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# Facilitator Guide



Sector
**Agriculture**

Sub-Sector
**Dairying**

Occupation
**Milk Collection and Handling**

Reference ID: **AGR/Q4202** Version **3.0**
NSQF **Level 4**

# Village Level Milk Collection Centre Incharge

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https://eskillindia.org/Home/handbook/143

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> Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission.

**Shri Narendra Modi**
Prime Minister of India

## Acknowledgements

We would like to thank all the experts and organisations who have helped us by reviewing the content and providing their valuable inputs for improving quality, coherence and content presentation. This facilitator guide will lead to successful roll out of the skill development initiatives, helping greatly our stakeholders particularly trainees, trainers and assessors.

It is expected that this publication would meet the complete requirements of QP/NOS based training delivery. We welcome and appreciate any suggestions from users, industry and other stakeholders for any improvements in future.

## About this Guide

This facilitator guide is intended to empower the trainer/facilitator to prepare the participant to become 'Village Level Milk Collection Centre Incharge' as per the Qualification Pack (QP).

The objective of the guide is to provide an approach map for interacting with the trainees undergoing training on the job role. The aim of the course is to provide both theoretical and practical knowledge to the trainees, and also guide them.

This guide is neither a substitute nor complete road map, but an aid to help you to pass on the knowledge on all the aspects to the trainees in a systematic manner. It is expected that the trainer is fully conversant with all the contents of the handbook. The guide is just to indicate that how to proceed for covering a topic and includes some additional information that may be necessary for the trainer to develop better comprehension.

Facilitator with the help of this guide will be able to build among the participants:

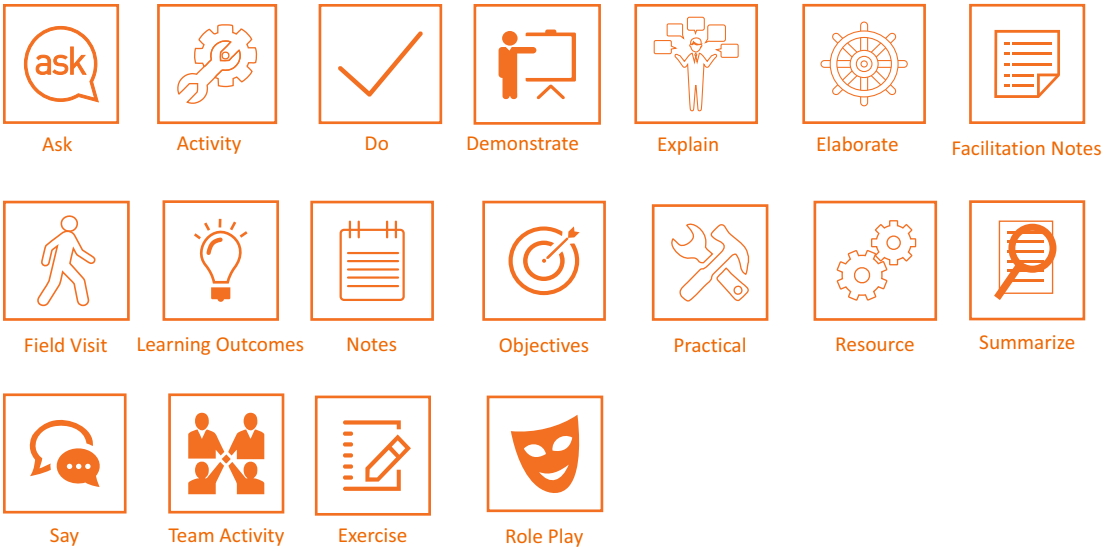
Knowledge and Understanding: Satisfactory operational learning and comprehension to play out the required chore.

Performance Criteria: Pick up the required aptitudes through hands on preparing and play out the required operations inside the predetermined measures.

Professional Skills: Capacity to settle on operational choices relating to the zone of work.

The guide will also help them learn more by field visits and providing hands on training. It is expected that irrespective of the region, knowledge on all aspects of the job role Village Level Milk Centre Incharge will be imparted to the trainees.

