Project 2

# Feeding and Caring for Farm Animals

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Farm animals, like cattle, sheep, goats, pigs and poultry, play an essential role in our lives. Like all living beings, including humans, they too need care. This project is about essential practices related to feeding and caring for farm animals.

***As part of the project you will be able to:***

- Identify local farm animals
- Observe their health parameters
- Estimate their weight to decide their feeding requirements
- Prepare green fodder silage and treat dry fodder
- Design a first-aid box for livestock

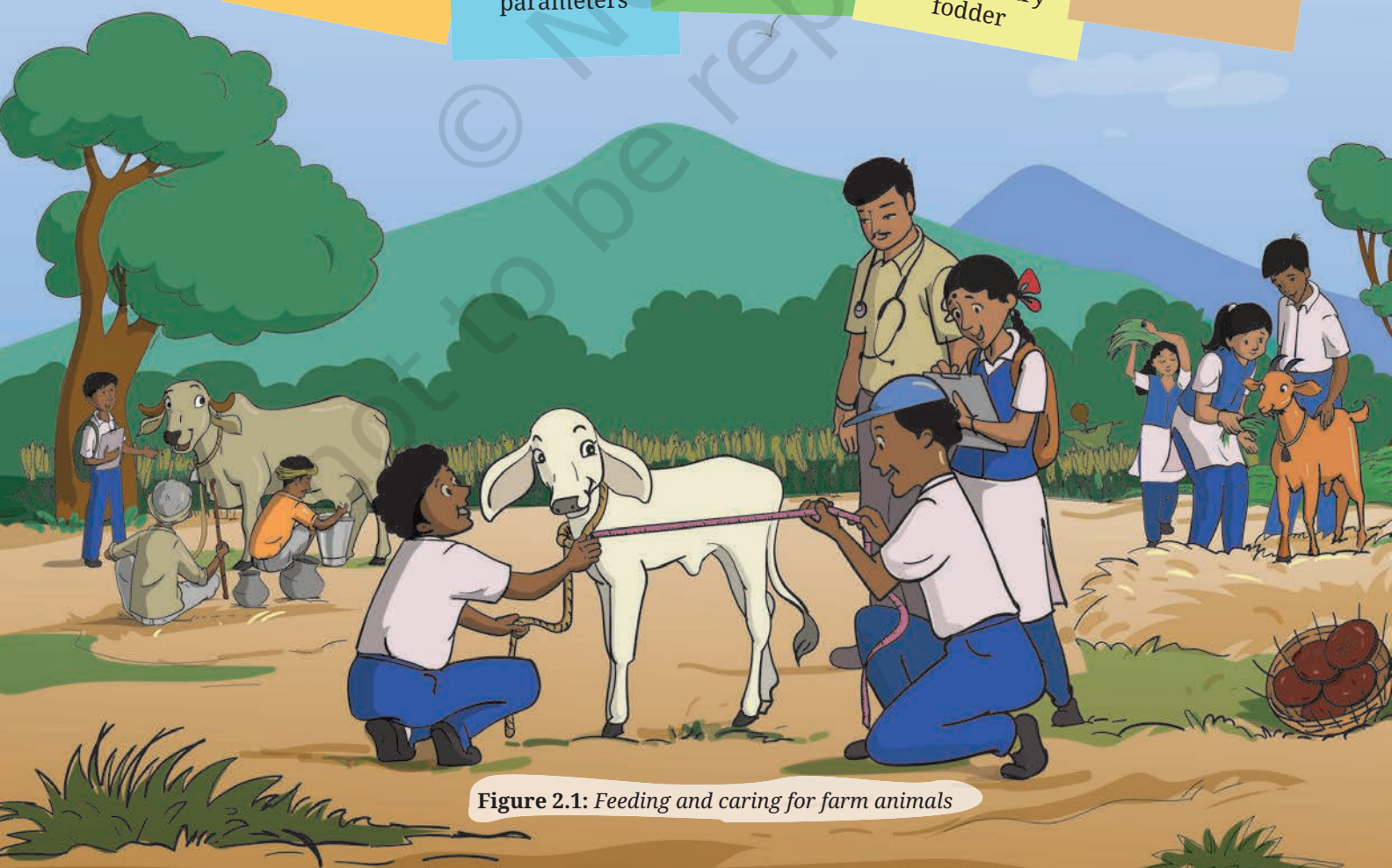

**Figure 2.1:** *Feeding and caring for farm animals*

Domestic animals have been helping us with transport, obtaining quality food, wool and manure, and performing farm operations (for example, ploughing, carrying loads) for a long time (Figure 2.1). Poultry birds, cattle, buffaloes, bulls, sheep, yaks, mithun (*gayal*), pigs and camels are reared by farmers for food, wool, transportation, and to provide labour for farm operations. They are also crucial for soil fertility as they provide organic manure.

