Animal production Level III

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Module Title: Coordinating Livestock Fattening Operation

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East Africa Skills for Transformation and Regional Integration Project (EASTRIP)

Table of Contents

LG #56-LO #1 – Select livestock for Fattening

Instruction Sheet-Learning Guide # 56

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics –

- Identifying and clarifying criteria for livestock selection.
- Decide the length of fattening period.
- Applying identification devices safely and humanely.
- Recognizing existing and potential hazards
- Consulting organizational plans and management.
- Preparing and maintaining all record

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 –

- Identify and clarifying criteria for livestock selection.
- Decide the length of fattening period.
- Apply identification devices safely and humanely.
- Recognize existing and potential hazards
- Consult organizational plans and management.
- Prepare and maintaining all record

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 7.
3. Read the information written in the information "Sheet "
4. Accomplish the "Self-check 1, Self-check 2, Self-check 3, Self-check 4, and Self-check 5"
5. If you earned a satisfactory evaluation from the "Self-check" proceed to "Operation Sheet 1".
6. Do the "LAP test" (if you are ready).
7. Then processed to the next learning guide

Information sheet 1 - Identifying and clarifying criteria for livestock selection

1.1. Terminologies

Fattening:-The act of making something fatter

Coordinate:-Bring the contribution of people together to form efficient

Livestock:-Animal raised for food/use

Operations:-The act of making something carries out its function

Beef:-Meat form Cattle

Mutton: Meat from a sheep older than one year

Pork:-Meat from Swine

Lamb: -Meat from Sheep, smaller

Chicken:-Meat from Poultry

Turkey: Meat from Turkey

Venison:- Meat from Deer

Duck:- Meat from Duck

Bison:-Meat from Buffalo

Rabbit:-Meat from Rabbit

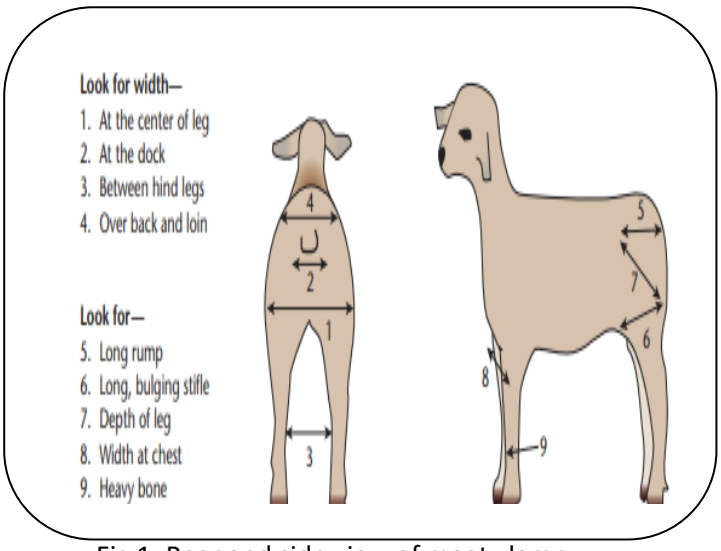


Fig 1. Rear and side view of meaty lamp

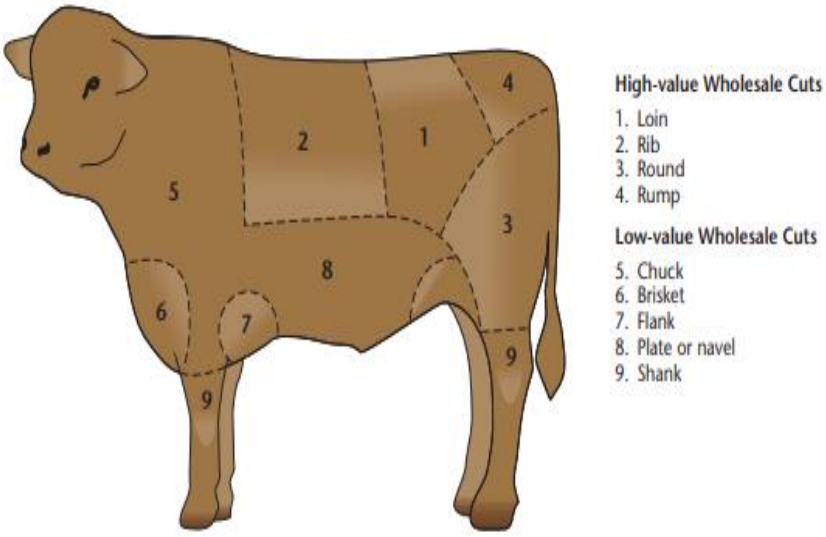


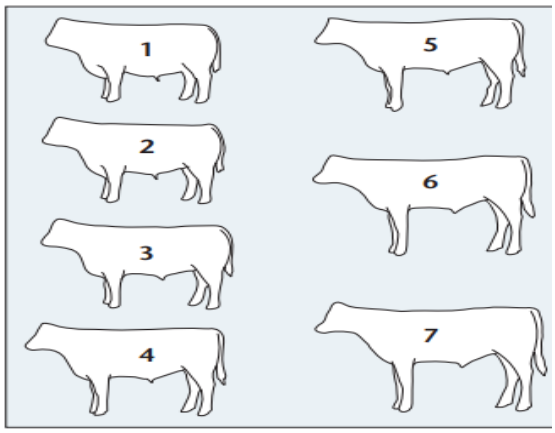
Fig 2. Location cuts of beef

1.2. Identifying and clarifying criteria for livestock selection

1.2.1. General Considerations for selection of Livestock

It is a valuable skill to select the types of livestock which are potentially good to increase weight and condition after fattening. Some important guidelines for livestock selection are;

- Select animals in grade 3-4 condition.
- The animals should be of large skeletal frame
- known to have good growth characteristics
- Animals should be docile and easy to handle
- Too old animals should not be purchased



These scores use a scale of 1 to 7, as follows:

1. An exceptionally thin calf
2. Very light muscled
3. Light muscled
4. Average muscled
5. Heavy muscled
6. Very heavy muscled
7. Double muscled

Fig 3. Grading

1.2.2. Selecting livestock for Fattening

1. **Breed-**:-Improved breeds gain weight faster with less feed than native animals.
2. **Fertility:**High level of fertility, or reproductive perform is fundamental to an efficie nt beef cattle
3. **Age**:-Young animals have striking advantages over older cattle. They need less feed for every unit gain in weight because they can masticate and ruminate thoroughly and can consume more feed in proportion to their body weight. Their increase in weight is due partly to the growth of muscles and vital organs. In older cattle the increase is largely due to fat deposits.
4. **Disposition**:-An active yet mild, quiet, and easily-handled steer usually grows fast and fattens easily. Restless, nervous and erratic cattle waste too much energy when they panic even at the slightest provocation.
5. **Constitution and Vigor:-**These are determined by the size and quality of the vital organs. A large feeding capacity, strong appetite, a large heart girth, well-sprung ribs and a wide, deep and full chest show good constitution and vigor.
6. **Sex:-**In general, more steers than heifers are available for fattening because some heifers must be retained as herd replacements. If fed for the same period of time, steers gain about 10% faster than heifers and require 10 to 15% less feeds with equal weight gain. On the other hand, young bulls have 20% greater

gain in live weight and require 22% less feed to produce a leaner carcass which is nearly of the same quality as that of steers.

7. **Health Considerations:-**A healthy animal is active, has a soft and smooth hair coat, bright eyes and moist muzzle. Special attention should be given to unsoundness and defects in conformation when selecting feeders.
8. **Temperament** is the way in which an individual animal reacts to an unfamiliar or challenging situation. Temperament of an individual animal is a result of both its inherent temperament and its environment, including handling and training.
9. **General appearance and condition**:-electing thinner animal is most economical than selecting animal that have good body condition because they have high compensation capacity. Target animals with medium body condition Body condition scores of 2.25-3.0.
10. **Growth rate:-**A beef carcass comprises muscle, fat and bone. At birth, there is very little fat in a carcass and initial development is mainly bone and muscle growth. As the animal matures and gains mass, a stage is reached when fat deposition accelerates.

1.2.3. Production and marketing information

Supply is defined as the amount of a product that producers will offer for sale at a given price at a given time. As prices increase, producers are willing to offer more of the product for sale. As prices go down, less of the product will be offered for sale.

Demand is defined as the amount of a product that buyers will purchase at a given time for a given price. As prices go up, there is less demand for a product. As prices go down, there tends to be more demand for a product. The combined effects of supply and demand govern the market price of beef cattle. Producers have little effect on the demand for beef; however, their decision to sell or not to sell beef affects the supply. Since cattle raising and feeding is a long-term project, the real influence on supply is made long before the cattle go to market. Management decisions to raise more cattle or fewer cattle eventually affect the price of cattle on the market. Price patterns for fattened livestock is vary by season and year.

Table 1. Description of Live Cattle Condition Grades Used In Ethiopia

Grade	Backbone	Hipbone	Ribs	Tail head	outline
1 Fat	Npvosobl	Not visible	Not visible	Si. Bumpy	Rounded
2 Medium	Not visible	Visible Faintly	Not visible	Recessed slightly	Almost smooth
3 Lean	Visible faintly	Visible	Visible faintly	Recessed Slightly	Undualating
4 Very lean	Visible	Prominent	Clearly visible	Recessed	Irregular

Fig 4. World class Beef (Angus and Brahman)

Fig 5. Ethiopia Boron Breed

Fig 6. Local (Horro Sheep)

Fig 7. Local (Arsi-Bale Goat)

Self-check 1- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What is the difference between Beef and fattening?(3pts)
2. List the selection criteria fro livestock fattening (4pts)
3. What are the importance of scoring of beef?(3pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 2 - Decide the length of fattening period

2.1. Introduction

Usually animal that are fed grain or concentrates for less than 120 days are called “Short-fed cattle” ordinarily, less that 25 bushels of corn or similar concentrate are fed per head to such cattle; If cattle are fed finishing rations for 8 to 10 months they are called” Long-fed cattle” they have consumed 75 bushels or more of corn or similar feeds per head. Any feedings that are between these limits is regarded as a medium feeding period.

2.2. Age and duration of cattle fattening

Preferred age of cattle for fattening is 2 to 3 years old**.** Steers (castrated males) are chosen than heifers due to their inherent capacity to gain weight, grow faster and easier to manage. Disposition- An active yet mild, quiet and easily handled steer generally grow fast and fattens easily.

Beef finishing systems are generally classified into three different categories, intensive (12-15 month finishing time), semi-intensive (15-20 months) and extensive (more than 20 months). Intensive systems are more reliant on concentrates whilst extensive systems are usually more based on forage and grass

Self-check 2- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What is the preferable age of cattle for fattening?(3pts)
2. Explain long-fed cattle in finishing (4pts)

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

Note: **Satisfactory rating - 7 points** **Unsatisfactory - below 7 points**

Information sheet 3 - Applying identification devices safely and humanely

3.1. Introduction

Keeping individual records on dairy cows requires a system of permanent identification. Calves need to be permanently identified shortly after birth.

Importance of identification:-

- For managing : health, feeding, breeding and selection program
- To obtain performance records
- For evaluating productivity & economics
- To indicate ownership especially in pastoral area

3.2. Applying identification devices safely and humanely

The most common method of identification

ig 8 .Ear Tag

1. **Ear tag**

- Most common and placed in the middle of the ear
- Can be metal or plastic ear tag
- Has a variety of size and color
- Should be easily visible and easy to install with applicator gun

2. Tattoos

- Permanent mark using number or letter using indelible ink
- The ink is rubbed into the wound after the number has been punctured
- Not visible from distance (negative side)

3. Ear notching

- Cutting the ears in a particular shape and coding the shape.
- It involves the use of razor or scissors to cut a “V” shape on the tip of the pina

4. Branding

- The placing of permanent identifying marks on the hide of an animal
- It is by destroying the hair follicles and altering hair re-growth
- Destroying hide pigmentation cells without damage to the hair follicle
- Done by heating the branding iron or cooling the iron in liquid nitrogen
- Its success depends on :-age, hide color& branding site
- Most common branding location are :- horn, hip, rib & shoulder
- Can create hide damage (negative side)

.