## Symbols Used



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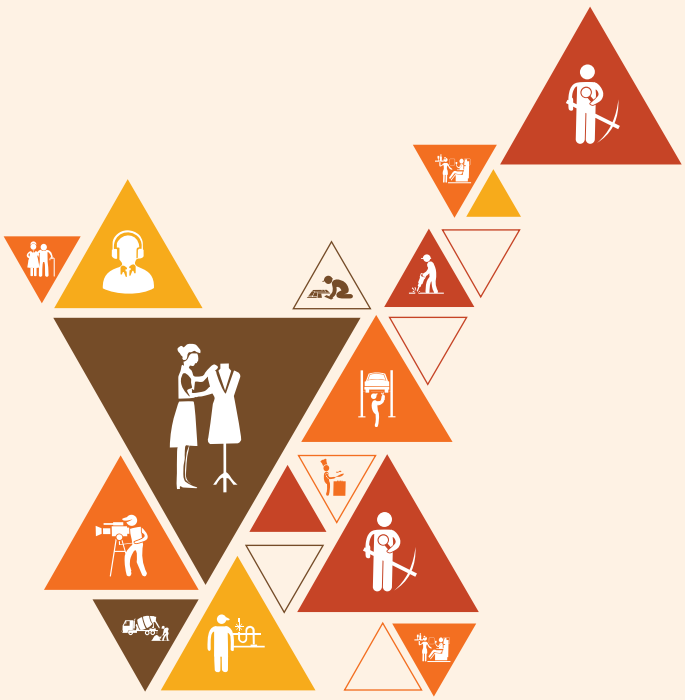
# 1. Introduction to the Role of Village Level Milk Collection Centre

Unit 1.1 - Size and Scope of the Dairy Industry

Unit 1.2 - Roles and Responsibilities of a Village Level Milk Collection Centre Incharge

Unit 1.3 - Milk Collection



## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Discuss the roles and responsibilities of Village Level Milk Collection Centre Incharge.

## Key Learning Outcomes

**After the completion of this module, the participants will be able to:**

1. Describe the size and scope of the dairy industry and its market.
2. Discuss the role and responsibilities of a Village Level Milk Collection Centre Incharge.
3. Describe various employment opportunities for a Village Level Milk Collection Centre Incharge.
4. Discuss the concept of clean and antibiotic free milk.
5. Explain the opportunities and challenges in milk collection.
6. Explain emerging dimension for dairy business (viz. market technology and innovation).

# Unit 1.1: Size and Scope of the Dairy Industry

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Recognize your fellow participants and build rapport with them.
2. State the overall training outcomes of the programme.
3. Describe the size and scope of the Dairy Industry and its market.
4. Explain emerging dimensions for the diary business (viz. market technology and innovation).

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Activity

**Purpose:** To acquaint participants with each other and to make them comfortable with one another as well as the Trainer.

**Resources:** Classroom space to accommodate participants in a big circle.

**Methodology:** Peer interaction, experience sharing.

**Tentative Duration:** 30 minutes.

**Expected outcome**

- Familiarize participants with one another as well as the Trainer.
- Educate participants about the training programme, its curriculum and its terminal outcomes.
- Set expectations with participants about the training programme.

Welcome the participants. Tell them that you would like to prepare them for an ice-breaker activity. Spend about 15 minutes on the activity and another 15 minutes in briefing them about the training programme.

Get participants to form a circle. Join the circle. Begin with yourself. Say (a) your name (b) talk about your interest in this field and what inspired you to become a Trainer in this subject and (c) mention a term/word associated with the dairy industry. Examples –milk, pasture, cattle, fodder, calf, milk can, names of dairy products, names of dairy cooperatives.

After you finish, the person to your left must (a) introduce himself/herself (b) state why he/she chose to enrol for this course and (c) name a term/word associated with the dairy industry. Ask persons who share the same reason, for point (b), to raise their hands. They must, then, introduce themselves one by one, speak about their interest in the subject and name a term/word associated with the dairy industry. This way, participants will come to know of like-minded persons in their class. Continue to proceed leftward in the circle until all participants have introduced themselves in this manner. Once done, participants may take their seats.

Explain classroom etiquette such as punctuality to class, maintaining discipline, putting phones on silent, participating and not hesitating to ask questions in case of doubts. Further, speak about what participants may expect from the training programme, the curriculum and briefly on career prospects for this job role. Do impress upon them, that they have indeed chosen the right field and are at the right place to skill themselves! With these opening remarks, proceed into the subject matter.