Domestic animals on a farm are collectively called livestock and comprise a large part of farmers' wealth, and contribute regularly to their income. Besides farmers, herders specialising in one kind of livestock, for example, shepherds, goatherds, swineherds, and cowherds, also have a large number of livestock.

Besides the economic benefits, animals respond to love and care, and become a part of the family, even providing emotional support to individuals or families. Therefore, their care is an essential part of the farmers' work. Nutritious food, clean water, proper shelter, and vaccination are necessary for the good health of livestock.

Paintings in the *Bhimbetka* caves in Madhya Pradesh show evidence of the relationship between humans and animals. Decorated bulls, grazing animals, and human riding horses and animals suggest that domesticated animals have been our companions for more than 10,000 years (Figure 2.2).

**Figure 2.2:** *Bhimbetka caves showing humans riding on horses*

In our culture, we have always expressed gratitude towards livestock through different festivals and rituals. Every Indian state and culture has festivals dedicated to animals, for example, *Bendur* or *Pola* in Maharashtra, *Kanuma* in Andhra Pradesh and Telangana, *Khaturva* in Uttarakhand and so on. Are you aware of any other similar celebrations of livestock?


**Figure 2.3:** *Cows and Goats are some of the commonly found livestock in India*

The management and care of livestock is known as animal husbandry (Figure 2.3). This field also includes ethical farming practices to ensure animals are treated well and kept in a healthy environment. Ethical practices also include treating animals with respect, providing them with basic needs for good housing, feed and water, timely medical treatment and caring for their well-being.

This project will introduce you to some practices of animal husbandry.

## What will I be able to do?

At the end of the project, you will be able to:

1. Identify important farm animals in your locality and record their health parameters.
2. Estimate the weight of an animal based on its body measurements to prepare a feeding chart.
3. Prepare silage and a healthy, dry fodder mixture for farm animals.
4. Design a first-aid box for livestock with homemade *Ayurvedic* medicines.

## What will I need?

You will need the following tools, equipment and materials for various activities of the project (Figure 2.4):

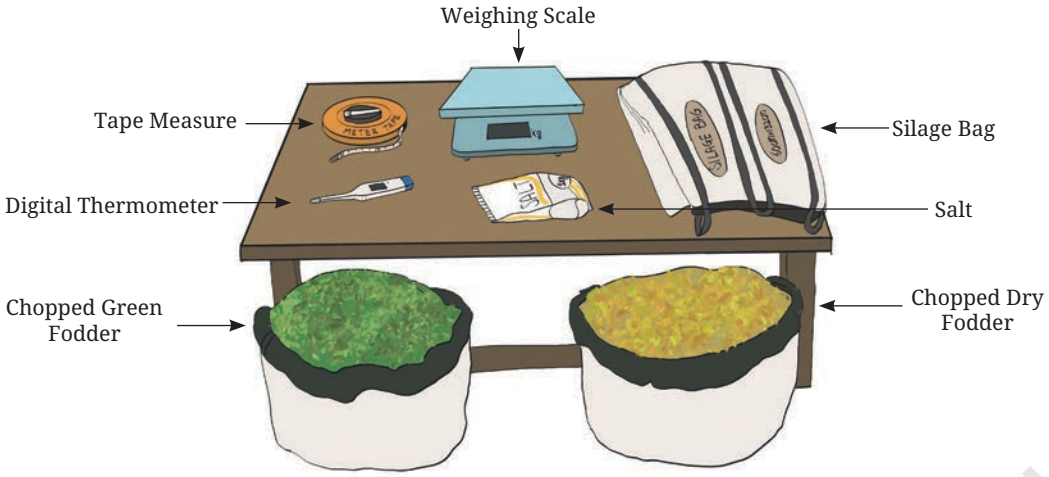


**Figure 2.4:** *Tools and materials to be used for various activities*

## How do I keep myself and others safe?

Some key precautions to be followed while feeding farm animals and caring for them are as follows:

1. Farm animals can get disturbed due to the presence of unfamiliar people. They may become aggressive. So, do not disturb or excite the animal while recording your observations. You need to stay calm and avoid making abrupt gestures. Also, speaking to the animal and offering feed helps reduce animal stress and aggression.
2. Tie animals and maintain a safe distance. Never stand behind a large farm animal, as it may kick you, if disturbed.
3. **Interact with animals only when you are accompanied by a teacher, farmer or a veterinary professional.** Follow the instructions they give while approaching an animal.

**Internet safety:** Ask your teacher for help while using the Internet. Be careful not to upload or download anything without checking. Do not share personal information with anyone.

## What do I need to know before I start?

Livestock need proper housing (cleanliness, ventilation, shelter from weather and predators), feed (clean water and fodder),

healthcare (vaccination and medicine), and a safe environment for healthy growth and optimum productivity (Figure 2.5). You will learn some of the critical practices related to animal care in this project.

