



DAIRY PRODUCTION

Level II

Learning Guide -34

Unit of Competence:- Feed & water dairy animals

Module Title:- Feeding & watering dairy animals

LG Code: AGR DRP2 M09 LO1-LG-34

TTLM Code: AGR DRP2 TTLM 1219v1

LO1: Prepare for feeding



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

- Identifying basic nutritional needs of dairy animals
- Preparing PPE, materials and tools required for feeding and watering dairy animals
- Identifying feed and feed supplements
- Preparing feeding plans
- Following feed temperature requirements for preparation and storage
- Identifying and reporting hazards to human and animal health in feed preparation and distribution
- Checking feed and water containers appropriate to the animal and situation

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 basic nutritional needs of dairy animals
- Prepare PPE, materials and tools required for feeding and watering dairy animals
- Identify feed and feed supplements
- Prepare feeding plans
- Follow feed temperature requirements for preparation and storage
- Identify and reporting hazards to human and animal health in feed preparation and distribution
- Check feed and water containers appropriate to the animal and situation

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 1 to 7.



3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
4. Accomplish the “Self-check 1,2,3,4,5,6” **in page 8,12,15,19,21,24** respectively.
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.



1.1. Nutritional Needs of Dairy Animals

Under nearly all practical management conditions, dairy cows and growing dairy heifers are fed ad lib. Thus, voluntary feed intake is the major limitation to nutrient supply in dairy cattle. Feed intake is usually characterized as dry matter intake (DMI) to compare diets of variable moisture concentrations.

DMI is affected by

- ❖ Animal and
- ❖ Feed factors.

Major animal factors

- ❖ Body size
- ❖ Milk production and
- ❖ Stage of lactation or gestation.

At peak DMI, daily DMI of high-producing cows may be 5% of body wt, and even higher in extremely high-producing cows

1.1.1 The Role of Feeds in Dairy Animals

Feed is defined as any edible material, which after being ingested by animals is able to be digested, absorbed and utilized. In a more general sense we use the term feed to describe any edible materials to nourish animal for maintenance, growth, production, reproduction and, protection animals from diseases. **Grass and hay**, for example are described as food for animals, but not all the components of food are digestible. Those components capable of being utilized by animals are described as **nutrients**. In the subsequent tasks (learning outcomes 2) the different types of feed nutrients involved in the support of animal life are discussed.



To get benefit from dairy animals, proper feeding system is important. It is therefore, efficient use of the various available feed resources and controlling wastage of feed resources, and routine monitoring and evaluation systems of feed costs in regards to nutritive value of the feed should be underlined.

The nutrients in animal feeds are used for Maintenance, Growth, Production, reproduction and to prevent animals from disease. The principles of Feeding should consider feed requirement of dairy animals the variation in age, sex, weight and production type and level. Etc.

1.2. Terminologies

The following terms are commonly used for talking about feeds and feeding plan of dairy animals.

Nutrition: It is a science and/or series of processes by which the feed is processed, prepared, treated and the method of feeding regime. It deals about the nutrients and how it functions and performs in animal body. It also studies about the chemistry, physiology and utility and how it is utilized and support life.

Nutrients: It is the major chemical components of the food which is required for the normal development and functioning of the animal body. ***Nutrients are highly important for maintenance, growth, production, and reproduction of animals.***

Ration: It is the term that applied to the feeds which is given to the animal during 24 hours period.

Basal diet: It refers to the part of the feed that comprises larger proportion of the animals ration.

Balanced ration: A term that may be applied to a diet, ration or feed having all known required nutrient in proper amount and proportion.

Energy density: is the term that applies to the amount of metabolisable energy in each kilogram of food.





Roughages: refers to the part of animal food which comprises the larger proportion of the ration. These have low energy density, low protein and high fiber content

Concentrates: are components of food of animals which have high energy density and low fiber content. E.g. Rice bran and maize flour are examples of concentrates. Concentrates are usually expensive.

Feed(s): Any edible materials consumed by animal that contributes energy and nutrients to the animal diet (usually refers to animals rather than humans).

Meal (physical form): An ingredient that has been ground or otherwise reduced in Particle size, e.g. bone meal, fish meal.

Protein: Any of a large class of naturally occurring complex combination of amino acids, since the building block of protein is termed as amino-acids.

Additives: - This refers to the ingredient or combination of ingredient that can be added to the basic feed or mix to fulfill the specific requirements of animals. This includes antibiotics, anti-oxidants, flavoring agents, etc.

Supplement: Feed ingredients that are used with another to improve the nutritive balance or performance of the total ration.

Trace minerals: Mineral nutrient required by animals in micro amount only (measured in milligram per pound of feed or smaller amounts)

Vitamins: Organic compounds that function as parts of enzymes systems essential for the transmission of energy and the regulation of metabolism of the body.

1.3. Nutritional requirement of dairy animal

The dairy cow may will be termed a “factory.” As in the factory, raw materials must be supplied if a useful finished product is to be produced. The dairy cow will take the raw products of the farm_ **hay, fodder, silage, grains, and grass**_ and convert them into a nearly perfect food, which we know as milk. If we are to maintain a dairy herd that will produce efficiently, it is important to understand the process by which milk is produced and the food requirements for milk production.





→ Nutritional Requirement

- ❖ Carbohydrate
- ❖ Energy
- ❖ Protein
- ❖ Fat
- ❖ Water
- ❖ Minerals
- ❖ Vitamins

The dairy cattle converts feed into milk. Milk is produced by a system of glands grouped together in an organ known as **the udder (mammary gland)**. The digestible feedstuffs are transported to the udder or mammary gland by the blood stream. The udder contains many alveoli where feed is converted to milk. The milk is stored in the alveoli and milk cistern until it is excreted by the milking process or by the nursing calf. Milk secretion in the udder is greatest immediately after milking. As the pressure builds up in the alveoli, secretion slows down or stops. High producing cows may be encouraged to produce more milk if milked three or four times daily because the pressure is kept lower by frequent milking. Therefore, milking cow require feeds on the basis of her production capacity of milk.