## Do

- Start with a leading question that intends to establish the need to study this unit. For example: What do you think is the scope of dairy farming in India?

## Say

- Dairy farming is an established business in India. Traditionally, dairy farming is done by small farmers and agricultural labourers as a means of subsidiary income. However, it is a main occupation for many in the urban areas in India where the demand of milk is high. In India, dairy farming and milk production play a key role in the economy. The dairy farming business can be set up in almost all regions of India. Many state governments are promoting dairy farming through different schemes as the demand for milk products is increasing across the country.

## Ask

- Why do you think dairy farming business is a profitable business in India?

**Expected Answers**

- A source of employment and business opportunity for people.
- Dairy products are in demand all through the year, so the products can be sold easily.

## Explain

- Explain the various factors that contribute to dairy farming business in India being profitable.

## Say

- According to a survey conducted by The Economic Times, “India became the world's largest milk producer (198.4 million tonnes in 2019-20), outstripping the US almost 20 years ago.'' India's milk production accounts for 22% of global milk production. Most of the milk produced in India is consumed in the domestic market. The per capita availability of milk in India is 406 gms per day.
- Indian dairy sector is growing at 4.5% annually. Nearly, 68% of the dairy industry is controlled by the unorganised sector. The milk production in India was 198.4 million tonnes in the year 2020 and the market size of livestock was 8,38,797 crores. As per the National Dairy Development Board the GDP contribution of livestock was 5.2% in the year 2019-2020.

## Do

- Show the slides with popular Indian breeds of milk producing bovine animals.
- Show the chart with statistics on milk production in India as per type of cattle.
- List the major milk producing states in India using the presentation slide.

## Say

- India's National Dairy Development Board launched the world's largest dairy development program in 1970. Dr. Verghese Kurien started 'The White revolution' or 'Operation flood'. Cooperative societies of milk producers were formed, they helped to procure milk from individual milk producers and helped with technology and management systems. The aim of the program was to link all the milk producers to consumers in towns and cities all over India.
- Let us look at this video to see 'How Amul helped India become world's largest milk producer?’

## Do

- Show the video on Amul from the given link (Duration: 16:52 minutes) - How Amul helped India become world's largest milk producer? AMUL Case Study.

  https://www.youtube.com/watch?v=_TVXCQqzxLY

## Ask

- What were the benefits of the white revolution?

## Do

- Show the benefits of white revolution.

## Team Activity

**Purpose:** Discuss the major dairy industries in India and its market.

**Resources:** Presentation slides, internet connection.

**Methodology:** Collaborative work.

**Tentative Duration:** 30 minutes.

**Expected outcome**

Participants will be able to state the major dairy industries in India and thus describe size and scope of dairy industry and its market.

- Divide the participants into groups of five or six, or as per the batch size. Put up the slides with the name and logo of the major diary industries in India. Each team will research and come up with data of the industry which will include:
  1. The location/s of the dairy industry
  2. When was the industry established or founded?
  3. Details of the products sold by the dairy industry and under which brand name.
- Ask the teams to collaborate with the team members to research and gather the details on the dairy industries listed on the slides. Give the teams enough time to finish the activity.
- Ask each team to present the details gathered on each industry. Each team will present the details gathered for two industries listed on the slide in sequence. Post the responses from each team, de-brief using the presentation slide.

## Do

- Using the presentation slides explain:
  - Different branches of dairy sector and what it involves.
  - Different value added products of the dairy sub-sector.
  - The emerging trends in the value-added products of the dairy industry in India.
  - The emerging dimensions and innovations in the dairy business.
  - The benefits of advance technology and artificial intelligence in the dairy sector.
  - Some innovative solutions developed for the dairy industry.
- Show the video on automated technology in dairy farming activities from the given link.