Self-check 3- Written test

Name…… ID…… Date…….

Directions: Choose the best one from the given alternative.

1. One is destroy hide and skin of animal.
   A. Ear tag
   B. Tattoos
   C. Banding
   D. Ear notching
2. In intensive production system which one is mostly not applicable in identification
   A. Ear tag
   B. Color
   C. Tattoos
   D. Ear notching

.

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

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

Information sheet 4- Recognizing existing and potential hazards

4.1. Introduction

The health and safety of operators are always important considerations when handling cattle, but especially when branding, castrating and dehorning as there is close contact with the animals. A risk assessment should be part of initial planning, and measures taken to reduce risks. All staff should be adequately trained in the irrespective tasks. Hazards may occur in beef selection; Livestock movement and handling, solar radiation, organic and other dusts, excessive noise, moving machinery and vehicles.

4.2. Recognizing existing and potential hazards

During achieving Any activities the workers should apply the following safety rules:

- handling livestock including control zonoses
- operating handling equipment
- hazard and risk control
- manual handling
- handling, application and storage of hazardous substances
- outdoor work including protection from solar radiation, dust and noise
- the appropriate use and maintenance of personal protective equipment

Self-check 4 Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What are potential hazards in fattening farm? (3pts)
2. List the methods of manure handling (3pts)

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

Note: **Satisfactory rating - 6 points** **Unsatisfactory - below 6 points**

Information sheet 5 - Consulting organizational plans and management

5.1. Introduction

Running a farm is a complex business, where every decision of the farm owner make a major impact on the future success. Consultant offers expert farm consulting services help to manage risks and achieve the greatest success in fattening farm business. The consultant offer to clients a comprehensive farm business analysis and advice, covering all relevant aspects from pastures, crops and livestock to finance, labour and technology. The consultant manage the farm business, the farm will benefit from the intensive knowledge and experience of the consultant.

There are three major functions of management performs throughout the business year: planning, implementation and control. The planning function involves defining issues and collecting data, and also relates to planning for operations, strategic planning or both. Once the issues have been defined and data collected, the data is then analyzed and various options are identified. With the assistance of the internal management team and consultants, the manager selects the best alternative(s).

5.2. Consulting organizational plans and management

5.2.1. Consulting

The consultant covers a wide range of services, some of them are:

- Advice on proper farm plan
- Financial management; a review of all the business finances and budget preparation
- Enterprise analysis; analyzing the profitability of the farm
- Conducting audits; audit farm performance against industry standards
- Benchmarking against competitors; a personalized assessment of where you are benchmarked in your region
- Lease and purchase recommendations; a thorough analysis of lease and purchase options as they arise
- Preparing reports; mid-year and end of season reports and as require

5..2.2. Farm Management

- The functions of management are ongoing throughout the year. Planning is a continual process. Implementation plans are always being evaluated based on the current economy. Adjustments to the original plan(s) are common due to information received from the MIS. New tracking systems are being introduced monthly. Successful managers are "functioning" continuously.

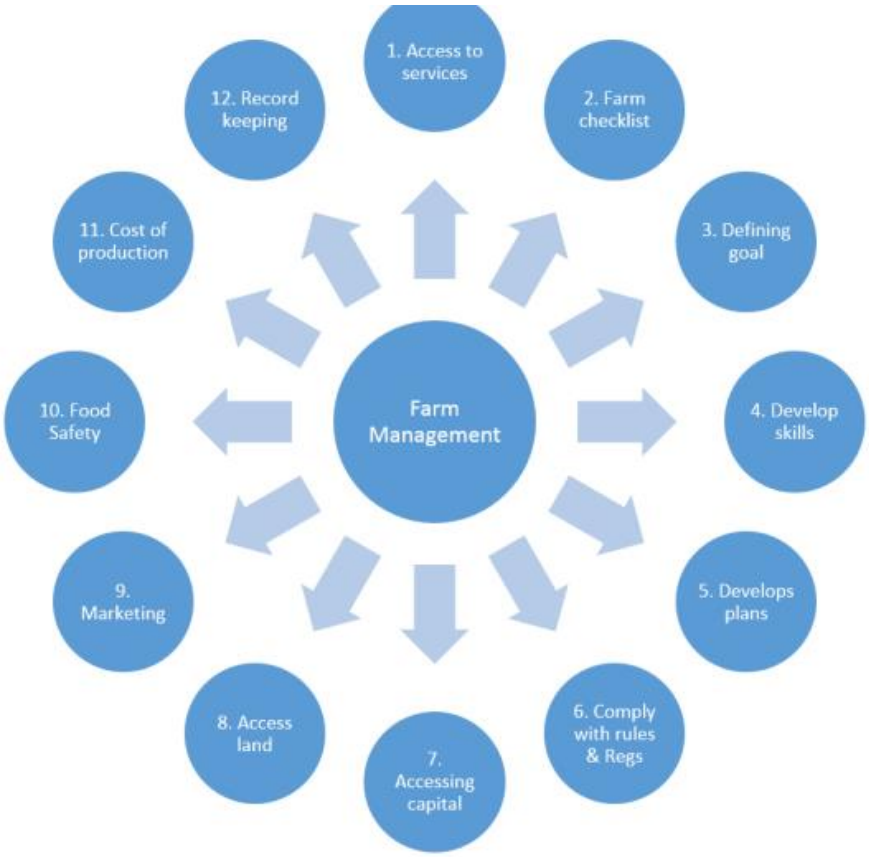


Fig 9. The 12 tools of farm management

The farm owner performs the following basic functions to effectively manage the farm:

1. **Diagnosis:** Analysis of past performance of farm, for both its weaknesses and strengths.
2. **Planning**: Planning for future crops and animals considering the opportunities and threats.
3. **Implementation:** Efficient implementation with least cost.
4. **Monitoring:** Reduce the losses and increase the profits by reducing the costs and choosing better technologies based on the observed opportunities.
5. **Evaluation:** Evaluating the actions for repeating the success in future.

5.2.3. Fattening work program management

The commercial Beef cattle production program has generally three parts namely cow- calf program, the stocker program and finishing program

5.3. Managing the cow- calf program

A cow-calf operation is a method of raising beef cattle in which a permanent herd of cows is kept by a farmer or rancher to produce calves for later sale.

Advantage of cow-calf program

- Beef cow can produce more pounds of valuable product (calve)
- Less risk of losing large amounts of money owing to rapidly declining prices.
- A beef cow herd is a very good stabilizer
- Utilize labor and equipment that may be already on the farm
- A cowherd can and usually does increase in value over the years by being graded up in quality through the use of good bulls and by growth in numbers.

5.4. The stocker program

A stocker operator is a type of beef cattle rearing operation in which weaned younger/lighter weight steer calves and weaned heifer calves that are not being kept as a future breeding cows are raised to about 12 to 16 months age.

The stocker program mainly concern about calves and yearlings that are not be finished immediately but are to be handled in such a way that maximum growth is achieved at the lowest possible feed cost. It is customary to refer to the animals on such programs as stockers, and they are considered being on the growing, rather than a finishing ration.

Advantage

- Returns come quickly, as early as 4 to 6 months
- If used in winter only, this program is finished by the time labor is needed for spring and summer farm work.
- With this program one can take advantage of a normally rising cattle market
- Stockers can utilize large quantities of harvested roughages and aftermath.
- The stocker program is quite flexible; adjustments in size are easily made.
- Death losses are lower than in the cow-calf program.
- Little equipment is required.

5.5. Finishing / Fattening program

Successful and profitable cattle finishing relies on appreciating the factors affecting profitability, good budgeting, risk management and achieving the targeted levels of physical performance

Advantages

- Because of its intensive nature, offer an opportunity to market at a profit of large quantities of both roughages and farm grown grains.
- Large profits are occasionally made with this program due to favorable price rises during the period of ownership of a drove of feeder cattle.
- A large volume of high fertility-value manure is produced in this program
- The program is flexible with respect to number, weight, and grade of cattle
- Death losses are relatively low

Fig 10. Cow-calf and stocker

Self-check 5- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What is consulting? (3pts)

2. Explain farm management (4pts)

3. What are the three fattening work program management? (3pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 6- Preparing and maintaining all records

6.1. Introduction

A farm record is a document that is used to keep account of different activities, events, materials etc. It is an essential in evaluating and improving the performance of a fattening operation and make improvements based on facts. Information about animals, inputs and prices are very useful management tools. Recording and administration on the farm are important but should be kept simple and effective. It should provide information on the farm's economic situation, production aspects and cash flow. Technical information, like amount of concentrates fed, gives important management information when combined with prices and costs. Records about fertility, calving interval and disease are the basis for management decisions.

6.2. Preparing and maintaining all records

Technical and economic records can be combined and provide both the farmer and the extension officer with the required information about the actual situation on the farm and possible developments. Some record Information are:

General Farm Information

- Farm name
- Owner, address, contact details
- Related Government Organizations
- Consultants, experts, vets

Every Calving:

- Birth Date
- Birth specifications, heavy, length, vet needed
- Udder and teat condition
- Calf condition
- Cow condition, BCS, eager, active, feed intake
- Placenta
- Length of pregnancy (+/-278 days)
- Calving interval (year)

Financial records

All activities on a farm are geared to raising an income for the farmer and his family. It is crucial to keep track of the money coming in and going out. So it is a simple system of income and expenditure will give much insight into the situation and will enable the farmer to make the right decisions.

Health records

Up to date written health records and field records are required for certification. Keeping records of all health problems and prevention practices can help to graduate from a crisis treatment pattern to good prevention management. Record keeping requirements include: - Health Records- condition of the sick animal and all treatments used.

Feed Records

The important feeding records are:

- Produced and available fodder on farm; quantity and quality of the different feeds.
- A feeding plan which tells how much feed is required per day per animal in different age
- Groups (grown-ups, newborn, pregnant the first time etc.) or per group of animals
- Left-over feed if any (per head and per feed, if possible)
- Spoilage (per batch)

Self Check 6-Written Test

Directions: Answer all the questions listed below.

1. Discuss the use of farm records? (3pts)

2. List general farm records? (5pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Operation Sheet 1-Identify Fattening Breed

Procedures for Identify Fattening Breed

Step1. Wear PPE

Step2. Prepare necessary Equipments

Step3. Go to the fattening farm

Step4. Identify breed type found in the farm

Step5: Classifies the breed in to exotic and indigenes

Operation Sheet 2-Selecting Fattening Animal

Procedures for Selecting Fattening Animal

Step1. Wear PPE

Step2. Prepare necessary Equipments

Step3: go to the nearby market

Step4 Approach all animal

Step5: Observe all of market situation

Step6 choose animals meet minimum requirement to beef production based on the criteria's

LAP Test -Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: you are required to perform the following tasks within 8hours.

Task1. Implement selection of livestock for fattening

Task2. Applying identification device safely

Task3. Identify potential hazards in the farm

Task4. Implement farm record keeping

LG #57-LO #2 - Carryout Fattening

Instruction Sheet-Learning Guide # 57

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Deciding systems of fattening
- Inspecting purchase livestock on delivery
- Planning weight gain condition of livestock
- Performing routine activities

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:

- Decide systems of fattening
- Inspect purchase livestock on delivery
- Plan weight gain condition of livestock
- Perform routine activities

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 7.
3. Read the information written in the information “Sheet “
4. Accomplish the “Self-check 1, Self-check 2, Self-check 3, Self-check 4, and Self-check 5”
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1”**.**
6. Do the “LAP test” (if you are ready).
7. Then processed to the next learning guide

Information sheet 1 - Deciding systems of fattening

1.1 Introduction

Fattening systems are classified based on the level of inputs used degree of specialization and location of the area of production.