How Food Is Supplied to the Mammary Gland. The mammary gland gets its food supply from the blood that is carried by one artery coming into each half of the udder. This artery divides into tiny capillaries that supply the food_ carrying blood to the secreting cells of the alveolus. It is estimated that 400 gallons of blood must circulate through the udder for each gallon of milk production. If the blood is to have enough of each ingredient, it is necessary that the cow be properly fed.

When milk Is Made. Many Stakeholders agreed that milk is produced in the udder before milking begins. When the cow is milked, the alveoli are collapsed. Recent



studies have shown that milk secretion is higher immediately after milking and, in high producing cows, continues at a high rate for five to seven hours. As a pressure builds inside the udder, secretion slows down and eventually stops unless the pressure is relieved. High producing cows can be induced to produce more milk when milked three or four times a day. The additional milking holds the udder pressure to a lower level and secretion is continues.

The practical difference in the digestive systems of ruminants over simple stomach animals is that *ruminants* are characterized by the following nature of digestive system.

1. Their ability to manufacture the B complex group of vitamins;
2. Their ability to utilize low quality proteins,
3. Their ability to digest or convert a certain amount of nitrogen to protein compounds
4. Their ability to digest large quantities of roughage.

Because of nature and ability of digestive system, ruminant do not present so many feeding problems as do animals with a simple stomach. Cattle can actually manufacture many of the vitamins and some protein amino-acids that have to be fed to simple stomached animals.

☞ ***In General, the nutritional requirements of dairy animals depend on:***

- ★ The nature and characteristics of digestive systems of animals.
- ★ The nutritional value of the feedstuffs,
- ★ The cost of the feedstuffs, and
- ★ The production status of the animals regarding on age, weight, production level.



Self-Check -1

Written Test

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

1. Write at least five nutritional requirement of dairy animals? (4pts)
2. Define the following term? each 1pts
 - ☞ Basal diet?
 - ☞ Balanced ration?
 - ☞ Energy density?
 - ☞ Roughages?
 - ☞ Concentrates?
 - ☞ Feed ?

Note: Satisfactory rating - 10 points

Unsatisfactory - below 10 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1.

2.

- ☞ _____
- ☞ _____
- ☞ _____
- ☞ _____
- ☞ _____





Information Sheet-2

Preparing PPE, materials and tools required for feeding and watering dairy animals

2.1. Select suitable personal protective equipment.

There are different types of materials, tools and equipments and supplies to perform different activities in milk handling. Therefore, identifying, selecting, using and preparing facilities, supplies according to the working activity are very important aspect in work.

Personal protective equipment include

- Overalls
- Gloves
- plastic boots/shoes
- Respiratory mask
- Aprons,
- Hair cover

Protective clothing should be selected to prevent skin contact with contaminated materials or environments. Consideration should be given to the type of work being performed by the worker when selecting personal protective clothing.

2.2. Using PPE

Personal protective equipment (PPE) is used by workers in various work settings. Gloves, hard hats, safety glasses, ear plugs, aprons, laboratory coats, safety shoes, and respirators are all examples of PPE. When a hazard cannot be removed from the workplace, PPE must be considered. PPE does not eliminate hazards from the workplace but places a barrier between the worker and the hazard. If the PPE fails or is not used properly, the worker will be exposed.

In order to ensure that workers are provided with correct PPE, and that the PPE is used properly, the Occupational Safety and Health Administration (OSHA) has developed standards for certain types of PPE. The employer must provide to employees certain





PPE when a workplace hazard assessment reveals the need for its use. Standards have been developed for hard hats, work shoes, gloves, eyewear, and respirators..

2.2.1. Types of Personal Protective Equipment

There is a large variety of PPE available. It can range from simple safety glasses to full body suits. The selection and proper use of PPE is vital to health and safety on the job. The following is a current list of PPE recommended

Duties related to PPE;

1. Provide handlers with the PPE the pesticides labeling require for the task, and sure it is;
 - Clean and in operating condition
 - Worn and used correctly
 - Inspected before each day of use
 - Repaired or replaced as needed
2. Be sure respirator fit correctly
3. Take steps to avoid heat illness.
4. Provide handlers a pesticides free area for
 - Storing personal clothing not in use
 - Putting in PPE at start of task
 - Taking off PPE at end of task
5. Do not allow used PPE to be worn home or taking home Care of PPE
 - Store and wash used PPE separately from other clothing and laundry.
 - If PPE will be reused, clean it before each day of re use, according to the instruction from the PPE manufacture unless the pesticides labeling specifies other requirements. If there are no other instructions, wash in detergent and hot water.
 - Dry the clean PPE before storing



- Store PPE away from other clothing and away from pesticides areas.
- Replacing respirator purifying elements

Use appropriate Personal Protective Equipments as of the regulations and rules in the requirements. Some of the important personal protective equipments that are used in extensive livestock work are: -

1. Sun hat: - protect the head sun radiation

2. Respirator:

- ✓ Protect dusts or moldy hay during feed preparation of livestock.
- ✓ Used in silos, manure storage areas,
- ✓ It is used in the storage, preparation and application of chemicals and / or Pesticides in the Workplace or the Farms.

3. Goggles: - protect eye from dust, chaff, and chemicals

4. Protective gloves: - should be used for certain jobs when rounding abrasive Mater jobs

- ✓ **Rubber gloves** – used around sick animals or w/n assisting at birth

5. Safety boots (steel capped boots/shoes)

6. Over all jacket, shirts, and trousers

7. Sun screen lotion

8. Face mask



1. Helmet

2. Respiration

3. Goggle

4. Glove



5. Safety boots



6. Over all



7. Sun screen lotion



8. Face mask



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Self-Check -2

Written Test



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

1. Write the basic PPE? 5 pts
2. Describe the importance of PPE? 5pts

Note: Satisfactory rating - 10 points

Unsatisfactory - below 10 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1.

2.

☞ _____

☞ _____

☞ _____

☞ _____

☞ _____



3.1. Introduction

Supplementary feeding is often used in grazing systems to help meet production requirements. This may be a regular part of the production cycle to help match feed demand to feed supply or reserved for times of drought. The extent to which supplementary feeding is used depends on the business objective and seasonal conditions.

