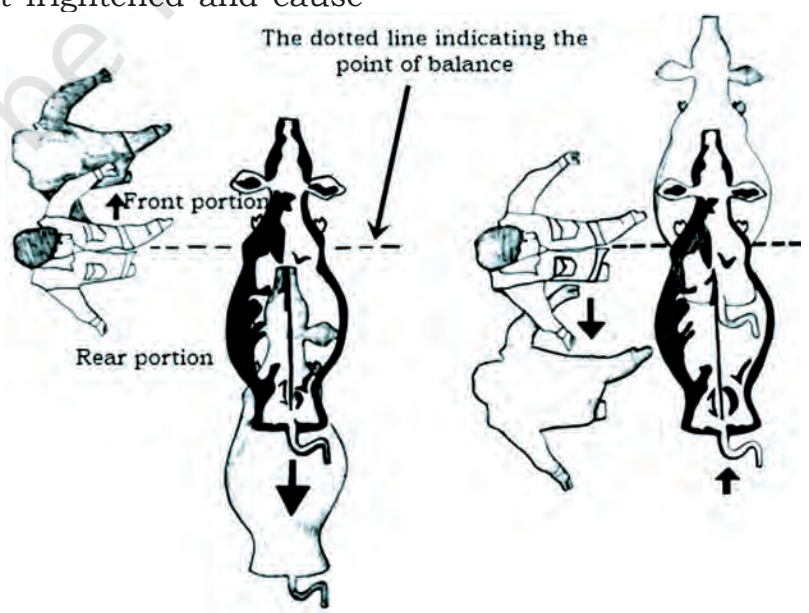

Fig. 1.5: Diagram showing point of balance in an animal

backwards. But if the handler stays in the rear portion, the animal moves in the forward direction.

Important aspects of livestock handling

The following points must be taken into consideration while handling farm animals.

Never handle excited animals

- Excited animals are difficult to handle. Thus, if cattle become excited, allow them at least 30 minutes to return to normalcy.

Changes in animal behaviour due to stress

- Animals express fear or alarm under stress through their behavioural symptoms.

Cattle are sensitive to contrasts

- Cattle are colour-blind and have poor depth perception. It implies that they are very sensitive to contrasts. Therefore, contrasting situations are avoided in the farm.

High-pitched noises

- Animals are frightened by high-pitched noises. When cattle are moved quietly, they remain calm and are a lot easier to handle.

Animals remember 'bad' experiences

- Cattle remember 'bad' experiences and create associations from fearful memories. For example, if a bald man caused pain to a cow, the same cow may exhibit fear towards all bald men. This emphasises the need for calm and respectful handling of animals at all times.

Direction of kicking

- Cattle usually kick in forward direction, then kick out and back in a swinging motion. The animal health worker must be aware of this kicking habit to avoid injury to self and to the animal.

Attachment with the owner

- Animals are also very observant. They learn to watch and listen to their owners, even when they may appear to be inattentive. Animals can sense the human mood by watching human behaviour.

Proper handling techniques

- Some animals take longer than others to get trained but all farm animals can be handled safely and effectively if proper techniques are used.

Signs of distress in farm animals

During stress condition, all animals express fear, distress or alarm through their behavioural symptoms, as shown in Fig. 1.6.