  (Duration: 9:39 minutes) - Amazing Modern Automatic Cow Farming Technology - Fastest Feeding, Cleaning and Milking Machines.

  https://www.youtube.com/watch?v=lS802qYRVMU

## Summarize

i. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

i. Make arrangements to show the audio visual aids given as links.

ii. Additional Eresources:

- Cows go to the cloud: Indian Dairy sector and tech-innovations

  https://dairynews7x7.com/cows-go-to-the-cloud-indian-dairy-sector-nd-tech-innovations/

- Value added traditional Indian dairy products (Duration 5:55 minutes)

  https://www.youtube.com/watch?v=VD1MqHgz_zM

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

I. The dairy farming business is a profitable business in India as:

- It is a non-polluting business and environment friendly.
- It does not require skilled labour.
- The business can be run by using family labour.
- The climate in India suits all types of Indian and foreign breeds of cattle.
- Loans are easily available in the banks and NGOs.
- It is a source of employment and business opportunity for people.
- The dairy products are in demand all through the year, so the products can be sold easily.

ii. Emerging trends of the dairy industry and the changes done by the industry:

Dairy companies have started partnering with online grocery stores to sell their products, have created their own platforms to connect directly with the consumers.

Companies are looking to implement renewable energy solutions to the milk producers and are supporting the dairy farmers by providing technology, knowledge, skill and market intelligence to optimise cost and efficiency.

Milk producers are focusing on producing ready to drink or ready to eat milk products and focusing on producing high quality and safe products that also promote wellness.

Companies are also focusing on packing the products rather than selling them loose by using modified atmosphere packaging and active and controlled packaging to keep the milk products fresh.

iii. Technology in the dairy industry has moved to automated milk collection, airlifting of milk, mechanical dairy plant operations, and assessing total milk quality parameters.

- Benefits of advance technology and artificial intelligence in the dairy sector
  - Reduce wastage of milk
  - Digitise and improve milk production operations
  - Develop last-mile logistics infrastructure
  - Monitor the health of livestock
  - Find irregularities in milk production
  - Predict weather conditions
- Innovative Solutions Developed for the Dairy Industry
  - Sensors to detect if the cow is ready for milking or not
  - Robotic milking machines
  - Blockchain for product traceability
  - Drones to monitor cattle
  - App for doorstep delivery with a milk testing kit

**B. Fill in the Blanks**

a. Vijaya

b. Aavin

c. Dynamix

# Unit 1.2: Roles and Responsibilities of a Village Level Milk Collection Centre Incharge

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Discuss the roles and responsibilities of a Village Level Milk Collection Center In charge.
2. Describe various employment opportunities for a Village Level Milk Collection Center In charge.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Say

- Milk collection is a primary task in the dairy industry. Everyday farmers living in small villages bring the milk produced and deposit it in a common place. This place is known as the Village Level Milk Collection Centre or VLMCC.

## Do

- Using the presentation slides explain the milk collection system.

## Say

- At the VLMCC, milk is weighed and tested for quality and payments are made to the farmers. Apart from these main tasks there are other activities that happen at the VLMCC. These activities help the dairy companies and the farmers that are associated with the VLMCC.

## Do

- Using the presentation slides list the other activities at the VLMCC.

## Say

- A Village Level Milk Collection Center Incharge (VLMCCI) is responsible for first-level milk collection and testing. The person must make sure that the milk is stored in a safe environment without getting spoiled. The person should be skilled and have the knowledge to handle milk hygienically and ensure that it is stored and transported safely.

## Team Activity

**Purpose:** To list the attributes required for a VLMCCI.

**Resources:** Presentation slides.

**Methodology:** Group discussion.

**Tentative Duration:** 30 minutes.

**Expected outcome**

List the attributes required for the job role of VLMCCI.

- Divide the participants into groups of 4 or 5 depending on the batch size. Show the slide with the responsibilities of VLMCCI. Ask each group to discuss and present the attributes required for the job role VLMCCI. Note their responses.
- Ask each team to list one attribute required for the job role based on the job responsibilities listed.
- De-brief the activity by explaining the need for the attributes like time management, mathematical skills etc.
- Put up the slides with roles and responsibilities and talk about the need for training and upskilling courses that they can take up later.

## Say

- In the dairy industry the employment sector can be divided into organised and unorganised sector. In the unorganised sector milk is sold by traditional milkmen and vendors who collect milk individually from farmers and sell it to the consumers.
- Let us look at employment opportunities in the organised Sector. In India there are four systems by which milk is procured. The big and organised dairies collect milk through one or a combination of these four systems. You can work in any of these as an employee or proprietor.