Supplementation: By supplementation, it means feeding crop residues along with protein, mineral, vitamin or even energy supplements to compensate for the deficiency of crop residues. This could be done by feeding legumes along with crop residue or other sources like noug meal, peanut meal meat meal and so on

Supplements: Are feeding stuffs that will be added to the total diet of an animal to increase the nutritive value. It is a feed or feed mixture used with another to improve the nutritive balance or performance of the total diet. Supplements are intended to be:

- Feed undiluted as a supplement with another feeds
- Feed offered as free choice with other part of a ration separately available
- Feed further diluted and mixed to produce a complete feed

Feed of this kind contains large amounts of proteins, and of some mineral elements, or of some particular vitamins. A mixed protein supplement by convention is a mixture of feed that carries 30% or more protein. However, single feed that carries 20% or more protein are included in the supplement category. Example, fish meal, meat meal, nug cake, peanut cake, liver meal, dried milk. The protein supplements could be of animal origin such as

3.2 selecting supplementary feeding system



Supplementary feed is given for dairy animal specially when there is no enough amounts of a feed or during dry season.

Supplements: - are feed stuffs that are added together with other ingredients of ration or diet and used to increase the nutritive value of feed.

Can be supplemented in three ways

1. as more diluted and mixed with other feed
2. as free choice
3. as mixing with other feeds without their dilution

Time of supplementation

- at peak production
- at the time of scarcity of feed

The purpose of supplementary feeding for dairy animal is help to correct deficiencies in protein or other essential nutrients in the forage.

Concentrate supplement

Are protein or energy source feed stuffs which >18% CF content and have almost no fiber.

- Are primarily nutrient sources of
 - Amino acids
 - Fat
 - Vitamin
 - Minerals
- Protein sources are used for
 - Tissue development
 - Cell formation
 - For growth of tissue
 - Increase milk production

Improved forage, legumes as supplement





- ✓ Fabian been
- ✓ Vetch
- ✓ Alfalfa
- ✓ Cow pea
- ✓ sespania



a, lablab



b, alfalfa



c, Cow pea



Self-Check -3

Written Test

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

- 1. What is supplementary feed? 3pts
- 2. list types of supplementary feed?2 pts

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. -

2. -



4.1. Monitoring feeding plan of dairy animals

When the requirement of the dairy animals are known, as well as the value of the available feed stuffs, either from tables or from analysis, it is possible to make and monitor feeding plans. The feeding plans make it possible to judge if animals are receiving the proper amount of nutrient according to its production. It should, however, be kept in mind that feeding plans are only a means of monitoring the feed as well as possible. The production of the animals and their nutrient requirement should always be observed and monitored.

4.2. Monitoring and controlling costs

In determining the cost of dairy production the expenses are commonly grouped as follows:

- The combined cost of feed bedding
 - Labor cost
 - Building charge
 - Equipment charge
 - Utensils, machinery and other tools charge
 - Miscellaneous expenses including veterinary service
- **Cost.** The requirement of the animal can be met through several combinations of feed ingredients. However, when the cost of these ingredients is considered, there can only be one least-cost formulation. The least-cost ration should ensure that the requirements of the animal are met and the desired objectives are achieved.

This is the ration that supplies the nutrient need of an animal at least cost. Examples, ration A and ration B both give equal levels of the different nutrients but if ration A is an expensive combination than B then ration B is said to be the least cost ration. This is a



strategy used in formulating a ration so as to minimize the cost of input and improve productivity.

4.3. Monitoring work place safety and positive environmental impacts

Action to be taken to ensure safe operation and maintenance of machinery equipment in every activity of dairy husbandry plays a great role in order to create conducive working atmosphere .and must :-

- Follow appropriate work procedure
- Use PPE when every work activity
- Identify and control hazards that occur when we work with dairy feed.
- Use appropriate machinery and understand how to use.

Also hygienic procedure should unde3r taken by rodent control ,dust management ,no rat or fecal contamination of feeds or raw ingredients and feed not being wet

4.4. Documenting data /record keeping

Record keeping: is a system of organizational item documenting all the necessary information about the farming system.

Advantage

- A mirror of the farm can show all the weakness and progress of the farm.
- A source past and future history of animal.
- Provide clue about daily weight gain.
- Source of managerial decision.
- Source of information about the farm

Record keeping must be simple and precise .this can be used as a guide for improvement or adjustment to be done this will also helpful in the day to day operation through record keeping profitability can be easily determined. The kinds of record that





we keep record on the particular aspect of dairy enterprise that we want to emphasize are helpful for future expansion of farm.

Types of record kept

Technical: records regarding to production schedule in the farm

Example

- age of animal
- date of birth
- number of animal
- reproductive record
- purchase record

Economics: records regarding the financial aspect of the operation.

Example

- price of feed
- Price of milk

Feed record can be analyzed in terms of

- ❖ Type of feed
- ❖ Source of feed
- ❖ Amount of feed
- ❖ Date of preparation
- ❖ Duration of staying
- ❖ Time of purchased
- ❖ Price of feed
- ❖ Time of purchased





Self-Check -4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are Feed record can be analyze? 5pts

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. -





Information Sheet-5

Identifying and reporting hazards to human and animal health in feed preparation and distribution

5. 1. Feed Hazards

The Canada feed inspection agency (CFIA) takes a three-tiered approach to identifying hazards and providing guidance on maximum acceptable levels in feed:

1. **In regulation** – In some cases, hazards are identified in the Regulations. This includes a list of deleterious substances that are mainly prohibited pesticides, a list of prohibited weed seeds, maximum levels for substances that are likely to be deleterious to livestock such as fluorine and aflatoxin and other extraneous material (e.g. mould, heat damage, or sawdust). Further, feed ingredient definitions may contain additional standards such as a standard for glucosinolates or a maximum use rate to allow safe use of the ingredient.
2. **In guidance** – The CFIA provides administrative guidance on a number of other hazards in feeds such as mycotoxins, metals, dioxins, furans, and PCBs. In addition, the guidance sets out action levels for many of the individual contaminants. A feed Action Level is defined as the level at which, if exceeded, a contaminant may present a health risk to the animal or result in unacceptable residues in foods of animal origin.
3. **Ad hoc assessments** – The CFIA also undertakes ad hoc assessments of hazards in feeds for which maximum or action levels are not specified in the Regulations or guidance. Often, these assessments are undertaken in response to accidental contamination of food and feed products that is reported by regulated parties or identified by sampling.