1.2. Deciding systems of fattening

There are three major system of fattening systems:-

1. Extensive livestock fattening system

Characterized by less controlled production factors and is generally termed as traditional system of production.

Pastoralism

It is a system of traditional agriculture, which involves the movement of people with their animals from place to place in search of good (forage) and water for their animals. It is a system of low lands where shortage of rainfall is common.

Ranching

It is alternative and modern form of production as compared to pastoralism. It is an open air livestock rearing in fixed boundaries with land tenure ship (private ownership), relying on natural pasture with minimum use of manpower. Animals and their products are produced for sale or generate cash income.

Crop-livestock fattening

It is also subdivided in to cereal and perennial crop livestock production system of the highland area.

Cereal-crop livestock production

- Production of cereal crops are dominated in the area
- Cattle production is mainly for draft power to support the cereal crop production sand milk and meat production are as by- products (secondly-products).

Perennial crop-livestock production

- Production of perennial crops like Enset, Chat, Coffee and fruit crops are dominant in the area.
- Hoe- culture is dominant, so there is no high need of daft power, hence cattle production is mainly for meat and milk production
- Indoor and farm yard livestock production is more common with cut and carry system of feeding which results in better quality of meat production

2. Semi-intensive system of livestock fattening

This system is sometimes known as the transitional system of livestock fattening. Numerous demographic, economic and political changes initiated to adapt changes from traditional pastoral systems towards the transitional (the semi-intensive) system of production. Nowadays, this system is being developed especially in peri-urban areas, the semi sedentary or the agro pastoralist form of living that has recently evolved in some pastoralist communities gave way towards the application of this semi-intensive form of production.

The system is generally characterized by:

- The system is mostly observed around peri-urban areas, where the demographic and various economic conditions support the transition.
- Some external input is utilized in the form of supplementary feeding (especially hay) during feed shortage periods and provision of vet service to sick animals.
- Some amount of meat is sold to the nearby market.

3. The Intensive System of livestock fattening

The intensive way of livestock management for fattening purposes has recently been seen in different parts of the world. This new system has been given recognition as a separate form of livestock fattening. But this practice is limited to very few instances observed only in few countries around the world. Intensive fattening system is characterized by more controlled production factors like breeds, nutrition housing, health care and other management practices. Under this system fattening can be done with one of the two major methods as:

- Fattening animals out in the pasture and /or other forage crops throughout their whole life.
- Managing animals at some stage in their life under confinement in specially constricted buildings and other time with the pasture (before and after).
- Due to intensification of production factors the system can be termed as commercial fattening (modern).
- Intensive livestock fattening is not common in the tropics because the types and breeds of cattle do not respond to the intensive system especially to the level of feeding.
- Generally, Bostaurus breeds respond highly to the intensive system and Bonsidicus breeds respond highly for extensive system, so that suitability of system should depend up on the availability of resources and profitability from that system.

Self-check 1- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. List and explain the 3 fattening systems?(8pts)

2. Among the three system , which one is need high input (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 2 - Inspecting purchase livestock on delivery

2.1 Introduction

When **purchasing livestock** the most important thing to consider is health of the animal, then **look** at conformation (basic body structure).

Fig 11. Buying goat

2.2. Inspecting purchase livestock on delivery

Observation of Animal for Healthy Conditions and others

- It has good appetite
- Appears bright, alert and responsive when playing and climbing
- Stays with the flock
- Has smooth, clean and shiny coat.
- Has a clear eye with some pink color in the eyelids.
- Has an erect tail and a moist nose
- History of animal
- Body conformation
- Age
- Growth rate
- Teeth
- Deformity
- General color

The Animal Welfare Factors

The welfare rights of farm animals are very clearly enshrined in legislation and are administered by the Farm Animal Welfare Advisory Council). Essentially this means that any wanton mistreatment of any farmed animal is an offence.

The **welfare of animals** is normally expressed in the **five freedoms**.

- Freedom from hunger, malnutrition and thirst
- Freedom from discomfort
- Freedom from pain, injury and disease
- Freedom to express normal patterns of behavior
- Freedom from fear and distress

2.3. De-worming and vaccination

De-worming (sometimes known as worming, drenching) is the giving of an anthelmintic drug (a wormer, de-wormer or drench) to animal to rid them of helminths parasites, such as roundworm, flukes and tapeworm. Purge de-wormers for use in livestock can be formulated as a feed supplement that is eaten, a paste or gel that is deposited at the back of the animal's mouth, a liquid drench given orally, an injectable, or as a pour-on which can be applied to the animal's top line. In dogs and cats, purge de-wormers come in many forms including a granular form to be added to food, pill form, chew tablets, and liquid suspensions.

Vaccination

Vaccination is the administration of a vaccine to help the immune system develop protection from a disease. Vaccines contain a microorganism or virus in a weakened, live or killed state, or proteins or toxins from the organism. In stimulating the body's adaptive immunity, they help prevent sickness from an infectious disease. The owner ware of purchasing the animal de-wormed and vaccinated.

Self-check 2- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. Mention the advantage of checking healthy conditions of animal?(5pts)
2. List and discuss the 5 animal welfare factors (5pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 3- Planning weight gain condition of livestock

3.1 Introduction

Productivity and efficiency are core principles of running a profitable beef enterprise. To meet the objective focusing on main areas: calf management, housing, proper feeding, health care, etc,. Usually animal that is fed grain or concentrates for less than 120 days are called "Short-fed cattle" ordinarily, less that 25 bushels of corn or similar concentrate are fed per head to such cattle. If cattle are fed finishing rations for 8 to 10 months they are called" Long-fed cattle" they have consumed 75 bushels or more of corn or similar feeds per head. Any feedings that are between these limits is regarded as a medium feeding period.

3.2. Planning weight gain condition of livestock

Livestock owners often need to know the weight of their animals in order to determine proper feed rations, to administer the proper dosage of a medication, or to track how individual animals grow and use their feed.

The weight gain plan based the following point.

Fig 12. Heart girth weight measurement

1. Effect of age upon rate of gain:

The effect of age upon the daily gains made by cattle must be treated from two-stand point:-

- Its effect upon cattle that have been sufficiently well fed from birth to permit them to grow and fatten at the same time;
- Its effect upon cattle that are suddenly given a finishing ration after having been fed for some time on a ration that would produce only growth.

2. **Effect of age upon economy of gains;**

Young animals require less feed for each pound increase in body weight than do older cattle. So, calves may be fed profitably over a longer period than older cattle. Although the total investment in feed required to finish a calf is higher than for older steers, the cost of gain is less, making it more nearly possible to realize a profit from the feeding margin.

3. Effect of age upon length of feeding period:

If feeder steers of different ages are started on feed in approximately the same state of flesh or condition, the time required finishing each age of feeder to the same grade varies inversely with the age of the cattle. When cattle are finished for their grade they should be marketed as soon as possible

4. Effect of sex in cattle feeding

On the basis of sex differences, feeder cattle are classed as steers, cows, heifers, or bulls. Steers are of more important than the other three classes combined, and can be found in fairly large numbers throughout the entire year: Heifers are better suited for a short feed, the most attractive heifer carcasses are produced by animals weighing 700 to 900 pounds/315 to 405Kg, showing good condition and finish. Heifers in good condition at this weight are about 12 to 15 months old.

Self-check 3- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What is the relationship feed and body weight gain? (4pts)
2. Discuss the effects of sex in feeding (4pts)

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

Note: **Satisfactory rating – 8 points** **Unsatisfactory - below 8 points**

Information sheet 4- Performing routine activities

4.1 Introduction

The duties of a beef farmer may include feeding, administering medication, maintaining facilities, monitoring the herd for signs of illness, assisting with calving, performing artificial insemination, and managing waste.

4.2. Performing Routine Activities

1. Feeding

Daily feeding practice of fattening animal is the major production cost and hence profitability depends substantially on achieving the required level of performance on a ration of the lowest possible cost. And the nutrient requirements in fattening are varies according to production system, program raised, breed and sex.

2. Watering

Water is the most important nutrient in animal feeding and animal health. It is the most abundant ingredient of the animal body in all phases of growth and development. A calf's body contains 75-80% water at birth and about 55-65% water at maturity. Thus animals need continuous supply of daily watering for maximum efficiency. Daily water intake of animals is influenced by many factors such as breed and body size of the animal, ambient temperature, water temperature, humidity, feed supply and water content of the feed, salt and performance level.

3. Cleaning

Cleaning of solid manure, including bedding, per animal per day is another routine activities performed in farm. Liquids should be drained to a containment area. Use of straw to help build up a manure pack is economical and allows easier manure removal. Manure should be removed from pens and sheds as soon as field conditions daily allow for spreading.

Early cleanout of pens and sheds is a good management practice which:

- provides a healthier environment for animal remaining in confinement
- improves feed conversion and average daily gain
- keeps animal cleaner
- reduces fly populations

- reduces intensity of odours
- reduces volume of contaminated runoff to be contained

4. Recording

On farm records are essential in evaluating and improving the performance of a fattening operation and make improvements based on facts.

The value and relevance of the different types of records will vary with differing livestock production systems.

- Growth or weight records: kept periodically by recording the body weight of animals.
- Health records including morbidity, symptoms, mortality and diagnosis & treatments.
- Feed consumption: the amount of concentrate fed should be recorded to calculate profitability.
- Financial records: All Expenses and receipts of each round of the fattening operation need to be recorded.

5. Husbandry practice

A. ***Castration***:-The process of removing the male gonads (testicle)

B) Docking- It is the process of removing tail of sheep.

C) Dehorning- It is the process of removing horns. The reason of dehorning is

D) Hoof trimming- removing of the hoof animals excess growth of hoof

E) Weight measuring: Approved and properly calibrated livestock scales are the most accurate and consistent method for determining body weight. However, there are several methods that can be used to determine an animal's weight when access to scales is not possible: visual observation or guessing, weigh tapes, and weight estimation formulas

6. **Monitoring health:-** Each morning a farmer is supposed to check his animals for any ailment or symptoms of diseases.

Self Check 4-Written Test

Directions 1: Answer all the questions listed below.

1. List routine activities performed in fattening farm?(5pts)
2. Mention and explain fattening farm husbandry practices? (5pts)

II. Direction 2: Choose the best answer from the given alternative

One is the highest cost in fattening farm (5pts)

A. Cleaning materials

B. Castration

C. Feed

D. Health care

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

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Operation Sheet 1-Techniques for weight measuring

Procedures for weight measuring

Step1.Wear PPE

Step2.Select methods of weighing

Step3.Prepare required materials

Step4.Prepare animal

Step5. Secure the animal

Step6.Weighing animal

Step7. Record the result

Step8. Make animal free from secure

Step9. Report to concerned body

LAP Test -Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: you are required to perform the following tasks within 8hours.