## Do

- Use the presentation slide and describe the four systems of milk procurement.
- Discuss the job role VLMCCI at the milk collection centres and how a team of trained and skilled personnel of the dairy company's train the VLMCCI to collect the milk in the morning and evening shifts.
- List some of the top dairy companies in India that recruit VLMCCI.
- Discuss the entrepreneurship opportunities in the dairy sector using the presentation slide.
- Show the video on Business Opportunity in Dairy Sector from the given link.

  (Duration: 2:30 minutes) - https://www.youtube.com/watch?v=sYXDqx0en5M
- Discuss the Government Scheme for Entrepreneurs using the presentation slides.
- Conclude the session by playing the video on Amul from the given link (Duration: 23:25 minutes) - #Amul Food Factory – Milk. https://www.youtube.com/watch?v=h1Xp7p1taW0

## Summarize

i. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

i. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Milk collection is a primary task in the dairy industry. Milk is weighed and tested for quality and payments are made to the farmers. The collected milk is sent to bulk chillers or processing units. The other activities of the VLMCC are:

Organising inputs for animal feed and fodder

Arranging for animal health checkups

Helping to generate additional income for the farmers

Providing employment for the rural youth

Arranging for advise on financial services like loans, insurance policies, credits through banks etc.

ii. A VLMCC Incharge is responsible for handling all the milk that comes to the center. It is an important role as milk is a highly perishable product and needs to be kept safe throughout the operations. The responsibilities of a VLMCC Incharge are:

Procuring and handling large volumes of milk from individual milk producers.

Operate and maintain the automatic milk collection unit.

Ensuring the cold chain is enabled from the milking stage to the arrival of milk at the dairy plant.

Maintain safety and hygiene in the milk center.

Keep records of payments and other documents related to the operations.

Providing regular income and sale guarantee to the farmers for their product.

Arranging for supply of inputs for technical, economic, and social issues.

Organising monthly/quarterly/half-yearly meeting with the members to address their grievances.

iii. Time management skills

Stress management skills

Communication skills

Mathematical skills

Mechanical aptitude

iv. The four systems of milk procurement India are: Direct system, Contractor system, Agent system and Co-operative system. The big and organised dairies collect milk through one or a combination of these four systems and VLMCCI can work in any of these as an employee or proprietor.

v. Amul, Mother dairy, Arokya, Vijaya dairy, Hatsun

**B. Fill in the Blanks**

a. Distribution

b. Retailing and export

c. Aggregation

# Unit 1.3: Milk Collection

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Discuss the concept of clean and antibiotic free milk.
2. Explain the opportunities and challenges in milk collection.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, , Chart papers, Coloured pens, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Ask

- What do you understand by 'Clean Milk Production' and how can we achieve it?

## Say

- Milk containing antibiotic residues, high quantity of aflatoxins (toxic compounds produced by moulds) and adulteration are unsafe for human consumption. The goal of clean milk can be achieved through scientific quality control methods based on Hazard Analysis Critical Control Point (HACCP). These scientific methods not only support in producing quantum milk but also helps in keeping the milk clean, clear from debris and microbes till it is consumed.
- Raw milk has a short shelf life when stored at room (ambient) temperature. The lactic acid accumulation in milk turns it sour and coagulation (forming lumps or solids) occurs. This level of acidity is referred to as 'developed acidity', and such milk cannot be sold.

## Explain

- Explain the breakdown of lactose in milk to lactic acid using the presentation slide.
- Explain the factors that affect the nature of milk – before, during and after milking.

## Do

- Show the video on the basic steps of milk production from the given link.
  (Duration: 3:14 minutes) - https://www.youtube.com/watch?v=7TMtA8Eh9uE

## Say

- Raw milk has the potential to cause food-borne illness like typhoid, brucellosis, and tuberculosis. Contamination of milk can occur at different stages due to unfavourable practices followed in animal management, milking process and in the environment where the milking is done. Milk in the udder of a healthy cow is sterile. Contamination begins when the milk leaves the udder through the teats.

## Ask

- How can pathogens in milk can be reduced or eliminated?

**Expected Answers**

- Careful handling and storage

## Say

- Pathogens in milk can be reduced or eliminated through:
  1. Hygienic milk production,
  2. Careful handling and storage, and
  3. Application of the right heat.