Self-Check -5

Written Test

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

1. What are Feed hazard analysis ? 5pts

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. _____ -



6.1. Water

Cattle must have access to adequate and appropriate water for their age, stage of production and weather conditions.

Automatic waters are the preferred and most efficient method of providing water to cattle in paddocks or yards. If this is not possible then adequately sized containers must be provided to ensure adequate quantity and quality is available for the number, age, production level, bodyweight and type of stock, dry matter content of the feed provided and the weather conditions (air temperature, available shelter and humidity). Access to water provides further information about supplying drinking water for cattle in paddocks. In general cattle require 30 – 80 liters per day and more if lactating. Water availability is particularly important for calves recently weaned. Water medications should be introduced gradually and closely monitored to ensure correct dosage and consumption of adequate water quantity.

6.2. Feed

Cattle must have access to adequate and appropriate feed for their age, stage of production and weather conditions

Quantity and quality of feed should be based on:

- Bodyweight and/or fat/ body condition score
- Extra demands based on growth, pregnancy, lactation and exercise
- Prevailing/predicted weather conditions.

Regular assessment should be made of the needs of the cattle in relation to the quantity and quality of feed. This can be done by weighing cattle and using a fat/body score system regularly.

Condition scoring of beef cattle

Body condition score for cattle



Condition scoring

Cattle are most efficient, in terms of digestion, with good quality pasture comprising a balance of grasses and legumes. Grazing occupies a large amount of time in both dairy cows (about 8 hours/day) and in beef cattle (about 9 hours/day) for cattle on a balanced pasture. Grazing behavior is affected by many factors, including environmental conditions and plant species. Care must be taken when cattle are put on pastures with a high legume content as bloat can occur. Commonly, due to lack of space, cattle kept in schools are provided with supplementary feeds, comprising of a mix of grain, meal, pellets and chaff. Supplements are often added to these mixes. These supplements should be carefully assessed for suitability and safety.

When providing supplementary feeds, the rule is to introduce new food types slowly and carefully, do not feed excessive grains, feed plenty of high quality roughage and feed small amounts at frequent intervals.

Grain poisoning of sheep and cattle – Prime Facts

Feeding grain to cattle – Victorian Department of Primary Industries

Regular monitoring should be carried out to help identify shy feeders and allow for their management before they drop condition.

Care needs to be taken when cattle are being fed rations high in cereal grain and oil meals as these feeds have high levels of phosphorus and magnesium but relatively low levels of calcium and potassium. This imbalance can contribute to animals developing urinary calculus or urinary tract obstruction. More information can be found at *Urolithiasis in ruminants*.





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fig.feed trough



Self-Check -6

Written Test

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

1. What are Quantity and quality of feed should be based ? 5pts

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. -





Operation Sheet 1	Procedure of preparing PPE, materials and tools required for feeding and watering dairy animals
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Techniques to select and prepare PPE, materials and tools required for feeding and watering dairy animals

- Step 1.** Select specific area or shop
- Step 2.** Identify specific PPE, materials and tools required for feeding and watering dairy animals
- Step 3.** Take steps to understand PPE
- Step 4.** familiarize with specific PPE
- Step 5.** Exercise using PPE





Operation Sheet 2

Identifying feed and feed supplements

Techniques to select and identify feed and feed supplements

- Step 1-** Know how to identify a complete feed
- Step 2.** Know dairy nutrient requirements
- Step 3.** Identify feed use for supplementation
- Step 4-** Know when a complete feed is needed
- Step 5-** Feed in multiple feedings





Operation Sheet 3

Daily feeding record keeping

Procedure

1. Record the data for your herd DAILY in the Feed Records.
 - a. Record Batch weights of TMR fed, number of animals and weigh backs before the next feeding.
 - b. Calculate the “Amt/h/d” by subtracting the weigh-backs from the amount fed and dividing by the number of animals in the pen.
2. Graph daily feed intake to monitor performance.
3. Record critical events (weather, feed change, grain shipment, etc.).
4. Determine bottlenecks to profitability.
5. Develop an action plan to correct these major problems.
6. Post the booklet so everyone can observe changes in performance.





LAP Test	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 8 hours.

Task 1. Daily feeding record keeping

Task 2. Identifying feed and feed supplements

Task2. Procedure of preparing PPE, materials and tools required for feeding and watering dairy animals





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DAIRY PRODUCTION

Level II

Learning Guide -35

Unit of Competence:- Feed & water dairy animals

Module Title:- Feeding & watering dairy animals

LG Code: AGR DRP2 M09 LO2-LG-35

TTLM Code: AGR DRP2 TTLM 1219v1

LO2: Feed and water animals

Instruction Sheet	Learning Guide 35
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This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- Providing feed and feed supplements
- Checking and maintaining feed and water supply
- Monitoring feeding process
- Noting and reporting variations to individual eating and drinking patterns

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 –**

- Provide feed and feed supplements
- Check and maintaining feed and water supply
- Monitor feeding process
- Note and reporting variations to individual eating and drinking patterns

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Information Sheet-1

Providing feed and feed supplements

1.1. **Feeding system:** - consider the parameters which determine the health and condition of dairy animals, the health and condition of pasture, the financial cost to the business, and the productivity of the business.

Feeding methods may include: -

- ☞ Staged introduction of grain feeding,
- ☞ Feeding grain in troughs, access to water,
- ☞ Allowing adequate time to change over feedstuffs, ad lib feeding,
- ☞ Restriction of movement, and
- ☞ Gradual introduction to new feedstuffs and strip grazing.