Task1. Deciding systems of fattening

Task2. Perform purchasing of livestock

Task3. Performing castration of male cattle and shoat

LG # 58-LO #3 - Prepare rations and provide for fattening animals

Instruction Sheet-Learning Guide # 58

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Identifying and measuring Ingredients
- Treating and blending ingredients
- Grinding of feed ingredient
- Checking feed physical quality, quantity and type
- Storing of feed
- Defining nutritional requirement of livestock
- Scheduling feeding and responsibility
- Identifying method(s) of providing feed to livestock
- Feeding livestock at scheduled time, type, rate and frequency
- Providing adequate and clean water and feed

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:

- Identify and measuring Ingredients
- Treat and blending ingredients
- Grind of feed ingredient
- Check feed physical quality, quantity and type
- Store of feed
- Define nutritional requirement of livestock
- Schedule feeding and responsibility
- Identify method(s) of providing feed to livestock
- Feed livestock at scheduled time, type, rate and frequency
- Provide adequate and clean water and feed

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 7.
3. Read the information written in the information “Sheet “
4. Accomplish the “Self-check 1, Self-check 2, Self-check 3, Self-check 4, and Self-check 5”
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1”**.**
6. Do the “LAP test” (if you are ready).
7. Then processed to the next learning guide

1.1. Introduction

The quality of available feeds and the relative prices of feeds will make it necessary for the producer to vary the rations. Cattle feeders who have fast-growing cattle on high-energy rations may find that increasing the level of protein in the ration will improve feed efficiency and rate of gain. Feeding higher levels of protein may improve feed efficiency by as much as 7 percent and rate of gain by as much as 12 percent

1.2. Identifying and measuring Ingredients

The major components of fattening livestock ration are feedstuff that provided energy, protein or amino acids, minerals and vitamins. However, there are a number of factors which have to be borne in mind when assessing the suitability of various raw materials as ingredients of compound feeds. Those factors are:

A. Protein and Energy content of feed in relation to price.
B. Quality of protein, minerals and vitamins are considered,
C. Raw materials that affect physical or keeping qualities of finished feeds and materials that cause some difficulties in the manufacturing process taken into account. The simplest way to avoid these problems is to use only safe materials of high quality. When choosing raw materials, its availability is an absolutely critical consideration as unexpected large changes in the constituents of a diet are not advisable. It is better to use raw materials sparingly in the diet at a level of 5-10% and over a long period rather than using 30-40% in a diet for a short time.

1.3. Measure Ingredient in the specific ratios and quantities

Ration Balancing

Feed costs are a major component of the total operating expense for most beef operations. By formulating and feeding balanced rations, you can conserve feed cost while allowing for the most efficient level of production. Ration balancing depends on having accurate and reliable nutrient analyses of feedstuffs in addition to knowing the animals' nutrient requirements.

1.4. Methods of ration balancing

Feed can balanced by hand or by using specifically designed computer software. We will describe one of the more common and useful methods of hand balancing a diet (Pearson Square) and review the positive aspects of computer programs. There different types of methods use for balancing as follow:

- Trial & error method
- Pearson square
- Computer (linear program and trail –error method)

E.g. Use of the Pearson square method to mix grain and supplement. A simple way to determine how much protein supplement to mix with the grain is to use the Pearson square.

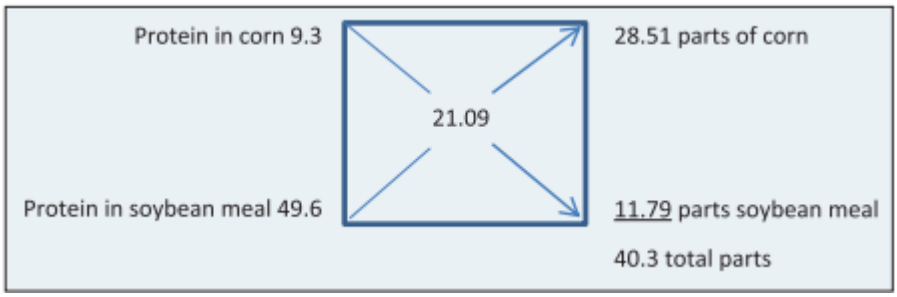


Fig 13. Pearson square

The percent of ground ear corn is 28.51 4 40.3 3 100 5 70.74. The percent of soybean oil meal is 11.79 4 40.3 3 100 5 29.26. To convert the percentage on a 100 percent dry matter basis to an as-fed basis, follow these steps:

1. Divide the percentage of each feed on a dry matter basis by the percentage of dry matter in that feed. Ground ear corn is 87% dry matter and soybean oil meal is 89% dry matter.
2. Add the results to get a total.
3. Divide each result in step 1 by the total in step 2 and multiply by 100.

The result is the percentage of each feed to include when preparing the concentrate mix. A ton of this mix on an as-fed basis contains 1,424 pounds ground ear corn and 576 pounds soybean oil meal.

The total dry matter intake of animal weighing 1,300 pounds and producing 50 pounds of products per day is about 2.7 percent of body weight. The forage dry matter intake is 19.5 pounds. Therefore, the animal will eat 15.5 pounds of the concentrate mix per day.

Self-check 1- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What are the ingredients of feed? (3pts)
2. Mention the 3 methods of ration balancing. (4pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 6 points**

2.1. Introduction

Fattening animals need three key ingredients from the ration – energy, protein, and fiber – in order to grow to market weights as economically as possible. the most economical sources of energy are grains like barley, wheat, or corn.

2.2. Treating and blending ingredients

Key Ingredients

Steers need three key ingredients from the ration – energy, protein, and fiber – in order to grow to market weights as economically as possible. In Iraq, the most economical sources of energy are grains like barley, wheat, or corn. These grains also provide some protein but are primarily fed for energy. Protein in the ration can come from soybean oil meal, or other oil seed meals, and alfalfa-grass hay. On a cost per kilogram of protein basis, early cut alfalfa-grass hay dried and baled properly is the lowest cost protein for steers presently in Iraq. In fact top quality alfalfa-grass hay and barley grain fed in the proper balance will provide most of the energy, protein, fiber, minerals, and vitamins needed for growing steers to market weight profitably

Table 2 – Energy, protein, and fiber in common feeds

Key ingredients	% C P	NEm	NEg	%ADF	% NDF
Barley	13.5	2.07	1.41	7	**19**
Wheat	11.3	2.20	1.52	4	14
Corn	10.0	1.94	1.30	3	9
SBOM	49.0	2.07	1.41	10	15
Alfa-G Hay	18.0	1.32	0.75	31	42
Straw	3.6	0.75	0.22	54	85

SBOM = Soybean Oil Meal; %CP = Percent Crude Protein; NEm = Net Energy for maintenance; NEg = Net Energy for growth; %ADF = Percent Acid Detergent Fiber; and %NDF = Percent Neutral Detergent Fiber. Energy information on the feeds is listed as Magi calories per kilogram. (Note that straw is very low in all important nutrients and too high in fiber)

The ingredients are thoroughly and hygienically mixed by using appropriate equipment or mixer. There are two types of mixers available:

- The vertical, mostly the farm mixer (1-2 tones per hour) and
- The horizontal, provided for the bigger, more commercial, automatic plants. Horizontal mixers have now become standard equipment for large feed plants. Whatever the machines used, uniformity in particle size is necessary to obtain best results from the formulation.

Fig 13. Miller

Self-check 2- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. Explain the key ingredients used for balance feed? (9pts)
2. Mention the most economical source of energy. (4pts)

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

Note: **Satisfactory rating - 9 points** **Unsatisfactory - below 9 points**

Information sheet 3- Grinding of feed ingredients

3.1. Introduction

Grinding is processing a feed through a hammer mill. The feed is beaten with rotating hammers until it is broken up enough to pass through a screen. The diameter of the holes in the screen determines how finely the feed is ground. Different size holes are used for obtaining different degrees of fineness. The feed is dry when it is ground. Grinding generally improves the value of grains fed to beef cattle

3.2. Grinding of feed ingredients

Best results are obtained when grains are coarsely milled, as they can because digestive upsets if crushed too finely. Powdery feed is less palatable and can also cause respiratory problems. Soaking grain in water for up to 3 hours before processing will reduce shattering of the grain. Soaked grain helps reduce bloat problems and improves weight gain when processed.

To reduce problems with finely processed feed:

- Add 5–10% water to grain via auger.
- Add 2% molasses to mixed feed. The type of milling and mixing equipment you use will depend largely on the number of stock to be fed.

A. **Roller mills:-**Roller mills are ideal for grain preparation because they eliminate dust and crack the grain into small pieces rather than smash it. A 250 mm mill can process 5 tonnes an hour and a 500 mm roller mill can handle up to 15 tonnes an hour. Roller mills generally require less power than hammer mills

B. **Hammer mills: -**Hammer mills have the advantage of being able to process both grain and roughage, but they can pulverize grain and hay unless care is taken to use the correct screen size. This is particularly important with Lucerne and pasture hay. **Screen size is critical**. Remember that you don't want to pulverize grain or roughage. You may need to experiment with different screen sizes to find what gives you the best result. Suggested screen sizes are:

- Sorghum and wheat—6 to 16 mm
- Maize—10 to 19 mm
- Oats—6 to 8 mm
- Hay and stubble—22 to 40 mm (or remove screen)

Fig 14. Grain and grinded corn

Fig 15. Grain and grinded mixed concentrate feed

Self-check 3- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. What is grinding? (4pts)
2. List and explain mixing equipments. (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 4- Checking feed physical quality, quantity and type

4.1. Introduction

Feedstuffs are categorized as concentrates or roughages. Concentrates are high in digestible nutrients. Grains and protein supplements are examples of concentrates. Roughages are feedstuffs that are low in digestible nutrients. Examples of roughages include hay, pasture, and silage. The percentage of roughage and concentrate in beef cattle rations depends on the type of animal being fed. For example, feedlot steers are fed mostly grain and a little roughage, while bred cows may be wintered on good-quality roughage alone.

4.2. Checking feed physical quality, quantity and type

4.2.1. Physical Nature:-

The physical nature of the diet and the program of feeding must now be considered to ensure the diet is palatable, conducive to gut health and function (particularly microbial) and enriches the animal's daily life. Knowledge of the natural evolutionary feeding patterns of the animal can provide useful clues as to the most appropriate program. For example, the daily requirement for nutrients for a ruminant animal might be met in a diet that can be consumed in 10 min/day, but ruminants are grazers and naturally spend 8 h/day eating. Taking this into account in devising a feeding program might mean reducing the energy density, increasing particle size or increasing the fibre content to increase feeding time.

4.2.2. Checking quality and quantity of Feed type:-

Checking quality and quantity of Feed type Feedstuffs are categorized as concentrates or roughages. Concentrates are high in digestible nutrients. Grains and protein supplements are examples of concentrates. Roughages are feedstuffs that are low in digestible nutrients. Examples of roughages include hay, pasture, and silage. The percentage of roughage and concentrate in beef cattle rations depends on the type of animal being fed. For example, feedlot steers are fed mostly grain and a little roughage, while bred cows may be wintered on good-quality roughage alone. Caution: High-quality legume hay such as alfalfa may cause bloat.

Fig 16. Grass, Alfalfa and straw respectively

Self-check 4- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. Define feedstuff (4pts)

2. What is physical nature of feed? (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 5- Storing of feed

5.1 Introduction

The growth pattern of pastures and fodders changes according to the rainfall pattern. There are seasons of surplus feed for livestock and some of shortage. In principle, the surplus feed should be preserved for the season with a shortage. This is called fodder conservation. Fodder can be conserved as ***hay or silage***.

5.2. Storing of feed

The most important reason why fodder should be conserved is to provide high quality fodder to the animals during the dry season, and bridge the gap between the feed requirement of the animals and the production of the fodder. Dry season feed shortage affect animal production levels and contribute to overgrazing hence exposing the soil to all agents of erosion. These dry-season feed shortages can be addressed as follows:

- Grow fodder especially legumes that provide high quality feed for a longer period.
- Conserve fodder

5.2.1. Hay making

Ideally a mixture of grasses and herbaceous legumes is desirable because legumes increase digestibility and intake of the conserved forage. Most grasses are good for hay production and are convenient for cutting. The pasture should be cut just before flowering in order to have high digestibility and high protein content. Pasture for conservation should be cut 4 to 6 weeks after a paddock is closed.