**Figure 2.5:** *Proper housing, shelter, feed, healthcare and clean environment are essential for animals*

## Activity 1: Visit to a farm

Livestock is an integral part of the daily life of many farmers/ animal owners and their families. The first step, therefore, will be to talk to a farmer/animal owner to learn about their animals' healthcare routine and maintenance.

If you are rearing livestock in your home or family's farm, you can record your observations based on your experiences. If not, you can visit a farmer or animal owner in your vicinity. You can also visit a nearby cow shelter/*gaushala,* stable/*tabela* or meet a horse owner (for example, *Tangewala*) to record your observations.

1. Name of the place or farmer/animal owner visited.

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2. Types and number of animal owned.....

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3. Important activities of the day.....

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4. Number of people involved in the activities.....

5. Describe daily activities.....

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Refer to Table 2.1 to answer the questions related to the care aspects for farm animals. Record your observations in your diary or logbook.

**Table 2.1: Questions for recording the care aspects of farm animals**

| Care aspect | Questions to answer |
|---|---|
| Feeding | • What kind of food is given?<br>• Where is the food sourced from?<br>• How are the animals fed (grazing, in-shelter, both)?<br>• How much food is given and what does it cost?<br>• How many times are the animals fed daily?<br>• Is a feeding container used?<br>• Is the food free or purchased? |
| Water | • Where is the water sourced from?<br>• How often is the water changed?<br>• Is the water clean?<br>• How is animal waste collected and stored?<br>• What is it used for? |
| Bathing and cleaning | • How are farm animals bathed?<br>• How often are they bathed? |
| Shelter | • Is the shelter temporary or permanent?<br>• How many farm animals are kept there?<br>• How is the number of animals to be kept in the shelter decided?<br>• Is there enough light and air?<br>• What is the floor made of?<br>• Who cleans the shelter?<br>• How often is it cleaned?<br>• How are the animals protected from heat, cold, and rain? |

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|---|---|
| Health | • What are the common diseases of the farm animals?<br>• Do animals need any medicine? If yes, which ones and why?<br>• Are any home remedies used?<br>• Who gives medical help?<br>• Are there any regular vaccines? |
| Use of waste | • How is waste collected?<br>• What is done with the waste? |
| Any other specific observation | Anything else interesting or important you noticed. |

## Reflect on your learnings

1. The relationship between the farmer/animal owner and the animal is essential for its well-being. For example, does the animal recognise its owner? How does it react to the presence of the owner?

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2. Does the farmer/animal owner have a specific name for the animals? What criteria were used for naming animals? How do they recognise individual animals?

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3. What are the reasons for keeping animals on the farm (e.g., farm labour, dairy, wool)?

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4. Talk to a farmer/animal owner or your friends, and find a story about the relationship between a farmer/animal owner and the animal. You can also find any local poem or a folk song about farm animals.

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### Did you know?

Apart from a caring approach, the environment in which animals live also plays an important role in the well-being of livestock. For example, research by scientists has concluded that playing music in cow sheds has a calming effect. The result is an increase in milk production. This is due to the masking of noises (e.g., of farm machinery).

## Activity 2: Field visit to a veterinary clinic/animal healthcare centre

Just like humans, domestic animals have healthcare requirements. Animal healthcare centres or veterinary clinics provide necessary healthcare services to livestock.

Veterinary practitioners also need specialised training and certification. The Veterinary Council of India (VCI) is the nodal authority that decides how veterinarians should be prepared to work with animals.

Visit a veterinary centre in a village or nearby town to learn standard healthcare practices and treatment required by livestock. You can also invite a veterinary doctor or practitioner to your school to learn about basic healthcare requirements.

India ranks number one in the world for its cow and goat population. We are the largest producer of milk and also have the highest diversity among cows, with 43 registered native breeds. Breeds indicate various types of animals within the same kind, e.g., *Kasargod* cattle from Kerala are a dwarf breed that grows up to an average height of 1 metre (Figure 2.6). It produces high quality milk at low maintenance cost. *Siri* cattle from parts of Sikkim, Darjeeling and Bhutan have long, powerful legs that are helpful in the mountains; they are used as draught animals. Therefore, breeds are chosen based on the kind of work they will do.

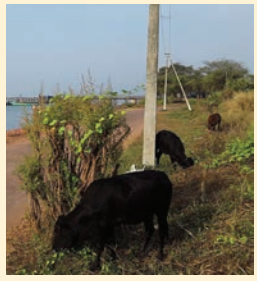

**Figure 2.6:** *Kasargod Dwarf Cattle*

Gather information about the livestock in your vicinity with the help of the expert, and fill Table 2.2.

1. What are the most common livestock in your locality?

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2. List the important breeds of livestock in your locality. Try to find out whether they are indigenous or were brought from other places.