Feed Problems: this May include:

- ☞ Introduction of weeds,
 - ☞ Chemical residues,
 - ☞ Trampling losses,
 - ☞ Rancidity of grains,
 - ☞ Mixed with chemicals,
 - ☞ Grain poisoning,
 - ☞ Shortened lactation,
 - ☞ Mis-mothering and scouring
 - ☞ Spoilage of feeds, and
- Generally poor quality

Good milk production and number of calves per unit time are only obtained by achieving early conception in heifers and a short inter-calving interval in adult cows. Factors affecting productive and reproductive performance (fertility) in dairy cows are numerous, for instances; Genetics, Environment, climatic conditions (humidity & temperature), diseases, Management, etc. Among which *feeds and feeding plan* comprises the larger proportion for dairy production.

In feeding dairy cows, three basic points must be considered in order to get good reproductive performance:

1. Balanced feeding is necessary throughout the year (lactation, gestation, dry period).
2. Reproduction can be affected by both an excess as well as a nutritional deficiency.



3. Interactions exist between the factors affecting fertility so that the combined effects are additive.

The last point mainly applies to energy deficiency. Energy is an important nutrient for dairy cows both before and after calving and there is no substitute for energy in the diet of ruminants. A balance of energy and protein is required, even before calving and in the dry period

1.2. Feed supplementing

Feed plan for supplementary feeding involves

- Identifying dairy animals condition,
- Matching appropriate supplementary feedstuffs,
- Identifying feed nutrient values,
- Identifying purchased feed problems such as weed seed, and
- Determining rates and frequency of feeding.

1.2.1. Determine Feeding Requirements of Dairy Animals to Reach maximum production Targets

Profitable dairying may be achieved by first selecting foundation stock with inherent producing ability and, second, feeding and managing the herd in such a way as to enable the cows to reach to maximum economical production. The problems of selection have been considered in chapter 2. The purpose of this chapter is to discuss the feeding requirement of dairy animals to reach to the production targets in production. **Production targets** include:

- growth rates,
- sale weights,
- milk production,
- the growth/weight of calves and
- the pregnancy status of dairy cows and heifers.

It makes little difference how well bred the herd is if the cows are not given the proper kind and amount of nutrients for the manufacturing of milk. A highly bred dairy cows simply represents a factory capable of producing large quantities of milk and butterfat when fed the proper amount and kind of raw materials.



Self-Check -1-	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What Feed plan for supplementary feeding ? 5 pts

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. -



2.1. NUTRITION (FEED AND WATER)

Animals need to be fed and watered with products of suitable quality and safety.

Good dairy farming practice	Examples of suggested measures to achieve good dairy farming practice	Objectives of these measures
2.1.1. Secure feed and water supplies from sustainable sources	2.1.1.1 Plan ahead to ensure that the herd's feed and water requirements are met 2.1.1.2 Implement sustainable nutrient, irrigation and pest management practices when growing feed 2.1.1.3 Source farm inputs from suppliers implementing sustainable systems	Provide the herd with adequate feed and water Limit the potential impact of dairy feed production on the environment
2.1.2. Ensure animal feed and water are of suitable quantity and quality	2.1.2.1. Ensure the nutritional needs of animals are met 2.1.2.2. Ensure the feed fed to dairy animals is fit for purpose and will not negatively impact the quality or safety of their milk or meat 2.1.2.3. Ensure suitable quality water is provided and the supply is regularly checked and maintained 2.1.2.4. Use different equipment for handling chemicals and feed stuffs 2.1.2.5. Ensure chemicals are used appropriately on pastures and forage crops and observe withholding periods 2.1.2.6. Only use approved chemicals for treatment of animal feeds or components of animal feeds and observe withholding periods	Keeping animals healthy with good quality feed Preserve water supplies and animal feed materials from chemical contamination Avoid chemical contamination due to farming practices
2.1.3. Control storage conditions of	2.1.3.1. Separate feeds intended for different species 2.1.3.2. Ensure appropriate storage conditions to avoid feed spoilage or contamination	Prevent microbiological or toxin contamination

feed	2.1.3.3. Reject mouldy or sub-standard feed	or unintended use of prohibited feed ingredients or feeds contaminated with chemical preparations Keeping animals healthy with good quality feed
2.1.4.Ensure the traceability of feedstuffs brought on to the farm	2.1.4.1.Where possible, source animal feed from suppliers having an approved quality assurance programme in place 2.1.4.2.Keep records of all feed or feed ingredients received on the farm	Quality of the feeds fed to dairy animals is assured by the supplier or farmer Prevent the use of feeds that are unsuitable for dairy animals

2.2. Water Intake and Requirements

Milk is composed of nearly 87% water. An adequate supply of quality water for dairy cattle is extremely important. Farmers typically provide cows with free access to fresh water at all times. The water requirements of lactating cows are closely related to milk production, moisture content in the feed and environmental factors such as air temperature and humidity. The cow's peak water intake generally occurs during the hours of greatest feed intake.

Lactating cows: Drinking or free water intake satisfies 80 percent to 90 percent of the dairy cows' total water needs. The amount of water a cow will drink depends on her size and milk yield, quantity of dry matter consumed, temperature and relative humidity of the environment, temperature of the water, quality and availability of the water, and amount of moisture in her feed. Water is an especially important nutrient during periods of heat stress. The physical properties of water are important for the transfer of heat



from the body to the environment. During periods of cold stress, the high heat capacity of body water acts as insulation by conserving body heat. Water intake for lactating cows has been predicted with several equations.

Dry cows: The major factors affecting free water intake of dry cows are concentration of dry matter in the diet, dry-matter intake and amount of protein in the diet. For example, a 1,500-pound non lactating cow consuming 28 pounds of dry matter containing 12 percent moisture and 12 percent crude protein would consume 96 pounds (11.6 gallons) of water per day at air temperatures between 50 F and 80 F. Water intake may be 1.2 to two times greater during periods of heat stress.

Calves and heifers: During the liquid feeding stage, calves receive most of their water as milk or milk replacer. However, studies show that calves offered water in addition to a liquid diet gain faster and consume dry feed earlier than calves provided water only in their liquid diet. Weaned dairy heifers consume approximately 1 to 1.5 gallons of water per 100 pounds of body weight.