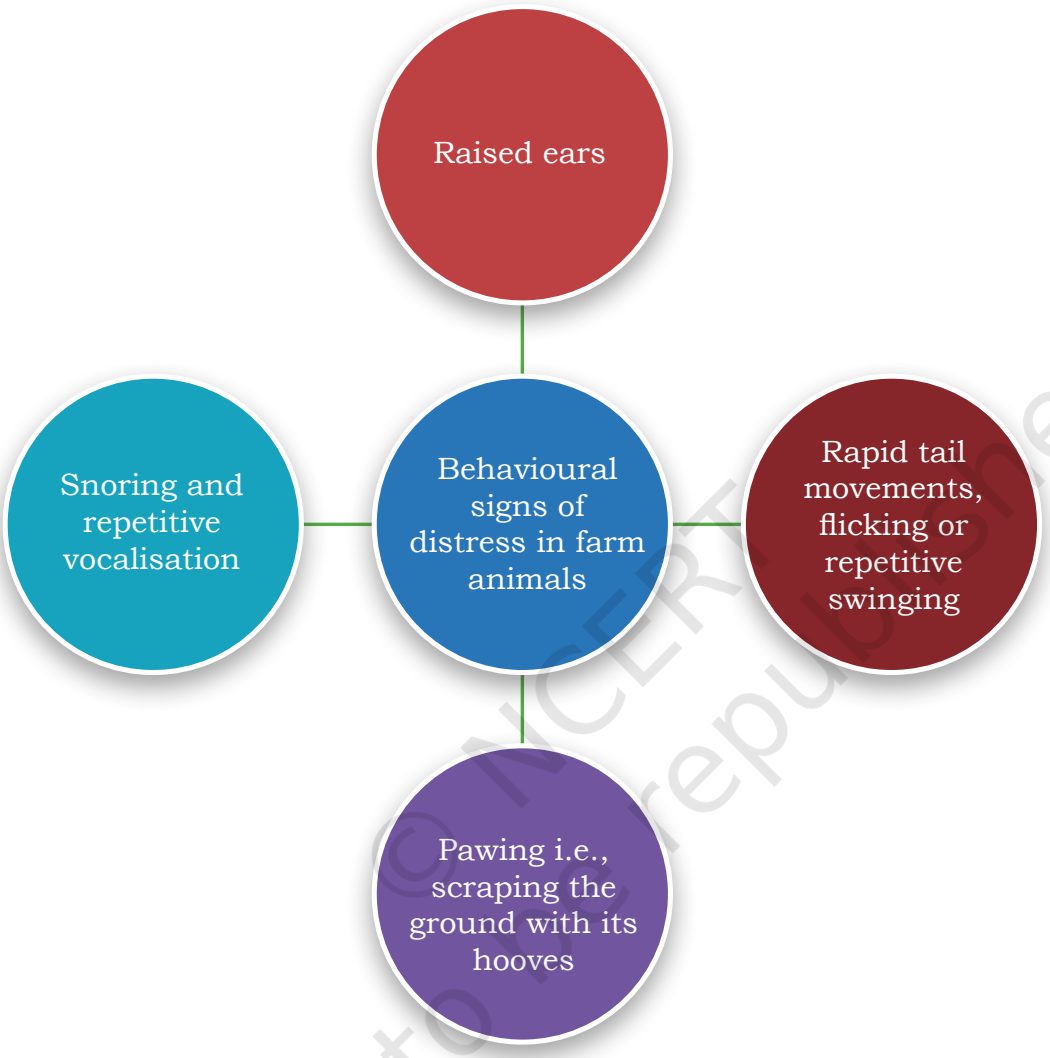

Fig. 1.6: Signs of distress in farm animals

Practical Exercises

Visit a nearby livestock farm.

1. Note down the basic behaviour of cattle in the farm.
2. Record your observations if some animals in the farm show signs of distress and explain what could be the reasons for such distressful behaviour.

Check Your Progress

A. Multiple choice questions

1. The study of animal behaviour is known as
   (a) Ethology
   (b) Entomology
   (c) Ecology
   (d) All of the above
2. The knowledge of livestock behaviour helps the farmer in
   (a) Efficient breeding
   (b) Feeding
   (c) Management of farm animals
   (d) All of the above
3. The animal feels comfortable when the handler is
   (a) In the blind spot area
   (b) Inside the flight zone
   (c) Outside the flight zone
   (d) None of the above
4. The size of the flight zone diminishes when animals receive
   (a) Frequent gentle handling
   (b) Rough handling
   (c) Both (a) and (b)
   (d) None of the above
5. The imaginary point located on the animal's shoulder for moving the animals in the forward direction is called
   (a) Flight zone
   (b) Point of balance
   (c) Blind point
   (d) All of the above

B. Fill in the blanks

1. Reaction of animals to a stimulus is called _____.
2. Swine and cattle are generally _____ and have poor depth perception.
3. All animals have a flight zone which is the animal's _____.
4. Raised ears is a sign of _____ in farm animals.
5. Cows kick _____ in case of pain, inflammation or injuries.

C. Mark True or False

1. A bull has strong paternal instinct.
2. The livestock react unexpectedly upon forcible removal from pastures, buildings, water troughs and feedlots.
3. Cattle confined to a small space will have a smaller flight zone than cattle kept in a large area.

4. Animals during stress condition express fear, distress or alarm through their behavioural symptoms.
5. Animals can sense the human mood by watching human behaviour.

SESSION 3: APPROACHING AND HANDLING FARM ANIMALS

Approaching the farm animals

The right way of approaching large animals such as cows and buffaloes is important for handling them safely. As explained in the previous sessions, most large animals can see at wide angles around them and there is a blind spot directly behind their hindquarters. Any movement in the area of the blind spot makes the animal uneasy and nervous. The following aspects must be considered while approaching large animals.