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You can follow the example in Table 2.2 to record these details:

**Table 2.2: Record of information about local farm animals**

| My locality | Common farm animal in my area | Common breeds | Common use |
|---|---|---|---|
| Shirur block of Pune district | Cow, goat, poultry | **Cow:** *Khilari*, Holstein Friesian (HF) cross.<br>**Goat:** *Sangamneri*<br>**Poultry:** Broiler, *Deshi* | **Cow:** Milk production<br>**Goat:** Meat/Milk<br>**Poultry:** Chicken and eggs |
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3. Which fodder crops or food sources are used for livestock in your area (some examples are given in Table 2.3)?

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**Table 2.3: Information about food and fodder**

| Animal | Food | Food availability |
|---|---|---|
| Cow | **Green fodder:** Maize, Napier, Berseem, Lucerne<br>**Dry fodder:** *Jowar*, *Bajra*, Wheat, Paddy straw<br>**Concentrates** (grains, oil cakes, bran) and **Mineral supplements** | Fodder grown on farms<br>Feed from cooperatives<br>Silage |
| Goat | Open grazing (grasses, weeds) | Stalled, semi-stalled, open grazing |
| Poultry birds | Food grain, (maize, wheat), poultry feed<br>**Protein:** Soya meal, fish meal<br>**Kitchen waste and grains** from home | |

## Activity 3: Participation in vaccination or health check-up drives for animals

Vaccination is vital to protect humans against infectious diseases and to prevent the spread of contagious diseases among them. Similarly, livestock also need regular vaccination to avoid infection from bacterial and viral diseases.

Every year, vaccination drives are organised by the Department of Animal Husbandry and Dairying (DAHD), under the Ministry of Fisheries, Animal Husbandry and Dairying (Figure 2.7).

**Figure 2.7:** *Animal vaccination drive in the community*

Participating in a farm animal vaccination drive and interaction with the veterinary doctor in your locality will help you better understand the need for animal vaccination. If a veterinary clinic is not easily accessible, visit a farmer, a *gaushala*, or a *tabela* nearby to understand the importance of immunisation.

On the basis of your discussion and observations, answer the following questions:

1. List the common infectious diseases that affect livestock.

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2. List three major difficulties farmers face while vaccinating their livestock.

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3. What are the other standard healthcare measures farmers take to protect their animals besides vaccination?

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4. Are there any beliefs associated with vaccinating livestock among farmers (for example, there is a belief that milk or meat becomes poisonous after vaccination)? Try to find out the reasons behind these beliefs. Ask the veterinary practitioner about them.

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5. Are there any homemade medicines or home-based remedies for livestock reared by farmers or animal owners in your locality? List any three with their uses.

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6. What medical facilities are available for animals in the area? (For example, a veterinary clinic with a residential doctor, or visiting doctor, and medical shops.)

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7. Record the yearly vaccination schedule for the livestock in Table 2.4 (one example is given).

**Table 2.4: Annual vaccination schedule**

| Name of the disease | Associated farm animal | Vaccination schedule | Remarks |
|---|---|---|---|
| Foot and Mouth Disease (FMD) | Cattle, buffalo, sheep, goat and pigs | Every six months (for animals aged 4 years and above) | Available free of cost in the animal healthcare centre |
| | | | |
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## What do I have to do?

You have learnt about important farm animals in your locality, their breeds and healthcare requirements, like housing, food and vaccination. Next, you will learn to record important body health parameters of livestock and calculate their weight to determine their feeding requirements. You will also prepare healthy feed for cattle or goats, and homemade remedies for common ailments.

You can work in a group of 5–6 students. Each group will identify a farmer or animal owner near the school to support these activities. You can take the help of veterinary professionals.

### Activity 4: Preparing a health record of the selected animal

Understanding primary health parameters is very important. For example, when you visit a doctor for any illness, they do a wellness check up first with routine tests, like body temperature, pulse rate, wetness of eyes, abdominal condition or food digestion. Humans can talk and express their feelings clearly, but animals cannot express themselves. Thus, a responsible farmer or animal owner assesses their vital body parameters from time to time, and maintains a record.

In this activity, you will learn to record important health parameters of selected livestock. Select at least two animals for this activity. You need to work in a group of 5–6 students. You can visit a nearby farmer/animal owner or ask them to visit your school with their animal(s).

The following should be considered while selecting the animal(s):

1. It is better to choose small and friendly animals that are easy to handle, such as a goat or sheep, instead of a bullock, buffalo or cow. Do remember that bucks/bully goats or male goats are more aggressive than females.
2. **Ensure that the teacher/farmer/animal owner or a veterinary professional is present before approaching the animal.**
3. Stand at a distance from the animal, and take care not to stand behind the animal.
4. You will do a visual observation and check the respiration rate.

**Visual Observations of the Animal**

Visual observations will help you assess the health of the animal without any medical tests. Observe the following:

1. **Eyes:** Should be bright, moist and clean.
2. **Nostrils:** Should be clean, wet and without any discharge.
3. **Skin:** Should be glossy, clean and free from parasites (e.g., tick, mite, lice, etc.).
4. **Behaviour:** Should be alert, inquisitive, and interested in its surroundings.
5. **Appetite:** Should have a good appetite and no signs of diarrhoea.