Guidelines for haymaking

- Cut the pasture before flowering starts.
- Time cutting to be between rains for good drying.
- Dry the cut pasture as quickly as possible. Use a rake and turn the pasture several times this prevents molding.
- Once dry, heap up the hay into a “stack” which should be protected from the rain.
- Baling of hay makes storage easier. It requires:
  - ✓ A bottomless wooden box (baling box) with dimensions of 3ft by 2.5x2.5 ft.
  - ✓ A 10 ft long sisal string.

- ✓ Dry pasture material.
- ✓ Have 3 to 4 people tightly pack the pasture into the box,
- ✓ The bales of hay must be stored off the floor; kept moisture free and allow plenty of air circulation to prevent molding.

Fig 17. Hay making

5.2.2. Silage making

Silage is produced though controlled fermentation (under anaerobic conditions) of green forage material with high moisture content. The anaerobic conditions foster rapid fermentation that produces natural organic acids, which prevent further change in plant composition. If silage is made properly, it will contain nearly all the nutritive values present in the forage that is conserved. Ensiling is the process of silage making; while a silo is the container used. It may be a trench, a pit or a polythene bag. Silage and haylage are attractive to beef cattle producers because rainfall often hinders hay production, and silage can help reduce total feed costs.

High-Energy Silages

- Corn
- Grain sorghum (Milo)
  - ✓ **Lower-Energy Silages**
- **Perennial Grasses**
  - ✓ Bermudagrass and Stargrass
  - ✓ Limpograss (Hemarthria)
  - ✓ Other improved perennial grasses
- **Annual Grasses**
  - ✓ Forage Sorghum
  - ✓ Sorghum-sudan hybrids, pearl millet
  - ✓ Small grains and ryegrass
  - ✓ Elephent grass
- **Legumes silage**
  - ✓ Alfalfa
  - ✓ Red clover and other cool-season legumes
  - ✓ Summer legumes (rhizoma perennial peanut

High quality silage will be made if:

- Grasses are harvested when flowering.
- Legumes are harvested during pod filling.
- Maize/sorghum is harvested during milk-stage

Self-check 5- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. Explain the importance of storing feed? (5pts)
2. What is the difference between hay and silage.(5pts)
3. How to measure quality of hay? (5pts)

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

Note: **Satisfactory rating - 15 points** **Unsatisfactory - below 15 points**

Information sheet 6 - Defining nutritional requirement of livestock

6.1. Introduction

Cattle should have access to an adequate quantity and quality of nutrients (feed, water, minerals and vitamins). The nutrient requirements of cattle vary according to age, sex, weight, body condition, stage of production and environmental temperature. Nutritionists are an excellent resource and can provide specific information on the nutrient needs of cattle, nutrient availability in feed ingredients, and suggest diets based on regional differences in nutrient values of available feedstuffs.

6.2. Defining nutritional requirement of livestock

Nutrient requirement:-he amount of a specific nutrient that is required to meet an animal's nutrients contained in a ration or feedstuff. .

Adequate feed quantity and quality is required for body maintenance and growth. However, cattle adapt to periodic over or under availability of feedstuffs. Cattle should have access to an adequate supply of clean water. Although water requirements vary greatly, as a rule of thumb, water consumption will range from 1 gal per 100 lb. of body weight during cold weather, to nearly 2 gal per 100 lb. of body eight during hot weather.

Essential nutritional requirements of animals

Nutrient is any food or feed constituted by organic or inorganic matter that has the same general chemical composition and aids in the support of animal life. It plays an important role in 50 maintenance, growth, function, reproduction, and lactation (production). The diet of farm animals consists of plants and plant products, although some foods of animal origin such as fishmeal and milk are used in limited amounts

Major Classes of Nutrients

Water:- forms an essential constituent of all plants and its content varies with the stage or maturity. Young plants contain more water than the mature plants. The amount of water is the minimum when the seed is mature. Water serves important functions in the animal body. It dissolves food materials and converts them into a diffusible condition.

Dry Matter: The dry matter (DM) of foods is conveniently divided into organic and inorganic material, although in living organisms there is no such sharp distinction. Many organic compounds contain mineral elements as structural components. Proteins, for example, contain sulphur and many lipids and carbohydrates contain phosphorus.

Carbohydrate: The main component of the DM of pasture grass is carbohydrate, and this is true of all plants and many seeds the oil seeds, such as groundnuts, being exceptional in containing large amounts of protein, and lipid material in the form of fat or oil. .

Lipid: Substance in plant and animal, which is insoluble in water but soluble in ether chloroform or benzene, is regarded as lipid. Fat is the most important lipid present in both plants and animals. They are rich sources of energy. The fat content of the animal body is variable and is related to age, the older animal containing a much greater proportion of fat than the young animal. 98% of animal lipid is fat.

Vitamin:- is present in plant and animal in small quantity. It is an important component of enzyme system.

Mineral:- is inorganic compound, which is also called ash after feed sample is burnt. It includes all those elements present in plant and animal except carbon, hydrogen, oxygen and nitrogen. Calcium and phosphorus are the major inorganic components of animals, whereas potassium and silicon are the main inorganic elements in plant.

Self-check 6- Written test

Name…… ID…… Date…….

Directions 1: Answer all the questions listed below.

1. Define nutrition requirement of animal?(4pts)

2. What is dry matter (5pts)

Direction 2: Choose the best answer from the given alternative

Among the following one is supplement feed (5pts)

E. Fat

F. Energy

G. Vitamin

H. Water

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

Note: **Satisfactory rating – 14 points** **Unsatisfactory - below 14 points**

Information sheet 7- Scheduling feeding and responsibility

7.1 Introduction

Livestock should have access to an adequate quantity and quality of nutrients (feed, water, minerals and vitamins). The nutrient requirements of cattle vary according to age, sex, weight, body condition, stage of production and environmental temperature. Nutritionists are an excellent resource and can provide specific information on the nutrient needs of cattle, nutrient availability in feed ingredients, and sugges diets based on regional differences in nutrient values of available feedstuffs.

Adequate feed quantity and quality is required for body maintenance and growth. However, cattle adapt to periodic over or under availability of feedstuffs. Cattle should have access to an adequate supply of clean water. Although water requirements vary greatly, as a rule of thumb, water consumption will range from 1 gal per 100 lb. of body weight during cold weather, to nearly 2 gal per 100 lb. of body eight during hot weather.

7.2. Scheduling feeding and responsibility

Proper nutritional status is critical for optimal production efficiency in the beef cow herd. However, beef producers often take a “one size fits all” approach to feeding the cows in the cow herd. It should be obvious that not all cows have the same nutrient requirements. Nutritional acquirements vary with age, breed, sex, body condition, environment, and physiologic status. By acknowledging differences in nutrient requirements that exist in the beef cow herd, management strategies can be implemented to feed beef herds to optimized feed resources and overall production.

Feeding Scheduling

- **Understanding the nutritional content of the grass, silage, forages and bought-in feeds**
  - ✓ Energy content
  - ✓ Protein content
  - ✓ Digestibility
  - ✓ Minerals
  - ✓ Vitamin

- **Monitor stock performance to make sure the feeding regime is right for the system**
  - ✓ Meat quantity and quality
  - ✓ Measure live weight and weight gain against targets
  - ✓ Body condition score
  - ✓ Blood profiles
- **Work out a whole-farm feed plan**

  STEP 1 – Work out annual feed demand

  STEP 2 – Work out annual feed supply from grazed grass, conserved forages, concentrates and additive

  STEP 3 – Prepare balance feed daily requirement base of beef cattle
- **Set targets for improvement**
  - ✓ Is more production from grazed grass and conserved home-grown feeds possible?
  - ✓ Use bought-in feeds as efficiently as possible
  - ✓ Focus on attention to detail
- **Consider other factors**
  - ✓ Animal health
  - ✓ Protecting the environment

Self-check 7- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1.What is the importance of preparation of annual feed demand?(3pts)

2. Explain the relationship between environment and animal. (4pts)

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

Note: **Satisfactory rating - 7 points** **Unsatisfactory - below 7 points**

Information sheet 8- Identifying method(s) of providing feed to livestock

8.1. Introduction

Cattle with high feed intake generally have a higher feed efficiency than those with lower feed intake. Beef cattle generally decrease feed intake in hot weather and increase feed intake in cold weather. At temperatures above 93°F, cattle on full feed will reduce feed intake by 10 to 35 percent. When shade or cooling is available or a low-fiber diet is fed, the reduction in feed intake is less at these high temperatures.

8.2. Identifying method(s) of providing feed to livestock

Methods of feed providing to beef Livestock

Successful feeders choose these single program or combination of programs that best fits their needs. The conditions consider in determining the methods of feeding are the following:

1. **Length of feeding period:** usually cattle that are fed grain or concentrates for less than 120 days are called “Short-fed cattle” ordinarily, less that 25 bushels of corn or similar concentrate are fed per head to such cattle; If cattle are fed finishing rations for 8 to 10 months they are called” Long-fed cattle” they have consumed 75 bushels or more of corn or similar feeds per head. Any feedings that are between these limits is regarded as a medium feeding period.
2. **Relative amount of concentrates in the ration:** This amount may vary from a” full feed: of concentrates to a ”Limited feed” cattle are full-fed in order to finish them quickly. Full feeding usually follows a period of feeding on growing rations or period of grazing. Limited feeding is usually practiced either during a wintering or grazing period in which growth is desired. This is to cheapen the gains made during the entire feeding program
3. **Methods of feeding:** Cattle may be fed finishing rations in dry lot or on pasture, or both.
4. **Time of year when fed:** for the most part, cattle finished in dry lot are fed during the winter months; those finished on pasture are naturally fed in the pasture growing season. Most specialized feed yard operators feed cattle in dry lot on a year-round basis.

The amount of feed that cattle will consume is related to:

(1) The energy level of the ration,

(2) The weather

(3) Feed palatability

(4) Feed processing

(5) Degree of finish on the cattle

Feeding methods:

1. Feeding cattle earlier in the morning
2. Feeding more of the ration in the evening
3. Feeding more frequently during the day to reduce spoilage in fermented feeds
4. Treating silage with anhydrous ammonia or other preservatives to increase bunk life
5. Increasing the concentrate level in low-energy diets
6. Feeding a drier ration to increase bunk life of the feed

Fig 18. Feeding of balanced feed

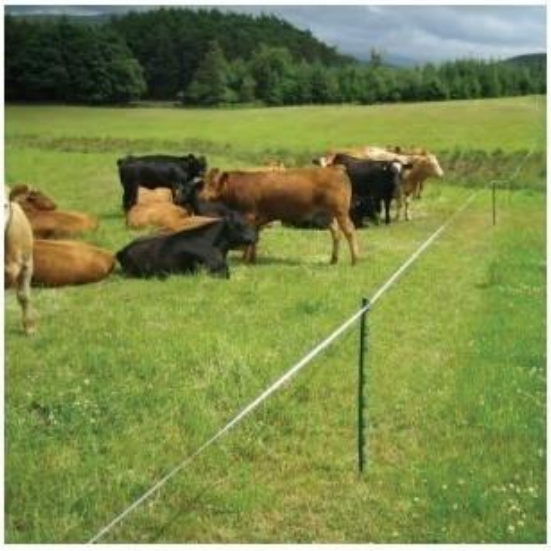


Fig 19. Grazing

Self-check 8 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1. Mention the procedure of providing feed for animal? (5pts)
2. Explain feed consumption related factors (4pts)

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

Note: **Satisfactory rating - 9 points** **Unsatisfactory - below 9 points**

Information sheet 9- Feeding livestock at scheduled time, type, rate and frequency

9.1. Introduction

Cattle should be fed at least twice a day. Increasing the frequency of feeding to four or five times daily may increase feed intake. Increasing the frequency of daily feeding also makes the estimate of how much feed will be eaten between feedings less critical. Cattle should eat all the feed in the bunk each day; however, they should not be out of feed for an extended period of time.