Drinking Behavior

Providing the opportunity for livestock to consume a relatively large amount of clean, fresh water is essential. Water is consumed several times per day and is generally associated with feeding or milking. Cows may consume 30 percent to 50 percent of their daily water intake within one hour after milking. Reported rates of water intake vary from 1 to 4 gallons per minute. On the basis of farm studies, the length of water troughs should be 2 inches per cow, with an optimal height of 24 to 32 inches. Reducing the height 2 to 3 inches may be logical for small-framed Jersey cattle. Water depth should be a minimum of 3 inches to allow the animal to submerge its muzzle 1 to 2 inches. Provide at least one watering device for every 15 to 20 cows, or a minimum of 2 feet of tank space per 20 cows. At least two water locations are needed in the loafing area for each group of cows. For confinement operations, waters should be located at the milking parlor exit and within 50 feet of the feed bunk or at every crossover in free-stall barns. For grazing operations, water also should be located at the milking parlor exit





and in each paddock so that animals are always within 600 feet of a clean, fresh water source. Heifers should be provided at least one watering space per 20 animals, with a minimum of two waters per group.

The temperature of drinking water has only a slight effect on drinking behavior and animal performance. Responses to chilling of water under most circumstances would not warrant the additional cost of cooling the water. Given a choice of water temperature, cows prefer to drink water with moderate temperatures (63 F to 82 F) rather than very cold or hot water.

Water Quality

Water quality is an important issue in the production and health of dairy cattle. The five properties most often considered in assessing water quality for both human and livestock use are organoleptic properties (odor and taste), physiochemical properties (pH, total dissolved solids, total dissolved oxygen and hardness), presence of toxic compounds (heavy metals, toxic minerals, organophosphates and hydrocarbons), presence of excess minerals or compounds (nitrates, sodium sulfates and iron) and presence of bacteria. Research on water contaminants and their effects on cattle performance are sparse. The following attempts to define some common water quality problems in relation to cattle performance.

2.3. Ensure animals are free from thirst, hunger and malnutrition

2.3.1 Provide sufficient feed and water for all animals every day Dairy livestock should be given sufficient feed, based on their physiological needs. Their requirements will vary according to their age, body weight, stage of lactation, production level, growth, pregnancy, activity and environment. Provide enough space around feeding and watering points to reduce bullying and ensure all livestock have sufficient access.

The quality (palatability and nutrient content) of the feed also needs to be considered, based on the animal's dietary requirements. Dietary supplements need to be considered





if the ration is unable to meet the animal's nutrient requirements. Animals should be fed a balanced diet and have unrestricted access to clean water.

2.3.2 Adjust stocking rates and/or supplementary feeding to ensure adequate water, feed and fodder supply. Due consideration should be given to the number of animals, physiological needs and nutrient quality of feeds when determining stocking rates, and all animals should have access to sufficient water each day.

2.3.3 Protect animals from toxic plants and other harmful substances Protect animals from access to toxic plants and contaminated areas such as farm dumps. Do not feed animals mouldy feeds. Store chemicals securely to avoid contamination of pastures, and observe withholding periods for pasture and forage treatments.

2.3.4 Provide water supplies of good quality that are regularly checked and maintained Animals should have free access to a clean fresh water supply. Regularly clean water troughs or drinkers and inspect them to ensure they are fully functional. The water supply should be adequate to meet peak requirements. Drinkers should fill sufficiently quickly to avoid any animals in a group remaining thirsty. All reasonable steps should be taken to minimize the risks of the water supply freezing or overheating, as appropriate. Runoff from effluent and chemical treatments of pasture and forage crops should not enter stock water supplies



Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention water requirement of lactating cow? 5pts

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. -

Information Sheet-3	Monitoring feeding process
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3.1. Monitoring feeding plan of dairy animals

When the requirement of the dairy animals are known, as well as the value of the available feed stuffs, either from tables or from analysis, it is possible to make and monitor feeding plans. The feeding plans make it possible to judge if animals are receiving the proper amount of nutrient according to its production. It should, however, be kept in mind that feeding plans are only a means of monitoring the feed as well as possible. The production of the animals and their nutrient requirement should always be observed and monitored.

3.2 Monitoring and controlling costs

In determining the cost of dairy production the expenses are commonly grouped as follows:

- The combined cost of feed bedding
 - Labor cost
 - Building charge
 - Equipment charge
 - Utensils, machinery and other tools charge
 - Miscellaneous expenses including veterinary service
- **Cost.** The requirement of the animal can be met through several combinations of feed ingredients. However, when the cost of these ingredients is considered, there can only be one least-cost formulation. The least-cost ration should ensure that the requirements of the animal are met and the desired objectives are achieved. This is the ration that supplies the nutrient need of an animal at least cost. Examples, ration A and ration B both give equal levels of the different nutrients but if ration A is an expensive combination than B then ration B is said to be the least cost ration. This is a strategy used in formulating a ration so as to minimize the cost of input and improve productivity.

3.3. Golden Rules for feeding milking cows



1. Milking cows have high requirements for water, which should be supplied separately as clean drinking water rather than as part of any concentrate slurry.
2. Feed sufficient quality forages (20 to 40 kg fresh forage/cow/day). The daily amount will depend on the cow's live weight and milk yield and the farmer's available forage resources.
3. Supplement feed with concentrates that are formulated to overcome specific nutrient deficiencies.
4. Consider wilting the forage, by leaving it out in the sun during the day before chopping it up, to reduce its moisture content and encourage the cows to eat more of it, hence produce more milk.
5. At any one time, 60% of milking cows at rest should be ruminating. This is a good reflection of the overall good herd management, which includes appropriate feeding management.
6. If concerned about unbalanced diets in the milking herd, closely monitor the manure characteristics, changes in feed intakes, changes in milk yield and composition (fat and protein or solids-not-fat) and the proportion of cows that are ruminating.
7. Remember that potentially higher yielding cows are more susceptible to other farm constraints such as insufficient quality feed, heat stress, poor animal health and the limited management skills of the farmer.
8. Farmers need to develop the skills to identify when cows are on heat. This requires consistent observations, including night-time observations.