**Checking Respiration Rate**

1. Respiration rate is recorded with visual observation. You will need to identify the flank region of the animal (Figure 2.8). This is the area of flesh on either side of the body, between the rear leg and the last rib.

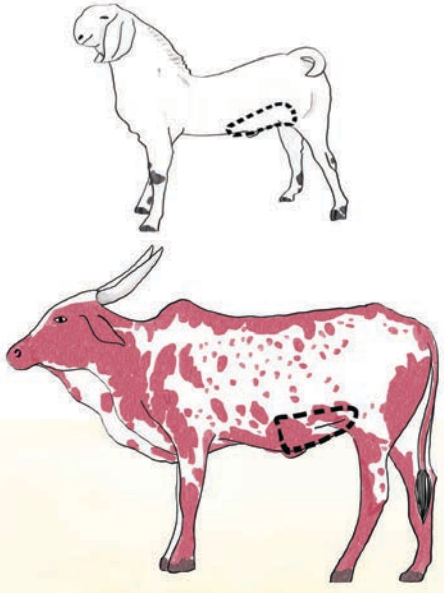

**Figure 2.8:** *Flank region of a goat and a cow*

2. Count the number of either falls or rises of the flank region in one minute using a stopwatch. Never count both rises and falls of the flank for respiration rate.
3. Normal respiration of a cattle is about 25 to 50 breaths per minute, and that of a goats is about 12 to 25 breaths per minute.

Record the observations in Table 2.5.

**Did you know?**

All animals (farm, pet and wild) are protected in India under the Cruelty to Animals Act (1960). The Act gives rights to all animals for prevention and protection from cruelty, unnecessary pain, overwork, torture and abuse.

**Recording the body temperature *(measurement to be done by a veterinary professional)***

1. A digital thermometer is used to record the body temperature of animals. Ensure it is set to the minimum level (zero digit).
2. The thermometer is inserted carefully into the rectum so that its bulb comes in contact with the animal's mucous membrane.
3. The thermometer is kept in this position for one minute.
4. Then, the thermometer is removed from the rectum, cleaned with cotton and antiseptic, and the temperature reading is noted.
5. Record your observations in Table 2.5 (minimum 2 animals per group). Also, ask the expert for the normal range of body temperature and respiration for the animal selected, and record it.
6. How do respiration rate and body temperature relate to animal health? Explain it in relation to your own health.

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**Table 2.5: Recording health parameters**

| S. No. | Animal details (name, species, breed, age) | Visual observations (eyes, nostrils, skin) | Body temperature | Respiration (rate/minute) |
|---|---|---|---|---|
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |

## Activity 5: Estimating the weight of farm animals

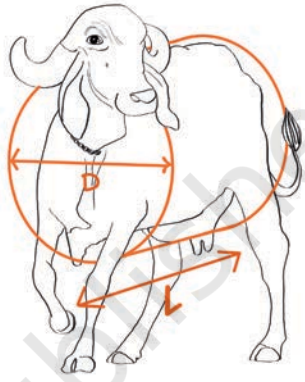


**Figure 2.9:** *Taking body measurements of large farm animals to estimate weight*

Body weight is a significant health indicator for livestock, just like humans. It affects feed requirements, disease treatment, production levels (milk, eggs, and weight gain), and selling price. You can use a regular weighing scale for small animals, like poultry, whereas a suitable scale may not always be available for larger animals, like cattle, goats, camels, and horses. To solve this problem, you can estimate their body weight by measuring their dimensions.

You already know the connection between volume, density, and weight. Using these, you can calculate weight with a simple formula:

**Weight = Volume × Density**

This simple equation is the basis for calculating of the weight of a farm animal. You will need to take body measurements of the farm animal (Figures 2.9 and 2.10). Now follow the steps given below to calculate the weight of an animal using the formula:

1. Select a small and friendly animal which is easy to handle,

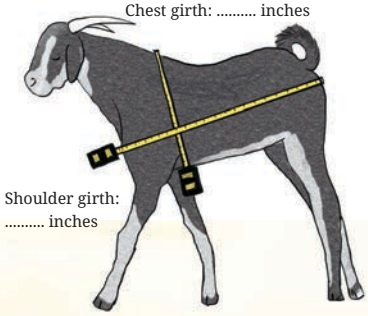


**Figure 2.10:** *Taking the body measurements of a goat*

such as goat and sheep. You can also take measurements of a larger animal which is gentle and calm.

- Length and girth should be measured in inches (1 inch = 2.54 cm), and body weight in kilograms.
- The dividing factor (i.e., 600 or 300) is used as a constant factor.
- This formula is known as *Schaeffle's Formula* of body weight estimation.
- Since the animal does not stand directly on the weighing scale (or balance), this is an indirect estimation of body weight. This estimation can have a 10 to 15% error due to variations in body measurements.