(i) Before approaching an animal, ask the attendant or the owner whether the animal is docile or furious.
(ii) Never carry a stick when approaching an animal.
(iii) If possible, call the animal by its name, and approach the animal preferably from the left side.
(iv) Pat the animal gently by calling its name or words familiar to the animal.
(v) Most large animals kick in an arch beginning towards the front and moving towards the back. Avoid this kicking region while approaching the animal.
(vi) Some of the novice farm workers feel that a good way of restraining large animals is to entice them with concentrates and jaggery. This is not an advisable method to follow in case of large animals.

Restraining of individual cows and buffaloes

Halters and ropes can be useful for handling cattle and for moving them. Soft rope or leather strap can be used for this purpose. The following precautions must be kept in mind while restraining animals.

(i) Cows are generally more nervous than other animals. Always announce your presence when approaching a cow and gently touch it.

(ii) If a cow tends to kick, consider using a rope. Do not permit workers to talk loudly. Gentle cows can be dangerous while defending their calves and such information should be shared with the visitors and new workers.

(iii) Special care is required for handling the breeding bulls. The handler should never come in direct contact with a breeding bull.

(iv) Keep small children and strangers away from the animals.

(v) Cattle can be difficult to handle if you force them to act in ways that are not natural for them.

Restraining particular body parts of animals

Different tools and methods are used to bring the needed body parts of the animals under control. The different approaches for restraining particular parts of an animal are given below.

Fig. 1.7: An animal handler restraining head of a young cattle

(a) Restraining of the head region

To manually restrain the head region, grasp the bridge between the nostrils with thumb and forefinger of one hand and hold it firmly (Fig. 1.7). With the other hand, hold the horn.

Besides this method, following tools are also commonly used for controlling the head region of large animals.

(i) *Bull nose ring:* It is fixed to the nasal septum of bulls and used to restrain the head region of the animal. It is made up of two semi-circular pieces of aluminium, copper or some alloy which does not rust (Fig. 1.8). Rope or bull holder is attached to the bull nose ring to control the bulls (Fig. 1.9).

Fig. 1.8: Bull nose ring

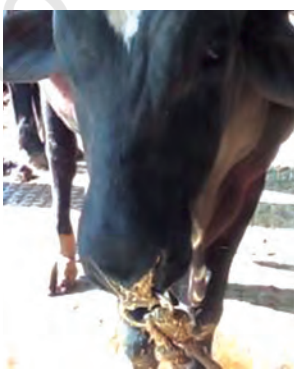

Fig. 1.9: Bull nose ring fitted to the nostril of the bull

(ii) *Bull holder:* It is a wooden pole fitted with metal structure which entraps the bull nose ring to control the bull (Fig. 1.10).

Fig. 1.10: Bull holder

(iii) *Bull nose leader:* It is used if examination of the animal is likely to be prolonged or if the animal is restive. The swivel allows the animal to turn and twist its head without twisting the operator's wrist (Fig. 1.11). The ring is used as a handle. The finger-like structure can be separated and inserted into the two nostrils of a bull and then closed tight.

Fig. 1.11: Bull nose leader

Fig. 1.12: Muzzle cover

(iv) *Muzzle cover:* It is made of rope, string, bamboo splits and wire netting or leather straps and used to envelope mouth of animals to prevent them from biting and overeating (Fig. 1.12).

(v) *Mouth gags:* These are used for keeping the two jaws of cattle open for examination of the mouth. One gag is used for the right jaw and the other for the left jaw (Fig. 1.13).

Fig. 1.13: Wooden mouth gag

(b) Restraining of the foreleg

The foreleg of the cattle is raised and held off the ground for examination or treatment. Raising the foreleg also helps in controlling the movement of the animals and hinder their kicking with the hind leg. The method of restraining the front leg of cattle with the help of a rope is shown in Fig. 1.14.

Fig. 1.14: Restraining of foreleg of cattle

(c) Restraining of the hind leg

Raising of the hind leg off the ground and holding it in that position facilitates examination or treatment of

Fig. 1.15: Restraining of hind leg of cattle

the animal. It is particularly useful for the treatment of hooves. Following are the two commonly used ways of restraining the hind legs (Fig. 1.15).

Anti-kicker and *Milker's knot* are used to prevent the animal from kicking during examination of udder and teats while milking or examination of the hind region in case of Mastitis and udder swelling (Figs 1.16a and 1.16b). In an anti-kicker, two metal spring clips connected by a chain are used.