Other good feeding management practices include calculating rations on a dry matter basis, cleaning the feed bunks at least once a week, and following proper mixing procedures to ensure that all ingredients, including additives, are thoroughly mixed into the ration. Proper mixing of the feed improves palatability and decreases the tendency of the cattle to sort through the feed, leaving some portions uneaten.

9.2. Feeding livestock at scheduled time, type, rate and frequency

Sorting Cattle into Feeding Groups

Technology is available to determine the length of time necessary to feed an animal to a desired quality and yield grade. Cattle may then be sorted into pens for more efficient feeding because all the animals in a given pen are similar in their feed requirements. Feeders are generally divided into three groups based on age and weight. These groups are calves, yearlings, and other feeders. The weight range is 350 to 1,000 pounds.

Calves

Calves are feeders that are less than 1 year old, usually weighing about 350 to 450 pounds. They are adapted to many different systems of cattle feeding. Gains are more efficient than they are in older cattle; however, it takes longer to feed calves to harvest weights. Calves need more grain and less roughage than older cattle when immediately for harvest. Calves are not well adapted to cleaning up crop residues, and they do not make good use of low-quality roughage. Death losses are usually higher with calves, and health problems are greater. Because calves are lighter in

weight when purchased, most of the weight sold is gain. Success in feeding calves depends more on feeding skill than it does on ability to buy and sell.

Yearlings

Yearlings are feeders that are between 1 and 2 years old, usually weighing about 550 to 700 pounds. Yearlings are well adapted to feeding programs using more roughage than that given to calves. They are often used to clean up crop residues. Less time in the feedlot is necessary to finish yearlings for slaughter, and there are fewer health problems.

Older Feeders

Older feeders are those that are 2 years old or older. They weigh about 800 to 1,000 pounds. These feeders are fed for a short period of time, usually 90 to 100 days. Gains are fast but not as efficient as in younger feeders. Older feeders can make use of more roughage in the ration. Death losses are low. Much of the profit comes from reselling purchased weight. Therefore, more skill in buying and selling is needed for this type of feeder.

Calculating Total Feed Needed

Some general guidelines may be used to calculate the total amount of feed needed to finish cattle. The exact amounts needed vary according to the age and condition of the cattle, kind of feed used, weather conditions, and management practices of the feeder. Fattening cattle will eat about 2.5 to 3 percent of their body weight in feed each day. Multiplying the average weight of the animal by 2.5 to 3 percent and then multiplying by the number of days in the feeding period gives the amount of feed needed.

Table 1. Total feed needed

Example - Calculating Total Feed Needed:	
• Starting weight of steer	600 lb
• Length of feeding period	210 days
• Average daily gain	2.4 lb
• Ending weight	1,104 lb
• Daily ration: Corn	14.8 lb
• Protein supplement	1.5 lb
• Mixed hay	5 lb F
• Feed consumption	2.5% of average body weight

Self-check 9 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 Explain the importance of sorting of animal into feeding group (3pts)

2 What is the advantage of calculate total feed needed by animal. (4pts)

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

Note: **Satisfactory rating - 7 points** **Unsatisfactory - below 7 points**

Information sheet 10 - Providing adequate clean water and feed

10.1. Introduction

Cattle should have access to an adequate quantity and quality of nutrients (feed, water, minerals and vitamins). The nutrient requirements of cattle vary according to age, sex, weight, body condition, stage of production and environmental temperature. Nutritionists are an excellent resource and can provide specific information on the nutrient needs of cattle, nutrient availability in feed ingredients, and suggest diets based on regional differences in nutrient values of available feedstuffs.

10.2. Providing adequate clean water and feed

Feeding Beef livestock

During the winter, when pasture is not available, the herd requires supplemental feeding. Hay or other forages may be used along with protein supplement, salt, and minerals. Range chop are commercially available and are often used for supplemental winter feeding. The protein level of the ration should be from 11 to 13 percent. The amount of protein supplement needed depends on the quality of the hay or other forage fed. Free choice feeding of an iodized salt mix along with a good commercial mineral mix will generally meet the requirements of the beef. Salt blocks and mineral blocks are commercially available for use on pasture.

Watering Beef Livestock

Water intake generally increases as the temperature rises and decreases in colder weather. Cattle will drink more water during cold weather if it is heated; heating water for beef during cold weather does not appear to increase water intake. Water intake of cattle and sheep tends to decrease as the relative humidity increases. Pregnant and lactating animals have a higher water requirement than no pregnant and no lactating animals. Animals fed feeds with high dry-matter content tend to have a higher water requirement than those fed feeds with higher moisture content.

Be sure there is an adequate supply of fresh, clean water for the herd. Make sure there is plenty of water at all times in the farm.

Self Check 10 - Written Test

Directions: Answer all the questions listed below.

1. Why is important providing adequate feed and water? (3pts)
2. Discuss the importance of water for animal? (5pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Operation Sheet 1 -Techniques for feed formulation

Procedures for feed formulation

Step1. Wear PPE

Step2. Identify the group of animal in which the ration is formulated

Step3. Identify ingredients used in ration formulation

Step4. Consult feed composition table to know the nutrient content of selected feed ingredient

Step5. Consult feeding standard tables to check the nutrient requirement

Step6. Calculate the ratio and amount of ingredients used for ration formulation and grinded

Step7. Blended the crushed ingredient thoroughly by using Mixer

Step8. Add minerals, vitamins and other additives in the ration

Step 9. Pack and store the formulated ration

Step 10. Clean and return the materials to the place

Operation Sheet 2-Techniques for feeding animal

Procedures for feeding animal

Step1.Wear PPE

Step2.Cleaning feed trough

Step3.Prepare necessary materials

Step4.Identifyanimal in different categories

Step5. Weighing the feed

Step6.Bring the animal to feeding place/go to feeding place

Step7. Give feed to animal

Step8. Record the amount of feed

Step9. Clean and return the materials

Step10. Report to concerned body

LAP Test -Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: you are required to perform the following tasks within 10 hours.

Task1. Implement ration balance

Task2. Perform storing of livestock feed

Task3. Apply feeding of livestock

Task4. Checking feed physical quality, quantity and type

Task5. Perform storing animal into feed requirement group

LG #59-LO #4- Establish and maintain shed hygiene

Instruction Sheet-Learning Guide # 59

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Observing organizational OHS procedures, practices, policies and precautions
- Maintaining cleanliness and hygiene
- Maintaining thorough personal hygiene practices
- Dismantling, cleaning and replacing equipment and fittings
- Placing all waste and debris

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 organizational OHS procedures, practices, policies and precautions
- Maintain cleanliness and hygiene
- Maintain thorough personal hygiene practices
- Dismast, clean and replace equipment and fittings
- Place all waste and debris

Learning Instructions:

1 Read the specific objectives of this Learning Guide.
2 Follow the instructions described below 3 to 7.
3 Read the information written in the information “Sheet “
4 Accomplish the “Self-check 1, Self-check 2, Self-check 3, Self-check 4, and Self-check 5”
5 If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1”.
6 Do the “LAP test” (if you are ready).
7 Then processed to the next learning guide

Information sheet 1 - Observing organizational OHS procedures, practices, policies and precautions

1.1. Introduction

Occupational health and safety (OHS): is commonly referred to as occupational health, or workplace health and safety (WHS). It is a multidisciplinary field concerned with the safety, health, and welfare of people at work. The goals of occupational health and safety programs include a safe and healthy work environment.

1.2. Observing organizational OHS procedures, practices, policies and precautions

1.2.1. Importance of an OHS Policy

Developing, implementing and maintaining an OH&S policy is help to makes good economic sense. Accidents are costly, perhaps even more expensive than expected. Accident-related costs can add-up quickly and may include:

- production loss,
- possible overtime,
- time spent on completing paper work,
- pain and suffering of an injured worker,
- loss of business or goodwill or negative publicity,
- possible legal costs,
- effect on the community

1.2.2. OHS Procedures

. These need to cover what needs to be done when carrying out tasks that may have risks or when working in a hazardous environment. For example, when cleaning an extracting room floor, an OHS procedure would explain:

- the purpose of the task and associated possible hazards
- who is to carry out the task and any special training
- the equipment needed to carry out the task and how it should be used
- what chemicals can be used and any safety precautions that need to be followed
- how to safely deal with excess water, for example by using a squeegee or mop
- requirement to place hazard warning signs to alert others to the hazard of excess water Emergency procedures to be followed (e.g. washing out chemicals on skin or eyes).

Self-check 1- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 Discuss OHS. (4pts)

2 What are the impacts of hazard in the farm? (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 2 - Maintaining cleanliness and hygiene

2.1. Introduction

Regular cleaning and disinfection is substantially important "to keep pathogens away" from your animals and for maintenance of good health. Special attention should be given to avoiding incursion of infectious agents from outside the farm. Similarly, adequate bio containment plan is needed to control the spread of pathogens within the same premise. It also enforces the use of adequate method; disinfectant (chemical) or physical measures (burning/burying) to reduce the risk of contamination. The type of disinfectant, mode of application, type of material and dimension determines the outcome of disinfection.

2.2. Maintaining cleanliness and hygiene

2.2.1. General considerations of Good Farm Hygiene

Avoid contamination of compound by using a foot bath (1mX1mX0.1m) and tyre bath (10m X 4m X 0.3 m) filled with freshly prepared 2% NaOH solution or others as recommended by the competent authority. Boot bottoms and tires must be cleaned mechanically to remove soil or manure before rolling in the disinfectant bath. Feed and water source must not be accessed by visitors. Specially, visitors from rural areas where animal production is a common practice can play a role in dissemination of infection. Clean regularly animal premises, feeding and watering equipments and farm compound.

Make sure your feed resource is safe from possible contamination by chemicals, bacteria and viruses. Keep feed stuff dry to avoid growth of fungus and bacteria.

Make sure that feed containers (sacks) are safe (new items are preferable). Avoid movement of feed containers between farms Avail feed and water troughs about 80cms above the ground.

2.2.2. Decontamination and disposal of infective material

Choice of disinfectant chemicals, there is five groups of disinfectant chemicals namely:-

1. Soaps/detergents
2. Oxidizing agents
3. Alkalis
4. Acids and
5. Aldehydes

The six groups are insecticides to secure animals from insect/arthropod transmissible diseases.

Sick animals with infectious diseases do contaminate the farm by air and by their discharges (urine, manure, saliva, pus etc.). Such animals are important source of disease agents and require a special management regime. Prevention and control of the introduced disease are through following activities.

- Isolate the sick animals by providing a separate shed
- Try to tentatively diagnose the disease by clinical means
- The carcass of the dead animal must be disposed immediately
- Avoid movement of persons, equipment and feed between hospital pen and healthy pens
- If the pen has a soil floor, exposure to direct sunlight may facilitate killing of nonspore forming germs or. Leave the pens open for a week to allow desiccation
- If the pen floor is concrete, expose the contaminated area to 2% NaOH for several hours (3-5hrs).
- In general, all equipment used in contact with infected animal including farm and transport equipment and building used to isolate must be disinfected chemically

Self-check 2 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 Explain the importance of maintaining cleanliness of the farm.(4pts)

2 Discuss the importance of documentation in the farm. (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 3- Maintaining thorough personal hygiene practices

3.1. Introduction

Hygiene is science which deals with the study and practice of cleanliness as a way of maintaining good health and preventing disease. The question of poor health and sanitation is, therefore, of the basic importance in the efficient production of meat. Proper hygiene and sanitation in fattening farm can be achieved by using physical and chemical agents known as disinfectants.