3.3. Monitoring work place safety and positive environmental impacts





Action to be taken to ensure safe operation and maintenance of machinery equipment in every activity of dairy husbandry plays a great role in order to create conducive working atmosphere .and must :-

- Follow appropriate work procedure
- Use PPE when every work activity
- Identify and control hazards that occur when we work with dairy feed.
- Use appropriate machinery and understand how to use.

Also hygienic procedure should unde3r taken by rodent control ,dust management ,no rat or fecal contamination of feeds or raw ingredients and feed not being wet

3.4. Documenting data /record keeping

Record keeping: is a system of organizational item documenting all the necessary information about the farming system.

Advantage

- A mirror of the farm can show all the weakness and progress of the farm.
- A source past and future history of animal.
- Provide clue about daily weight gain.
- Source of managerial decision.
- Source of information about the farm

Record keeping must be simple and precise .this can be used as a guide for improvement or adjustment to be done this will also helpful in the day to day operation through record keeping profitability can be easily determined. The kinds of record that we keep record on the particular aspect of dairy enterprise that we want to emphasize are helpful for future expansion of farm.

Types of record kept

Technical: records regarding to production schedule in the farm

Example





- age of animal
- date of birth
- number of animal
- reproductive record
- purchase record

Economics: Records regarding the financial aspect of the operation.

Example

- price of feed
- Price of milk

Feed record can be analyzed in terms of

- ❖ Type of feed
- ❖ Source of feed
- ❖ Amount of feed
- ❖ Date of preparation
- ❖ Duration of staying
- ❖ Time of purchased
- ❖ Price of feed
- ❖ Time of purchased





Self-Check -3	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What are the advantage of record keeping? 5pts
2. List types of record keeping ? 5 pts

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. -

2. -



Information Sheet-4

Noting and reporting variations to individual eating and drinking patterns

There are many work outcomes in dairy farm while handling and processing of milk and milk products. The work out comes should be reported to the supervisor.

Some of them are:

- The amount of product produced. e.g milk yield, composition and quality
- Disease out breaks/ disease transmission
- Human labor attendance
- Mastitis
- Insufficiency of working facilities eg. electricity
- Contaminations (feed, water and feeding and watering trough)
- Malfunctions of machines and equipment like cream separator, churner, milking machine etc
- Suspected and dead animals and the others should be properly reported.



Self-Check -4	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. list some outcome report way of dairy feeding ? pts

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. _____ -





Operation Sheet 1	Procedure of preparing PPE, materials and tools required for feeding and watering dairy animals
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Techniques to select and prepare PPE, materials and tools required for feeding and watering dairy animals

Step 1. Select specific area or shop

Step 2. Identify specific PPE, materials and tools required for feeding and watering dairy animals

Step 3. Take steps to understand PPE

Step 4. familiarize with specific PPE

Step 5. Exercise using PPE



Operation Sheet 2

Identifying feed and feed supplements

Techniques to select and identify feed and feed supplements

- Step 1-** Know how to identify a complete feed
- Step 2.** Know dairy nutrient requirements
- Step 3.** Identify feed use for supplementation
- Step 4-** Know when a complete feed is needed
- Step 5-** Feed in multiple feedings





LAP Test	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 8 hours.

Task 1. Procedure of preparing PPE, materials and tools required for feeding and watering dairy animals

Task 2. Identifying feed and feed supplements



Reference

- Ayele Solomon, Workalemayehu Alemu, Jabor, M.A, and Belachew Hurisso., 2003. Livestock Marketing in Ethiopia. Review of structure, performance development, Initiatives, Socio-economic Research working paper 52 (ILRI), Nairobi, Kenya.
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- Tafere Mulualem* and Adane Melak, 2013. Direct Research Journal of Agriculture and Food Science Vol.1 (5). Available online at <http://directresearchpublisher.org/drjafs> © 2013 Direct Research Journals Publisher.



DAIRY PRODUCTION

Level II

Learning Guide -36

Unit of Competence:- Feed & water dairy animals

Module Title:- Feeding & watering dairy animals

LG Code: AGR DRP2 M09 LO3-LG-36

TTLM Code: AGR DRP2 M09 TTLM 1219v1

LO3: Complete the feeding and watering process



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

- Recording and reporting feeding and watering process and abnormalities
- Cleaning and storing feeding equipment and supplies

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 –**

- Record and report feeding and watering process and abnormalities
- Clean and store feeding equipment and supplies

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 1 to 7.
3. Read the information written in the “Information Sheets 1”. Try to understand what are being discussed. Ask your teacher for assistance if you have a hard time understanding them.
4. Accomplish the “Self-check 1&2 ” **in page -. 5&9**
5. Ask from your teacher the key to correction (key answers) or you can request your teacher to correct your work. (You are to get the key answer only after you finished answering the Self-check 1).
6. If you earned a satisfactory evaluation proceed to “Information Sheet 2”. However, if your rating is unsatisfactory, see your teacher for further instructions or go back to Learning Activity #1.
7. Submit your accomplished Self-check. This will form part of your training portfolio.

1.1. Importance of record keeping at livestock farm

Record keeping is a necessary element of good livestock business management. With no written records, farmers have to depend on their memory while making decisions regarding their farm practices. But, memories can become unreliable after a few days, months or years. Thus, recording of the performances of the animals can be done easily if animals have some identifications / numberings. Thus, both animal recording and identification are always required. There are several useful records such as production and financial transactions in the dairy enterprise. If we know what is happening on the dairy farm we need to maintain some useful farm records. Farm records are like the progress report cards students get at school. If farmers have farm records, they can tell how well they are managing their farm in comparison to other farmers. They can also see the strengths and weaknesses in their farm operations. It is also important to have accurate facts and figures when borrowing money, seeking government loans and tax returns.