Fig. 1.16 (a) Anti-kicker

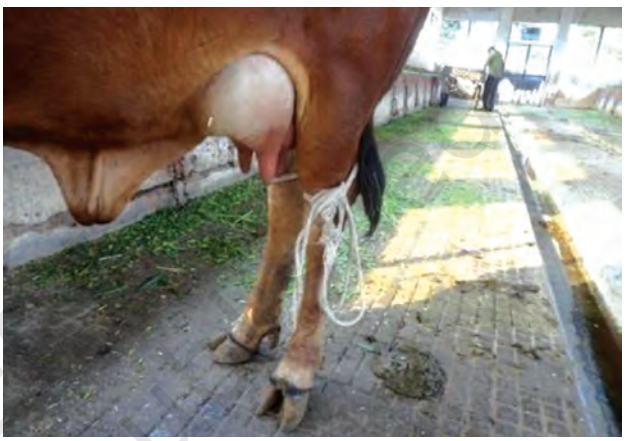

Fig. 1.16 (b) Milker's knot

Fig. 1.17: Tail restraining in cattle

(d) Restraining the tail to divert animal's attention

For this purpose, the animal worker stands on the side of the cow to avoid being kicked. Animal handler keeps both the hands close to the base of the tail as much as possible (Fig. 1.17). The grip is gentle but firm. Restraining of tail is required to distract the cattle's attention from another part of its body on which some operation is being done.

Restraining the whole animal

(a) Casting of animals

Casting of an animal means making the animal fall on the ground. Animals are cast for various reasons like surgical operations, hoof trimming, etc., to prevent

accidents during handling. In a large farm, a casting pit is set up to avoid injury during casting of animals. Casting pit is a circular area of about 8 metres diameter which is filled with bedding materials like sand, wheat straw, saw dust, etc. (Fig. 1.18). Sharp or piercing objects are never kept in the casting pit. As a precautionary measure, the animal is kept on fasting for 12 hours before casting to prevent injury to distended digestive organs. Casting of pregnant animals must be avoided.

Fig. 1.18: Casting pit filled with sand as bedding material

The following two methods are used for casting of large animals.

Reuff's method

It is the most common and efficient method of casting the large animals. For this method, around 30 feet

Fig. 1.19: Reuff's method of casting down a large animal

of rope is required to carry out the following steps for casting:

Make a loop around the animal's neck using a bowline knot placed as indicated in the pictures. Throw the end of the rope over animal's back to the opposite side. Pick the rope from under the animal, bring it around its body and near the bowline to form a half hitch just behind the shoulder. By tossing the end over the animal's back, make another half hitch just in front of the udder or scrotum in case of male cattle. Gently pull the rope to cast the animal (Fig. 1.19).

Burley method of casting

In this method, the rope is divided into two equal parts. The middle portion of the rope is placed on the upper side of the animal's neck and free ends of the rope are crossed under the neck. Then both the free ends of the

Fig. 1.20: Burley method of casting down an animal

rope pass between the front legs in backward direction on either side of the animal. Each free end of the rope then crosses over the back of the animal and subsequently passes through the area between the udder or scrotum (in case of males) and hind legs. When the rope is pulled in the backward direction, the animal is cast to the ground (Fig. 1.20).

Restraining small animals like sheep and goat

Sheep and goat are restrained by means of hand or an arm under the neck with the other arm placed on or around the rear side. Lifting or dragging sheep by the fleece, tail, ears, horns or legs is unacceptable and dangerous. Devices such as harnesses, tethers and yokes of suitable material are properly fitted and adjusted. The major steps in handling of sheep and goat are explained in Fig. 1.21.

Step 1

Sheep are held above the hock by placing the left hand underneath the jaw and around the back.

Step 2

To turn up a sheep, stand against it on the left side placing left hand under its neck. Pass the right hand over the right flank as far as possible and take hold of the wool.

Step 3

Raise the sheep's forelegs off the ground with the right hand and lift the animal into a sitting position.

Fig. 1.21: Restraining of sheep and goats

Some other tools and equipment used for restraining farm animals

Besides the already mentioned tools for restraining the different parts of the animal, some more tools are used which are mentioned below.

Halters

Halters made of rope or leather can be used for farm animals. A 1.5 cm thick and 3 to 4 metres long rope is used for preparation of the loop.

Trevis

Trevis is used for handling animals for longer duration. It is a fixed structure constructed with steel pipes, as shown in Fig. 1.22.

Fig. 1.22: Trevis

Safe practices in animal handling

The animal health worker ensures personal safety by observing the following practices.

(i) The important protective equipment are gloves, apron, gumboots and mask (Fig. 1.23). A rigid protective helmet is also worn when required.

(ii) It is important to wear proper gumboots when one is around livestock. Gumboots provide proper foot support and protection to the worker.