2. Take the help of a farmer/animal owner or veterinary professional before approaching the animal. Note your observations in Table 2.6.

**Table 2.6: Body measurement of animal**

| S. No. | Animal | Length measurement (inches) | Girth measurement (inches) |
|---|---|---|---|
| 1. | | | |
| 2. | | | |

After taking body measurements, calculate body weight using the following formula:

1. Live body weight for goat = Length × Girth$^2$/600
2. Live body weight for cow/buffalo
   = Length × Girth$^2$/330

Record your calculations in Table 2.7.

**Table 2.7: Record of weight of animals using body measurement**

| S. No. | Animal | Length (inches) | Girth (inches) | Estimated weight (kilograms) |
|---|---|---|---|---|
| | | | | |
| | | | | |

Are there any other methods farmers or animal owners use for weight estimation? Do they feel this is an important activity in animal care? If not, ask them the reason.

## Activity 6: Preparing a feeding chart

Like humans, livestock also need carbohydrates, protein, fat, minerals, and vitamins for their growth and productivity. A proper feeding schedule and providing quality feed are important for the health of animals. The feed requirement of an animal depends on the type of digestive system (ruminant versus non-ruminant), feeding habits, and productivity.

Ruminant livestock (cow, buffalo, goat, sheep) have four chambers in the stomach. Ruminants can digest low-quality grass compared to non-ruminant (horses, pigs, poultry) animals. Cattle and buffalo prefer grass as feed, while goats and camels prefer tender leaves from shrubs and weeds.

Feed requirement is determined by weight and Dry Matter (DM) requirement. You have already estimated the weight of two animals. DM is simply the non-water portion of animal feed. Generally, DM equal to 2–3 per cent of the animal's live body weight is required by an adult animal everyday.

The feed requirement of animals is directly related to their weight (Table 2.8). In an earlier activity, you had estimated the weight of two animals.

**Table 2.8: Feed requirements of goat**

| Weight of the animal | DM = 3% of the weight of the animal | Concentrate feed = 25% of DM | Total fodder (Wet+dry) = 75% of DM | Dry fodder = 25% of total fodder | Green fodder = 75% of the total fodder | Actual green fodder requirement |
|---|---|---|---|---|---|---|
| 32 kg goat, i.e., 32000 g | 32000 g × 3% = 960 g/day | 960 × 25% =240 g | 720 g | 720 × 25% =180 g | 720 × 75% = 540 g | 540 × 5 = 2735 g |

Let us assume one of the animals was a goat weighing 32 kg.

- It will need 3% DM per day, that is 960 g per day.
- To ensure the goat's health, 25% of the total DM should be from protein-rich concentrate and 75% from green and dry fodder.

- Fodder can be divided into dry fodder (25%) and green fodder (75%).
- Green fodder has 80% water content. So, the quantity in Table 2.8 is increased by 5 times. Otherwise, the goat feels hungry just like you feel hungry after having only fruit juice or rice in your meal.

Therefore, the total DM requirement and feeding options will be as illustrated in Table 2.8.

- The feed should be given to the goat 2–3 times daily in equal quantities. For example, at dawn, midday, and early evening.

Following this example, calculate the feeding requirement of your selected animals. The first step is to estimate the weight, then the DM requirements, and then different feeds, such as concentrate, green and dry fodder.

### Using a Mobile Application for Animal Feed Calculation

You can also use mobile applications designed to calculate the feeding requirements of farm animals. The Indian Council of Agriculture Research (ICAR) has developed a 'feeding chart' mobile application for milking cows and buffaloes in collaboration with the National Institute of Animal Nutrition and Physiology (NIANP).

Similarly, the Central Institute for Research on Goat (CIRG) has developed a mobile application for goat farming.

Prepare a feeding chart for at least two animals using Table 2.9. Compare the actual feed given by the animal owner versus your calculated feeding need (Table 2.9).

**Table 2.9: Feeding chart for animals**

| Particulars | Weight of the animal | Given DM % | Concentrate feed | Dry fodder | Green fodder | Actual green fodder requirement. |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |

## Activity 7: Feed formulation – Making silage and cost calculation

Silage is the preserved feed for ruminant animals, like cows, goat, and sheep. It is prepared from green fodder to maintain it without losing its nutritional value. The word silage is derived from 'silo' meaning a pit or container with stored food.

You will learn to make silage from green fodder, with controlled fermentation in an anaerobic (without oxygen) environment.

### Science of Silage Making

For example, we make a pickle from mango or any other fruit or vegetable; silage is a pickle of green fodder for ruminants. You are using a naturally controlled fermentation process for silage making. It is like making pickles of cucumber or curd from milk. In this process, sugar content in green fodder gets converted into lactic acid by the action of 'fermentative lactic acid bacteria'. These bacteria grow in anaerobic conditions. Due to bacterial growth, the temperature of the silage increases during the initial 2 to 8 days and acidity increases due to lactic acid (pH decreases up to 4.0 to 3.8) in 15 to 20 days.