1.2. Feeding records

These can vary from simple records of when feed was purchased and for which category of stock, through to details of changes in feeding programs (such as feed types and daily quantities fed per cow). The more detailed the feeding records, the better the ability to assess feeding efficiency (milk produced per unit feed consumed) on the farm. The best way of recording such information is using a daily diary kept in the office where changes in herd and feeding management can be routinely included. This diary could also be used to document appointments or other planned important farm activities. An additional aid to farm record keeping is a small pocket-sized notebook carried by the farmer (and staff) in which they record any unusual observations, changes in routine management or other noteworthy farm events. Computers are becoming more common to aid record keeping, collation and interpretation although a simple notebook and hand calculator is better than relying on memory.

Daily feeding register:- This register records the amount concentrate, dry fodder, green fodder and other feeds given to the animals daily.

1.3. Advantages of record keeping at farm

- ❖ Helps in fixing proper prices of animal meant for purchase and sale.
- ❖ Helps in overall better supervision and management of herd.
- ❖ Helps in analyzing feeding cost and benefits from animal product outputs. Hence helps to formulate economic feeding strategies for optimal productions.
- ❖ Helps in estimating the cost of milk production.
- ❖ Helpful in comparing the efficiency of labor and herd with other farms.
- ❖ To compare the herd performances in different years to determine the amount of profit/loss each year and setting future goals/directions for the

Daily Feeding Register:

Month: _____

Date	No. of Animals	Silage/Green Fodder (Kg)			Concentrate (Kg)			Any other Feed Ingredient		
		Received	Issued	Balance	Received	Issued	Balance	Received	Issued	Balance

Table 1. Dairy farm daily feeding registration



Self-Check -1	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the importance of record keeping ? 5pts

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. _____ -



2.1. Cleaning feeding equipment

Aspects of cleaning

The arrangements for cleaning equipment that comes in contact with products are an essential part of a food processing plant.



Fig. Feed trough cleaning



Fig. Feed trough cleaning



Fig. PPE cleaning



Fig. barn cleaning



It must be kept in mind that food manufacturers are always obliged to maintain high hygienic standards; this applies both to the equipment and, naturally, to the staff involved in production. This obligation can be considered under three headings:

1. Trade obligation
2. Moral obligation
3. Legal obligation

Trade obligations

Good, wholesome, clean products that keep well and are free from health hazards are obviously good for trade; customers will buy the same product again. However, if a product is contaminated, does not keep well or is the subject of complaints to the authorities, the reverse is true, and the resulting publicity is very damaging. The potential effects of poor cleaning, poor standards and poor quality must be kept in mind at all times.

Moral obligation

Most of the customers who consume the products never see the factory or how the products are handled. They trust the company, rely on its reputation, and take it for granted that operations are carried out under the cleanest of conditions by well-trained staff who are continually aware and conscious of these factors

Legal obligation

The law attempts to protect the customer and purchaser in respect of health and quality. Failure to meet legal obligations, national or local, can result in very severe action, and prosecution proceedings can be very costly. Prevention is better than cure, and companies are obliged to meet legal requirements and maintain high standards. Milk and milk products by their nature are ideal media for the growth of microorganisms, including many pathogens. As a result of this, there is more legislation concerning milk – its production, handling, processing, packaging, storage and distribution – than any





other food product. Each country has its own national and perhaps local legislation standards.

Cleaning objectives

Talking about cleaning results, the following terms are used to define the degree of cleanliness:

- Physical cleanliness – removal of all visible dirt from the surface
- Chemical cleanliness – removal not only of all visible dirt but also of microscopic residues that can be detected by taste or smell but are not visible to the naked eye
- Bacteriological cleanliness – attained by disinfection
- Sterile cleanliness – destruction of all microorganisms

It is important to note that equipment can be bacteriologic ally clean without necessarily being physically or chemically clean. However, it is easier to achieve bacteriological cleanliness as a matter of routine if the surfaces in question are first rendered at least physically clean. In dairy cleaning operations, the objective is nearly always to achieve both chemical and bacteriological cleanliness. The equipment surfaces are therefore first thoroughly cleaned with chemical detergents and then disinfected. It is important to note that equipment can be bacteriological clean without necessarily being physically or chemically clean.



Self-Check -2	Written Test
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Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. What is the importance (objective) of cleaning ? 5pts

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

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____

1. _____ -





Operation Sheet 1	Procedure of preparing PPE, materials and tools required for feeding and watering dairy animals
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Techniques to select and prepare PPE, materials and tools required for feeding and watering dairy animals

Step 1. Select specific area or shop

Step 2. Identify specific PPE, materials and tools required for feeding and watering dairy animals

Step 3. Take steps to understand PPE

Step 4. familiarize with specific PPE

Step 5. Exercise using PPE

.





Operation Sheet 2

Daily feeding record keeping

Procedure

1. Record the data for your herd DAILY in the Feed Records.
 - a. Record Batch weights of TMR fed, number of animals and weigh backs before the next feeding.
 - b. Calculate the “Amt/h/d” by subtracting the weigh-backs from the amount fed and dividing by the number of animals in the pen.
2. Graph daily feed intake to monitor performance.
3. Record critical events (weather, feed change, grain shipment, etc.).
4. Determine bottlenecks to profitability.
5. Develop an action plan to correct these major problems.
6. Post the booklet so everyone can observe changes in performance.



LAP Test	Practical Demonstration
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Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 8 hours.

Task 1 Daily feeding record keeping

Task2. Procedure of preparing PPE, materials and tools required for feeding and watering dairy animals



Reference

Ayele Solomon, Workalemayehu Alemu, Jabor, M.A, and Belachew Hurisso., 2003. Livestock Marketing in Ethiopia. Review of structure, performance development, Initiatives, Socio-economic Research working paper 52 (ILRI), Nairobi, Kenya.

Bosenuabera 2012, on-farm phenotypic characterization of indigenous sheep and their husbandry practices in selale area, oromia regional state, Ethiopia,

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R.T. Willson, 2006. Strategies to Increase Sheep Production In East Africa.

Solomon Abegaz, Girma Abebe and Kassahun Awgichew, 2008 Sheep and Goat Production

Tafere Mulualem* and Adane Melak, 2013. Direct Research Journal of Agriculture and Food Science Vol.1 (5). Available online at <http://directresearchpublisher.org/drjafs> © 2013 Direct Research Journals Publisher.