Apron

Gloves

Mask

Gumboots

Fig. 1.23: Protective equipment used in farms

(iii) Wear rubber gloves when working with sick and injured animals as well as other protective clothing.

(iv) Observe personal hygiene by washing hands and face after handling the animals.

(v) A good farm health worker is concerned about zoonotic diseases which can be transmitted from humans to animals and vice versa. Leptospirosis, Rabies, Brucellosis, Salmonellosis and Ringworm are some examples of zoonotic diseases.

(vi) To reduce exposure to diseases, use basic hygiene and sanitation practices which include prompt treating or disposal of infected animals, adequate disposal of infected tissues and proper cleaning of contaminated sites.

(vii) Always handle any hazardous medical equipment such as needles or chemicals with extreme caution. Never throw needles away in the waste. Special red-coloured bio-hazard disposal boxes must be kept for this purpose on the farms.

Abnormal behaviour in farm animals

Animal behaviour refers to how animals react to other animals of the same species, other animal species, human beings and the environment. Abnormal behaviour

includes any behaviour reported to be outside the normal behaviour pattern for animals of that particular class and age. Knowledge of normal behaviour of livestock allows the animal health worker to detect abnormalities in animals' behaviour.

The main causes of unusual behaviour are stressful condition and prolonged sickness. Abnormal behaviour in a farm animal is sometimes detrimental to the animal itself or to other animals. Abnormal behaviour can be used to identify clues to illness, stress, inadequate nutrition and other problems. Various types of abnormal behaviour observed in farm animals are as follows.

Coprophagia

It refers to the eating of faeces of animals by other animals.

Excessive licking

Calves develop abnormal behaviour like excessive licking of other animals when housed together (Fig. 1.24). Sometimes they lick walls, floors or other objects.

Fig. 1.24: Calf showing excessive licking

Pica

It means the eating of materials other than the normal feed of the animals like paper, metals, stones, etc.

Tail biting

It is the biting or chewing the tail of another animal. This is commonly observed in swine and calves.

Cannibalism

It refers to the eating of flesh or internal organs of another animal of the same species.

Crib-biting

It refers to the grabbing of solid objects such as a fence, with the incisor teeth by the animal.

Practical Exercises

Visit a nearby livestock farm.

1. Practise the various animal restraining methods being followed at that farm.
2. Identify the various equipment used in restraining the farm animals.

Check Your Progress

A. Multiple choice questions

1. The method used for casting of large farm animals is
   (a) Burley method
   (b) Reuff's method
   (c) Both (a) and (b)
   (d) None of the above
2. Tail biting is commonly observed in
   (a) goat
   (b) sheep
   (c) horse
   (d) swine
3. Anti-kicker is used in cows during
   (a) milking
   (b) examination of udder
   (c) examination of teats
   (d) All of the above
4. Bull nose ring is used for controlling
   (a) goat
   (b) sheep
   (c) swine
   (d) bull
5. Eating the flesh or internal organs of another animal of the same species is called
   (a) cannibalism
   (b) coprophagia
   (c) pica
   (d) None of the above

B. Fill in the blanks

1. _____ is used for handling of animals for longer duration.
2. _____ is eating material other than normal food.

3. Making an animal fall on the ground is called _____.
4. _____ method is a common and efficient method of casting.

C. Mark True or False

1. Mouth gag is used for keeping open the mouth of animals.
2. Rubber gloves and protective clothing must be worn while working with sick and injured animals.
3. The easiest way to restrain a large animal is enticing it with food.
4. Avoid the kicking region while approaching an animal.
5. Pat the animal gently by calling its name or words familiar to the animal.

Glossary

Calf: *The young one of cattle or buffaloes up to one year of age.*

Castration: *Removal of testes of male livestock.*

Colour-blind: *Inability to distinguish certain colours, or any colours at all.*

Dehorning: *Removal of fully grown horns of livestock for safety reasons.*

Feedlot: *A feeding yard for intensive animal farming.*

Halters: *A strap or rope placed around the head of an animal, used for leading or tethering it.*

Harness: *A set of straps and fittings by which a horse or other draught animal is fastened to a cart, plough, etc., and is controlled by its driver.*

Instinct: *The way animals naturally react or behave, without having to think or learn about it.*

Livestock: *Animals raised on the farm for profit.*

Mastitis: *Inflammation of tissues of cow's udder due to trauma or microbial infection.*

Stress: *A state of mental or emotional tension resulting from adverse or unusual circumstances.*

Tether: *A rope or chain attached to an animal and attached to something at the other end, restricting the animal's movement.*

Yoke: *A wooden frame for harnessing two draft animals to whatever they had to pull.*