3.2. Maintaining thorough personal hygiene practices

3.2.1. Personal hygiene

Because of their duties, free mobility, curiosity, ignorance to disease, carelessness; humans are responsible in spreading disease. Most frequently foot wear, is suspected as the means of transport of disease. So the workers should change their clothes, foot wears and head gears before entering in to the fattening farm special poultry farm.

3,2,2, Disinfectants

Disinfectants are agents, which make the surface on it is applied free from pathogenic organisms or render them inert. The high concentration of livestock and continuous use of modern fattening farm buildings often results in a condition referred to as disease build up. As a disease producing organism- virus, bacteria, fungi and parasites eggs-accumulated in the environment, disease problems can be come severe and be transmitted to each succeeding group of birds raised on the same premises. Under this circumstance, cleaning and disinfection become extremely importance in breaking the life cycle.

Effective disinfection depends on the following

- Thorough cleaning before application
- Phenol coefficient disinfectant as to which indicates the killing strength of a disinfectant as compared to phenol (carbolic acid)
- The dilution at which the disinfectant is used
- The temperature: most disinfectants are much more effective if applied, hot
- Thoroughness of application, and time of exposure

Disinfectants can be divided into **two**:-

A) Natural disinfectants

B) Chemical disinfectants

A. Natural disinfectants

The natural forces that reduce the pathogen load in the environment are important and can often be used to our advantage. These include sunlight, heat, cold, drying (desiccation) and agitation. The ultraviolet rays of sunlight are tremendously potent in killing micro-organisms. This is very helpful outside of buildings, but unfortunately the ultraviolet rays can't pass through glass or roofs or dust.

In soil, micro-organisms that do not cause disease (non-pathogenic bacteria and fungi) produce substances that inhibit the growth or kill pathogenic organisms. Extremes of temperature (below freezing or above 85oF) will kill micro-organisms, although susceptibility to temperature changes varies widely.

B. Chemical disinfectants

Chemical disinfectants will be more effective if the organic material derbies are first cleaned before the use of disinfectant. It should be used as per the recommendation of the manufacturer. An ideal disinfectant should have the following properties:

- Should be of low cost.
- Should be readily soluble in water, even in hard water
- Should be safe for human and animals
- Should be non corrosive
- Should not have any residual toxicity
- Should be effective against the large number of infective agents
- Should not have any residual effect on meat and eggs

Some chemical disinfectants

- Alcohol
- Lime (quick lime)
- Phenols
- Hypochlorites (chlorine)
- Iodophors (iodine)
- Quaternary ammonium
- Formaldehyde
- Alkali (lye)
- Chlorhexidine (Nolvasan)
- Oxidizing Agents (peroxide)

Self-check 3 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 Define hygiene. (3pts)

2 How to relate farm work and personal hygiene. (4pts)

3 What is the difference between cleaning and disinfecting?(3pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 4- Dismantling, cleaning and replacing equipment and fittings

4.1. **Introduction**

Every farm that handles cattle and materials should have proper handling facilities, which are well-maintained, stored and in good working order.

4.2. **Dismantling, cleaning and replacing equipment and fittings**

Dismantle/Disconnect equipment

- Tools, equipment and lifting devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
- Appropriate procedures are followed to verify that all power has been disconnected before proceeding to dismantle / disconnect equipment as required.

Clean equipment and Prepare equipment for storage

- Correct cleaning procedure is determined from manufacturer's specifications and/or in accordance with farm policies and procedures.
- Equipment and sub-component parts are cleaned using correct procedures, materials, tools and equipment.
- Equipment is placed in relevant packaging/protective component in accordance with manufacturer's instructions and farm policies and procedures.

. Store equipment

- Storage area is prepared for Entertainment and Events Technology equipment in accordance with manufacturer's instructions and organizational policies and procedures.
- Equipment is safely handled and potential hazards are removed from storage area
- Manual handling procedures are followed according to farm practices and procedures and Occupational Health and Safety requirements.
- Equipment is safely stored in required storage area in accordance with manufacturer's instructions and farm policies and procedures.
- Equipment is safely stored in required storage area in accordance with manufacturer's instructions and farm policies and procedures.
- Relevant documentation is completed in accordance with farm policies and procedures

Self-check 4 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 Explain the importance of good working environment.(5pts)

2 Discuss the advantage of castration of young animal. (5pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 5- Placing all waste and debris

5.1. Introduction

Livestock producers must deal with animal wastes, odors, and dead animals in ways that do not harm the environment. They are also legally liable for any damage their livestock may do to other people or their property. Many of these problems require costly solutions. Society must decide whether the benefits are worth the investment

5.2. Placing all waste and debris

The trend toward larger livestock operations has caused an increase in the concentration of animal wastes on individual farms. The use of large livestock confinement buildings presents special problems related to the disposal of livestock wastes in a manner that is not harmful to the environment or objectionable to others living in the area. Confining cattle in large feedlots results in greater problems in the disposal of livestock wastes. Many operators of large feedlots do not have the land on which to spread the manure, which increases the potential for pollution problems.

Methods of prevent and minimizing Waste

- Prevent runoff urine and manure from one facility to another
- Clean manure regularly and dispose in a dedicated pit.
- Clean and disinfect farm equipments contaminated by manure

Self Check 5-Written Test

Directions: Answer all the questions listed below.

1. What is waste? (3pts)
2. What are the methods minimizing waste? (5pts)

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

Note: **Satisfactory rating – 8 points** **Unsatisfactory - below 8 points**

Operation Sheet 1-Techniques for Cleaning of Animal feedlot

Procedures for cleaning of Animal feedlot

Step1. Wear PPE

Step2. Remove the dung from the floor and urine channel

Step3. Remove the used bedding and leftovers from the mangers in a similar way

Step4. Empty the water trough and scrape its sides and bottom with brush

Step5. Wash the water trough with clean water and with lime mixture

Step6. Scrape the floor with a brush and broom and wash with water

Step7.Clean and disinfect the splashes of dung on the farm

Step8. Remove the cobwebs periodically with the help of a wall brush

Step9. Sprinkle one of the available disinfecting agents

Step10. Allow adequate sunlight to enter in to the shed

Step11. Spray insecticides at regular intervals especially during the rainy season

Step12. Clean and return to previous place

LAP Test -Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: you are required to perform the following tasks within 8hours.

Task1. Apply OHS Polices

Task2. Perform farm hygiene activities

Task3. Apply personal hygiene

Task4. Apply waste management practices

LG #60- LO #5 - Establish and maintain shed hygiene

Instruction Sheet-Learning Guide # 60

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:

- Monitoring the health and wellbeing of the livestock
- Noting and reporting upon and any reaction to a change in feed
- Monitoring and reporting upon any change in production levels
  - ✓ As direct result of changes to feed types
  - ✓ Due to ingredients or schedules
- Giving advice to operational staff
- Removing all waste materials and substances
- Collecting and storing of documentation

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:

- Monitor the health and wellbeing of the livestock
- Note and reporting upon and any reaction to a change in feed
- Monitor and reporting upon any change in production levels
  - ✓ As direct result of changes to feed types
  - ✓ Due to ingredients or schedules
- Give advice to operational staff
- Remove all waste materials and substances
- Collect and storing of documentation

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below 3 to 7.
3. Read the information written in the information “Sheet “
4. Accomplish the “Self-check 1, Self-check 2, Self-check 3, Self-check 4, and Self-check 5”
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet 1”**.**
6. Do the “LAP test” (if you are ready).
7. Then processed to the next learning guide

Information sheet 1 - Monitoring the health and wellbeing of the livestock

1.1. Introduction

Health: normal condition of the body in which all organ systems work together with harmony in body weight)

Disease: any departure from the normal state of health

Monitoring health:-Each morning a farmer is supposed to check his animals for any ailment or symptoms of diseases**.** The beef producer needs to develop an overall plan for maintaining the health of the beef herd. The key to the success of the health plan is the prevention of problems. Being familiar with the diseases and parasites that affect beef cattle can help farmers plan preventive programs that reduce health problems and increase profits. An important part of the health plan is developing a good working relationship with a veterinarian. Scheduling routine visits by a veterinarian can save money by helping prevent health problems before they become serious. Characteristics of a good herd health plan include the following practices:

- Working with a veterinarian to develop a herd health program
- Following good feeding practices that meet the nutritional needs of the animals
- Keeping good records
- Vaccinating at the correct time, following all label directions
- Following proper procedures for handling and storing vaccines
- Controlling parasites
- Following good reproductive management procedures
- Observing the animals to detect signs of disease, correctly diagnosing the disease, and treating with the appropriate drugs

1.2. Monitoring the health and wellbeing of the livestock

1.2.1. Characteristics of a good herd health plan include the following practices:

- Working with a veterinarian to develop a herd health program
- Following good feeding practices that meet the nutritional needs of the animals

- Keeping good records
- Vaccinating at the correct time, following all label directions
- Following proper procedures for handling and storing vaccines
- Controlling parasites
- Following good reproductive management procedures
- Observing the animals to detect signs of disease, correctly diagnosing the disease, and treating with the appropriate drugs

1.2.2. Normal vital signs in beef cattle are: Observing the vital signs (temperature, pulse rate, and respiration rate) in an animal can help in the early detection of health problems.

● **Temperature**: normal range is 100.4 to 102.8°F; average is 101.5°F. Usually temperature is higher in the morning than in the afternoon; younger animals will show a wider range of temperature than mature animals do

● **Pulse rate:** normal range is 60 to 70 heartbeats per minute

● **Respiration rate:** normal range is 10 to 30 breaths per minute

Signs of good health fatten livestock

- The animal should have a smooth and shiny coat
- The muzzle should be cool and moist, but not watery or dry
- There should be no ticks, fresh wounds or swellings on the animal skin.
- The dung and urine should be normal (urine has a beer color, dung is not watery but piles up)
- The animal should have alert ears
- The eyes should be clear and bright
- An animal that has been lying for some times normally stretches
- It should chew the cud and breath normally

Self-check 1- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 What is wellbeing of animal and how to related to production?(3pts)

2 What are the parameter to check whether the animals are health of not? (4pts)

3 Mention good sign of animal.3pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 2- Noting and reporting upon and any reaction to a change in feed

2.1. Definition

Noting is a brief record of something written down to assist the memory or for future reference.

Reporting is an account or statement describing in ideal an event, situation or the like usually as the result of observation, inquiry, etc

2.2. Noting and reporting upon and any reaction to a change in feed

2.2.1. Feed Conversion Ratio (FCR)

Feed conversion ratio (FCR) represents the proportion of food that is converted into meat and is the hardest figure to calculate accurately, particularly if the farm have a continuous flow building with container feeding into several rooms. However, you can get an estimated figure from using the amount of feed purchased in relation to the number of live weight (kgs) sold. Live weight (kgs) sold can be calculated from the abattoir sheets using the total dead weight (kgs) and the kill out percentage figure. FCR can be calculated over a set period, e.g. monthly, quarterly, annually or on a room-, house- or herd-basis.

$$\text{FCR} = \frac{\text{Feed Intake}}{\text{Average Daily gain}}$$

(Make sure feed intake and average daily gain are both in either Kg or g)

2.2.2. Average Daily Gain (ADG)

Weighing all fatten at weaning, entrance into each stage and at slaughter can be time-consuming; an alternative option is to weigh a selection of livestock to give an indication of the overall picture. Select a room, a litter or 10 to 20 random livestock of various sizes (if possible tag these livestock so you can identify them) and weigh them at different stages. The most common time to do this is when moving to different accommodation, but as a minimum aim to weigh at weaning.