## Do

- Explain the practices to be followed for clean milk production using the presentation slide.

## Team Activity

**Purpose:** To acquaint participants with practices to be followed for Clean Milk Production.

**Resources:** Presentation slides, Chart papers and Coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 30 minutes.

**Expected outcome**

Familiarize participants with the practices to be followed for Clean Milk Production.

- Divide the participants into 3 groups. Ask each group to discuss and come up with points for handling the animals for 'Clean Milk Production'.
- Assign one topic to each team to discuss and list the points:
  - Feeding practice
  - Housing for animals
  - Animal Health Management
- Each team will present the discussion points for the assigned topic. Note their responses. Consolidate the points and using the presentation slide de-brief the activity.
- Post the activity quickly summarise the practices with the dos and don'ts for Clean Milk Production.

## Do

- Using the presentation slide describe the factors that determine if the milk is clean and milk testing parameters.
- Show the video on Dairy Industry in India - Problems, challenges and the future of Indian dairy industry from the given link. (Duration: 7:02 minutes) -

  https://www.youtube.com/watch?v=YI2DoFEJNdY

## Say

- In India eating habits have traditionally included milk and other dairy products. For a sizable vegetarian population in India, dairy products represent a key source of affordable and nutrient-rich food and a sole acceptable supply of animal protein. One of our biggest success stories and a vital factor in the socioeconomic advancement of rural areas is cooperative dairying.
- The primary characteristic of the Indian dairy industry is that it is still largely unorganised. Only 18 to 20% of the milk produced is distributed through the organised sector. The unorganised sector has not yet joined the current infrastructure for processing. The majority of the milk produced in India is consumed domestically. In the milk sector, India neither actively imports nor exports. However, there is a gradual positive shift for demand of milk and milk products in the Indian market due to a rising middle class, rising prosperity, change in eating patterns, and increased awareness.

- The major challenge in the dairy industry is with sourcing and logistics. This is because the most important component of this business is the acquisition of fresh milk. Obtaining milk beyond a certain radius (around 200 kms) is not practical due to the perishable nature of the product. The issue of low yield, bottlenecks in the cold storage and supply chain infrastructure are the other major challenges.
- Let us do an activity to understand the major challenges and the development opportunities in in milk collection and processing.

## Team Activity

**Purpose:** To identify the development opportunities in milk collection and processing.

**Resources:** Presentation slides, Chart papers and Coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 30 minutes.

**Expected outcome**

Identify the development opportunities in milk collection and processing.

- Divide the participants into groups depending on the batch size. Put up the slide with the different dairy activities and the challenges faced in the sector. The task for the teams is to discuss and come up with the opportunities for development as a solution for the challenges faced. Assign at random 3 activities for the discussion. Note: Provide the class with internet connection, if possible, to do some research on the topic.
- The groups will research, discuss and come up with opportunities for development for the assigned activities and challenges.
- Each team will present the discussion points to the class. Note the responses in the presentations.
- Post the presentation, summarise and consolidate the points using the presentation slide.

## Summarize

i. Conclude the unit and the introductory module by calling for volunteers to sum up one by one the learnings of the module.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

i. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The last milk (strippings) has more fat than the foremilk, hence incomplete milking results in poor milk output and low fat content.

ii. The milking vessels must not be cracked and should not have any dents or crevices.

The milking vessels must be cleaned and scrubbed before and after milking.

The milking vessels should be ideally made of stainless steel and or good non-rusting and non-absorbent material.

The milking vessels must small openings to prevent outside contamination.

iii. Milk handlers should:

Follow good hygiene practices and habits

Be healthy and free from communicable diseases

Be trained hygiene, housekeeping, sanitation, milking methods and good animal husbandry

iv. Features of clean milk:

Is free from dirt, debris and sediments

Is free from off-flavours (caused by presence of undesirable compounds)

Has small numbers of harmful bacteria

Is free of antibiotics and chemical residues

Has normal composition and acidity

v. The major factors that affect the nature of raw milk before, during and after milking:

Milking practices

Lactation stage

Mastitis infection

Cattle feed

Cold storage

Heating

Medication

vi. Pathogens in milk can be reduced or eliminated through:

- Hygienic milk production,
- Careful handling and storage, and
- Application of the right heat.