You can make silage from green fodder by following the steps in Figure 2.11:

Collect approximately 30–50 kg of green fodder (any green fodder, like maize, sugarcane leaves, Napier grass can be used for silage).

**Step 1:** Chop it using a fodder chopping machine to 2–3 cm. You can collect chopped fodder from a farmer/animal owner or do this activity directly in the fields.

Chopping of fodder is essential so that we can compact it in a silage bag. If silage bags are unavailable, use any polyethene or High-Density Polyethene (HDPE) bag or container.

Compacting or pressing chopped fodder in the bag removes air (oxygen).

**Step 2:** Fill the chopped fodder into the silage bag while pressing it firmly with your foot.

**Step 3:** Tie the upper end of the bag firmly with a thread. You can also seal it using adhesive tape to minimise air entry.

The silage-making process gets completed in 2–3 weeks. During this process, do not open the bag. After 2–3 weeks, when you open the bag, the silage should have:

- No fungal or mould growth
- Golden brown colour
- Pleasant fruity aroma
- Free-flowing and non-sticky texture
- Mildly acidic taste with an optimum pH of around 4.0–4.5 (add 25 g of silage to 100 mL of water; check pH after 15 minutes).

**Figure 2.11:** *Making silage from green fodder*

Once the silage is ready, you can use it to feed a goat, sheep (1 to 1.5 kg per day), and a cow, buffalo (10 to 15 kg per day) after taking the approval of the farmer/animal owner. **Do not feed the animal without permission.** If you observe mould of white or black colour, or observe a bad smell, throw away this silage and do not feed it to the animal. It will lead to food poisoning, serious illness and even death of the animal.

Silage bag (polyethylene bag) acts as an air-tight container. It does not allow air (containing oxygen) to enter the silage so that anaerobic bacteria grow and form an acidic condition for preservation. Cement tanks or stainless-steel containers are also used for large-scale silage making.

On the basis of the activity and interaction with farmers/ animal owners, respond to the following:

1. Have you seen storage spaces for green fodder in farms or animal shelters? How do farmers/animal owners store green fodder? Do they use fresh fodder everyday?

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2. How is the fodder requirement calculated? Is there any wastage of fodder? Approximately how much green fodder gets wasted daily? What are the reasons for wastage?

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3. What are the key challenges in gathering green fodder, silage bags, and chopping? Do farmers/animal owners think silage is useful in overcoming these challenges?

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4. What were the key difficulties you faced while making silage? What, in your opinion, would you do differently next time?

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## Activity 8: Feed formulation – Making a healthy dry fodder mixture

Like green fodder, dry fodder is also an essential feed for livestock. Dry fodder provides the necessary Dry Matter for fulfilling appetite, helps in the better functioning of the digestive system and provides critical minerals to animals.

The digestibility of dry fodder can be increased by adding a mineral mixture (which can be collected from a local veterinary clinic) and jaggery. This is a simple yet effective treatment for improving the palatability and digestibility of dry fodder, especially during harsh summer or dry season.

You can do this activity directly in a farmer's field or ask farmers/animal owners to help you do the activity in school. You can help them get dry fodder at school.

You can treat dry fodder by following the steps shown in Figure 2.12.

**Step 1:** Collect chopped dry fodder (5 to 10 kg). It can be rice, wheat, *jawar*, hilly grass straw, or any legume crop stubble that farmers usually burn in the fields after crop harvest.

**Step 2:** Add 3% jaggery (300 g for 10 kg fodder) and common salt 1% (100 g for 10 kg fodder) in 5 L of water. If jaggery is unavailable, you can use the waste flour of wheat, rice, *jawar*, etc. You can also add 100 g of mineral mixture (optional).

**Step 3:** Spread the chopped fodder on the floor and sprinkle the jaggery-salt-mineral mix with your hands. Ensure the mineral mixture is spread equally and sticks to the chopped fodder.

**Step 4:** Make a heap of fodder and then fill in the polyethylene bag as before, or press the fodder towards the corner of the wall and cover it with a polythene sheet.

After 2–3 hours, the treated feed is ready.

**Figure 2.12:** *Preparing dry fodder mixture*

On the basis of the activity and interaction with farmers/ animal owners, respond to the following:

1. How do farmers/animal owners store dry fodder? Do they chop dry fodder before feeding it to the animals? If not, why?

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2. Do you see any advantages of chopping dry or green fodder? Explain your response.

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3. What were the key difficulties you faced while making dry fodder? What, in your opinion, would you do differently next time?

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## Activity 9: Offering feed to animals and observing their response

You have prepared silage and treated dry fodder to increase its palatability. Just like us, livestock are also sometimes choosy about

their food. See if your selected animal likes the feed you prepared by offering it to them. **While feeding the animal, ensure that the owner is close by**.