The ADG from weaning to slaughter can be calculated by using the average weaning weights, the average live weights at slaughter (estimated using the dead weights and the kill out percentage figure) and the age in days of livestock.

Have a look at your abattoir sheets – how many livestock are 'in the box'? Could it be worth while implementing a weighing strategy at slaughter?

$$\text{ADG} = \frac{\text{Finish Weight - Start Weight}}{\text{Age (Days)}}$$

2.2.3. Mortality Increase

Mortality is relatively simple to calculate. Count how many livestock in the farm have when they enter a room/building. Keep a record of animal that are ill, going into hospital pens, streamed off, sold or die. Use the number of dead animal to calculate the mortality percentage for each room/building/stage and then work out an overall mortality figure from weaning to slaughter.

2.2.4. Faeces of animal

Feaces is the solid or semi-solid remains of food that was not digested in the small intestine and has been broken down by bacteria in the large intestine. Feaces contain a relatively small amount of metabolic waste products such as bacterially altered bilirubin and dead epithelial cells from the lining of the gut.

Self-check 2- Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 Discuss feed conversion ratio. (3pts)

2 What is average daily gain of animal? (4pts)

3 What are the pre factor of mortality of animal?(3pts)

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

Note: **Satisfactory rating - 10 points** **Unsatisfactory - below 10 points**

Information sheet 3 - Monitoring and reporting upon any change in production levels

3.1. Introduction

A good farm manager is familiar with the legal description of the farm property for which he is responsible, location relative to other property, roads, markets, and sources of supply, the details of the field arrangement and farmstead layout, the farm's capital position or relation of debts to assets, and the resources of the farm, such as the capabilities of its soils. Such facts enable the manager to analyze and evaluate his resources and plan their use. To calculate profit potential, the farm manager estimates the yield expected from each acre or hectare of land and from each head of livestock.

3.2. Monitoring and reporting upon any change in production levels

3.2.1. Monitoring Production Activities

Some kinds of farm work are directly productive, some are indirectly productive, and some are not productive at all. Work such as plowing, planting, cultivating, harvesting, feeding, and milking is directly productive. Maintenance of fences, buildings, and machinery, though often necessary, is not directly productive. Such work as trimming shrubbery and mowing lawns, unless it adds to the market value of the farm, is not considered productive.

Similarly, capital can be highly productive, as in the case of livestock; indirectly productive (*e.g.,* tractors, buildings, and supplies); or unproductive, as a large, showy barn or house. Land, too, can be highly productive, moderately so, or waste. Analysis of farm records has shown that farmers often over equip their property, thus using buildings and machinery to less than full capacity.

3.2.2. Reporting Production Levels

- *Quantity and quality of feeds*
- Water availability
- Situation of livestock disease
- Feeding system
- Worker situation
- Asset of farm
- Feed nutrient utilization and feed intake

- Animal production status
- Reproduction status
- Health care
- Mortality rate
- *Feed security/Feed production*
- *Land use*
- *Manure Management*
- *Processing and transport*
- Breeding strategies
- Fertilizer management
- Income/profit of the farm

Self-check 3 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 List the advantage of monitoring farm.(4pts)

2 Mention types of farm report (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 4 - Giving advice to operational staff

4.1. Introduction

Advice is the giving of a professional or formal opinion regarding the substance or procedure of the scientific in relation to a particular accurate situation. Agricultural consultants are professional problem-solvers and advisers employed by the agricultural community. Clients include farmers, growers, landowners, conservation organizations and public bodies. Agricultural consultants provide advice in all matters concerning the ownership and occupation of land and rural businesses.

4.2.Giving advice to operational staff

The owner is give advice and information on the following to staff

Welcome Message:-This should be a letter as well as oral, about the operation and to demonstrate to the employees that it is a great place to work.

Values:-Giving to employees a clear picture of the values can help them to work independently and make decisions based on what they understand is important to them. Some values that you may want to emphasize in this section could include:

Work Environment:

- Employee relations
- Safety (physical, emotional and mental)
- Employee rights, and o Employee development (training, education, etc.)
- Quality of production
- Healthy lifestyle,
- Environmental responsibility (recycling, water conservation, etc.)
- Social responsibility (good neighbor policies, community involvement, etc.)
- Religious and cultural considerations (observance of holidays, accommodation for holidays of other religions, work practices on holy days, etc.), and
- Equal opportunity employee

Reporting and Organizational Structure:- the chain of command.

Orientation:-provide an excellent opportunity to introduce a new employee. This is an opportunity to provide each worker:

- Wages
- Hours of work

- Rest periods,
- Tools
- Special and protective clothing
- Personal safety equipment
- Their right to refuse unsafe work
- Availability and location of safe drinking water
- Safety information including sun exposure and hydration,
- Availability and location of first aid supplies
- Availability of portable toilets for employee comfort
- Availability of potable water, and
- Hand washing station and other food safety considerations.

Performance/Achievement Planning and Review:- It is a means for improving and maintaining productivity.

Promotion:- based on a combination of merit, experience, training or seniority.

Pay Rates and Adjustments:-Whichever pay system the operation uses (salary, hourly, piece rate, etc.), clearly explain it to the employees.

Overtime:- working after 40 hours in a week and/or 8 hours in a day.

Leave and Vacation Pay: time off for annual vacation and to be paid vacation pay, with the exception of employees employed for five calendar days or less who are not entitled to be paid annual vacation pay.

Human Rights:- all people are entitled, regardless of factors such as nationality, gender, race and economic status.

Self-check 4 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 What are the positive impacts to give advice to operational staff? (4pts)

2 What are the importance oriented the worker in the farm work culture? (4pts)

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

Note: **Satisfactory rating - 8 points** **Unsatisfactory - below 8 points**

Information sheet 5 - Removing all waste materials and substances

5.1. Introduction

The first goal of any waste management system is to maximize the economic benefit from the waste resource and maintain acceptable environmental standards. To be practical, the system must also be affordable and suitable to the operation. If wastes are not properly handled they can pollute surface and groundwater and contribute to air pollution. Most people think of manure first when they think of farm waste. While manure is an important component, farm waste in a livestock operation can also include waste forage, dead stock, silage effluent and milkhouse waste. In horticultural operations, culls, diseased product, wash line sediment and processing plant wastes are common by-products. In addition to these, all farm operations generate plastic waste material ranging from silage wrap to pesticide or drug containers

5.2. Removing all waste materials and substances

5.2.1. Manure and others farm wastes have potential to pollute Environment

- Direct animal access to water ways
- Runoff from manure stockpiles, barn yards and feedlots
- Seepage from manure storage areas
- Overflow from storage areas
- Runoff from fields where manure has been applied
- Runoff from pastures

5.2.3. Maximize the utilization of manure nutrients by crops:

- Have a sufficient land base for manure spreading.
- Test soil and manure to determine nutrient levels
- Understand the release rates for nutrients in manure.
- Calculate crop nutrient demands.
- Prevent the loss of nutrients in surface runoff.
- Reduce the loss of nitrogen to the atmosphere.
- Minimize soil compaction and problems with soil structure.
- Prevent leaching of nitrates into groundwater.
- Prevent pollution of waterways by manure runoff.

- Minimize odours during spreading

5.2.4. The Benefits of Compost:

- Compost adds organic matter, improves soil structure and reduces fertilizer requirements
- Composting involves an increase in expenditure; however the increased market potential and soil conditioning properties offer benefits.
- Markets for compost are readily available. Potential buyers include home gardeners, landscapers, vegetable farmers, operators of golf courses, etc.
- Composting reduces the weight and moisture content and increases stability of manure. Compost is easier to handle than manure and stores well without odours or fly problems, thus lowering the risk of pollution and nuisance complaints.
- Composted manure is less susceptible to leaching and further ammonia losses. Composting high-carbon manure/bedding mixtures lowers the carbon/nitrogen ratio to acceptable levels for land application.
- Proper temperatures within the compost pile will reduce pathogens.
- Potential reduction in soilOn-farm composting. borne plant diseases

5.2.5. Management of Wastes (manure)

Using the principles of the **four Rs** (Reduce, Reuse, Recycle and Recover) is the best first option:

- **Reduce** the amount of waste product generated
- **Reuse** the waste product on the farm or provide it for others to use
- **Recycle** the product either on-farm, such as with land application of manure, or off-farm, such as with plastic recycling programs.
- **Recover** methane gas from manure waste

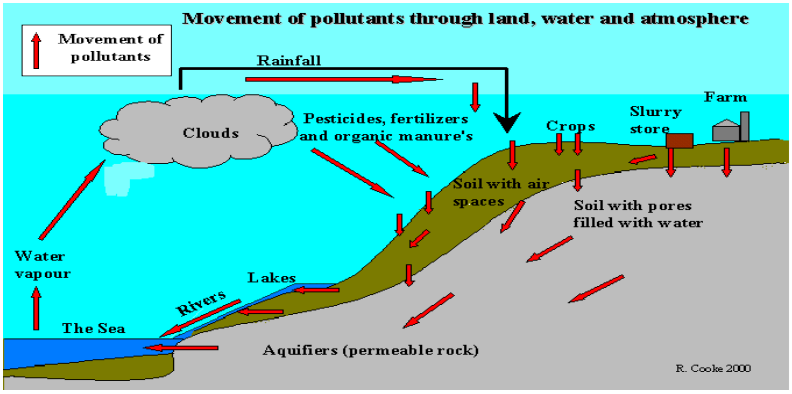


Fig 20. Pollution land, water and atmosphere

Self-check 5 - Written test

Name…… ID…… Date…….

Directions: Answer all the questions listed below.

1 How to use manure in the farm?(4pts)

2 Mention the benefit of compost. (4pts)

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

Note: **Satisfactory rating – 8 points** **Unsatisfactory - below 8 points**

Information sheet 6 - Collecting and storing of documentation

6.1 Introduction

The design, implementation, monitoring and evaluation of fattening livestock are based on evidence and information generated by a multitude of data recorded. This is use for decision making with the objective of providing guidance on effectively using available livestock data and designing effective farm benefit.

6.2. Collecting and storing of documentation

Fattening Livestock information

- Livestock numbers by species, breed and age
- Livestock numbers by production systems
- Economically active population in the livestock
- Livestock pest and parasite control methods and access to animal health services / drugs
- Types of animal feed used and Source of feed
- Sources of water for animals;
- Owner fixed assets
- Consumption of animal-sourced foods
- Herd dynamics. Indicators include animal born, deaths, animals lost, slaughtered, marketed and given/received as gifts, etc. This allows projecting herd growth, a critical piece of information for investment design
- Livestock production (meat, milk, eggs, etc.), including both quantity and value
- Animal vaccination, diseases outbreaks and treatment, and access to animal health services
- Feeding of animals, e.g. fodder from land; hedges; scattered stalks as well market purchased feed, etc.;
- Family and employed labour devoted to livestock by type of activity, e.g. feeding, watering, sales and other;
- Ownership of livestock-related assets, such as ox-carts, ox-ploughs, sheds for animals, etc.
- Product demand and supply
- Market infrastructure, linkage and distance
- Culture consumption of animal sources foods.

Self Check 6 - Written Test

Directions: Answer all the questions listed below.

Name…… ID…… Date…….

1. Mention the cause of Calves health problems (5pts)
2. List and explain common disease of Calves (5pts)

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

Note: **Satisfactory rating - 8 points Unsatisfactory - below 8 points**

LAP Test -Practical Demonstration

Name:_____ Date: _____

Time started :_____Time finished: _____

Instructions: you are required to perform the following tasks within 8hours.

Task1. Implement checking of vital sign normality of beef animal

Task2. Apply proper reporting

Task3. Perform feed conversion ratio of animal

Task4. Perform monitoring of production activities

Task5. Give advice to operational staff

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