**B. Match the Columns**

I - b

ii - e

iii - d

iv - a

v - c

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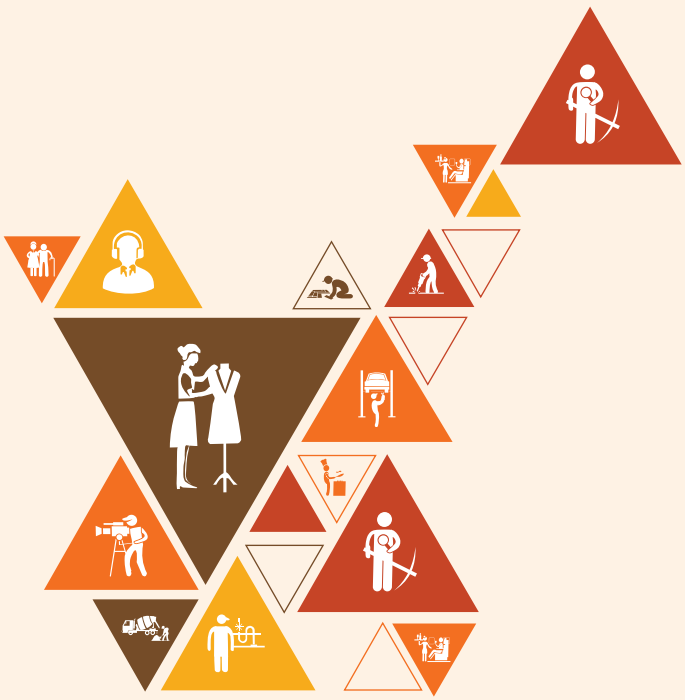
# 2. Process of Setting Up the Milk Collection Centre

Unit 2.1 – Preparing for Milk Collection

Unit 2.2 – Preparing Milk Collection Equipment

Unit 2.3 – Preparing for Measurement and Initial Quality Testing

Unit 2.4 – Administration Related to Reception and Testing of Milk



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## Terminal Outcomes

**After the completion of this module, participant will be able to:**

1. Demonstrate preparation of milk collection equipment as per standards for milk collection activities.
2. Demonstrate operation of milk measuring equipment.

## Key Learning Outcomes

**After the completion of this module, participant will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Describe characteristics of raw milk and its types.<br>2. Describe various milk quality testing techniques.<br>3. Explain the legal regulation in terms of health and hygiene to be maintained at work place.<br>4. Enlist milk producers/supplier in the market for procurement of milk.<br>5. Describe the calibrations of milk testing equipment.<br>6. Enlist different chemicals and reagents to be used.<br>7. Discuss about FSSAI compliances. | 1. Demonstrate handling milk material like sampler, sample bottles as per standard<br>2. Show how to maintain cleanliness of the milk collection equipment<br>3. Show the management process to maintain hygiene for milk collection equipment<br>4. Show how to check that equipment are in good working condition and ready to work<br>5. Demonstrate how to maintain the quality testing equipment's and calibration<br>6. Demonstrate operating electronic weighing scale and analyser for initial quality testing<br>7. Demonstrate maintaining the inventory list, producer masters, and rate charts, etc.<br>8. Show how to label chemicals and reagents<br>9. Demonstrate different milk testing techniques |

# Unit 2.1: Preparing for Milk Collection

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe characteristics of raw milk and its types.
2. List milk producers/supplier in the market for procurement of milk.
3. Explain the legal regulation in terms of health and hygiene to be maintained at workplace.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Do

- Start with a leading question that intends to establish the need to study this unit.

## Ask

- What is raw milk?

**Expected Answers**

- Natural (raw) milk is milk with nothing added or removed. Raw milk is the milk which has not gone through the process of pasteurization or sterlisation.

## Explain

- Explain about the main components of milk

## Say

- Milk can be categorised as per the species, the fat and SNF contents and the processing it goes through.

## Explain

- Explain about the different categories of milk like species identified milk, milk type based on fat and SNF contents and heat treated or processed milk.

## Say

- The raw milk is heat treated to make the milk safe for humans and increase the shelf-life of the milk.
- The three methods of heat treatment are pasteurisation, boiling and sterilisation.