1. Open the silage bag and check the quality (free from mould and not smelling bad). **Ask the farmer/animal owner to confirm your assessment of the quality of the fodder.**
2. Take a handful and place it in front of the animal.
3. Observe if the animal appears to like it and is ready to eat.
4. Follow the same process with dry fodder treated with jaggery and salt.
5. Note your observations.

On the basis of the activity, respond to the following questions:

1. Does the animal accept the silage and treated dry fodder? If yes, do you think it was consuming it happily or just finishing it because it was hungry? If the animal is not accepting the feed, ask the farmer/animal owner for the probable reason.

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2. What was the farmer/animal owner's reaction or feedback on the fodder you prepared? Does the farmer/animal owner find it useful? If not, what are the reasons?

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## Activity 10: Preparing home remedies for livestock

You have learnt about vaccination and some common diseases of farm animals during your visit to the vaccination centre or a veterinary professional guidance session. You may have also noticed the farmer/animal owner using home remedies and *Ayurvedic* medicines to treat common illnesses.

For example, one of the common challenges with livestock is infection due to ticks and other external parasites (ectoparasites).

Ticks feed on animal blood and also spread diseases. Farmers/ animal owners use local herbs, like *neem*, lantana leaves and turmeric to prevent parasites.

### Did you know?

Different geographical regions in India have unique shepherd communities. For example, *Brokpas* in Ladakh and some parts of Arunachal Pradesh herd mostly yak and sheep. *Raika/Rabari* in Rajasthan, *Fakirani Jats* in Haryana and *Maldharis* in Gujarat mainly herd camels and sheep. *Dhangar* in Maharashtra and *Kurubas* in Karnataka are known for sheep rearing. By tradition, these nomadic communities rear different livestock and often travel with them for food and shelter.

If a local herder community is in your locality, ask them about their lifestyle and love for their animals. Also, ask them about challenges they face, including those related to the health of their animals, and how they overcome them.

Another common health problem in cows and goats is indigestion.

Farmers sometimes use 10 betel leaves (*paan*), 20 g ginger, 10 g pepper, 10 g garlic, and 50 g rock salt for home-based treatment of indigestion in cows. All these ingredients are pounded and mixed in lukewarm water. The remedy can be given every 6 hours for large animals (body weight 200 kg and above).

Ask farmers/animal owners in your vicinity about typical home-based remedies they use. You can also ask elders in your locality about common home remedies for cows, goats, and other animals.

Note your observations in Table 2.10.

**Table 2.10: Preparation of home diseases**

| Symptoms/ Disease | Ingredients used in the home remedy | Preparation method | How to use? |
|---|---|---|---|
| | | | |
| | | | |

### Using Mobile Application to Identify Pests and Diseases

You can also use mobile applications designed to identify diseases among livestock.

The Indian Council of Agriculture Research (ICAR) has developed apps to give early warnings of outbreaks of livestock diseases and to identify early signs of disease, among others.

You can prepare some of the home remedies, suggested by the farmer/animal owner/elder, and gift them to a person who needs or asks for them. Do remember to inform them of the exact ingredients and precise measures to be used.

On the basis of the activity, respond to the following questions:

1. Design a first-aid medical box for livestock. List the materials you will add to the box, with ingredients and precise measures.

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2. Do you use similar home remedies at home? List a few examples.

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## What did I learn from others?

1. What did you learn from farmers/animal owners and friends while doing the project?

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   .....

2. Name any three skill that you have learnt while working with the experts.

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## What did I do and how long did it take?

It is essential to understand how much time is required for an activity to be completed.

Calculate the approximate number of hours you spent on each activity. Mark them on the timeline below. If you did more than the activities suggested in the book, please add the number and time taken.

| ***Activity*** | ***1*** | ***2*** | ***3*** | ***4*** | ***5*** | ***6*** | ***7*** | ***8*** | ***9*** | ***10*** |
|---|---|---|---|---|---|---|---|---|---|---|
| ***Time taken (Periods)*** | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

## What else can I do?

You can try the following things to expand your learning:

1. You can prepare a daily feeding chart for selected farm animals in your locality and check if it benefits the farmer/ animal owner.
2. You can make a small video presentation, a reel or a slide presentation on traditional folk songs, poems and stories on animal–human relationships. Try incorporating local stories and heart-touching moments from farmers/ animal owners in your presentation.

## Think and Answer

1. What were the challenges you faced?
2. What will you do differently next time?
3. In your opinion do we provide proper care and health treatments to our farm animals? Do we have appropriate technologies and infrastructure (veterinary clinic, hospitals) to care for farm animals?
4. How has the role of farm animals changed with changes in human society (for example, the use of farm machinery, reduced animal-based transport requirements)?
5. Identify a few examples of jobs related to the work you just did, for example, a veterinarian, scientist, herder, or farmer. Look around, speak to people and write your answer.