## Activity

**Purpose:**

To acquaint participants with difference between pasteurisation, boiling and sterilisation.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 15 minutes.

**Expected outcome**

Participants will be able to explain the difference between pasteurisation, boiling and sterilisation.

- Divide the participants into 4-5 groups. Ask them to discuss and present the difference between pasteurisation, boiling and sterilisation.

## Explain

- The process of heating the milk at of different categories at 63 degrees Centigrade for at 30 minutes and then cooled immediately at 10 degrees Centigrade is called pasteurisation. Pasteurisation kills the pathogenic bacteria.
- The raw milk is boiled at 100.5 degrees Centigrade but not cooled immediately like in the pasteurisation method. There is a possibility of some microorganisms surviving the boiling process. Boiled milk has a lower shelf life than the pasteurised milk.
- This is the process of heating milk at 115 to 135 degrees Centigrade for 15 minutes in a sealed container. The sterlised milk is then packed hygienically to preserve it for 15 days from the date it has been sterlised. Sterlisation kills all living microorganism.

## Do

- Show the participants the following videos from the given links:
  1. Milk Sterilisation - https://www.youtube.com/watch?v=HBDsPfjnLac (Duration: 1:43 minutes).
  2. Difference Between Sterilization and Pasteurization - https://www.youtube.com/watch?v=LDUXEXwFm6Y (Duration: 2:11 minutes).

## Say

- As per the National Dairy Development Board of India, the total milk produced is 198.4 million tonnes and the per capita availability is 406 grams per day. According to a survey conducted by The Economic Times, of the total milk produced in villages, 52% of the milk is marketable surplus.
- Marketable surplus is the difference between what the farmer produces and what he consumes for himself from that output.

## Ask

- Who are the milk producers?

**Expected Answers**

- Landless farmers
- Small scale landholders
- Contractors
- Milk co-operatives

## Explain

- Explain about the different type of milk producers.

## Say

- The government of India has set some rules and regulations that need to be followed at every factory and workplace for the safety and health of every employee. Workplace hazards, medical regulations, working hours, equal employment opportunity, regulations for maintaining the establishment and Recommended dosage of sanitisers and control of substances hazardous to health are the elements of the workplace in the dairy industry.

## Activity

**Purpose:**

To acquaint participants with legal regulation under each element at the workplace.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 15 minutes.

**Expected outcome**

Participants will be able to explain the legal regulation under each element at the workplace.

- Divide the participants into 4-5 groups. Ask them to discuss and present the legal regulation under each element at the workplace.
- With the help of the presentation slide explain the legal regulation that are mandatory under each work element.

## Explain

- Explain how the milk can be contaminated by the vessels and utensils used. Explain the use of sanitisers, type of sanitisers, classification, and properties of sanitisers. Explain about the recommended dosage of detergents and their types.

## Ask

- How should the employees conduct themselves at the VLMCC?

**Expected Answers**

- They should be honest
- They should follow the rules
- They must have the knowledge of the legal rules relating to their role.
- They must not take undue advantage of their position at the VLMCC.

## Say

- The code of business conduct refers to how employees of the VLMCC conduct themselves while discharging their duties. It also means the conduct of the employees and their responsibilities towards the stakeholders, government and regulatory agencies, customers, suppliers, society at large and all others with whom the VLMCC is connected.

## Explain

- Explain the guidelines to be followed for the dress code at the VLMCC.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the characteristics of raw milk and its types, list milk producers/supplier in the market for procurement of milk and explain the legal regulation in terms of health and hygiene to be maintained at workplace.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Natural (raw) milk is milk with nothing added or removed. Raw milk is the milk which has not gone through the process of pasteurization or sterilisation. Raw milk contains water, sugar, minerals, fat, protein, and vitamins.

ii. Milk is categorised based on the species of cattle like cows, buffalo, goat and camel. It is also categorised based on the amount of fat and SNF content like toned milk, full cream milk etc. Lastly, it is categorised as per the heat treatment used to process the milk, for example, pasteurisation, boiling and sterilisation.

iii. Pasteurisation kills the pathogenic bacteria, there is a possibility of some microorganisms surviving the boiling process. Boiled milk has a lower shelf life than the pasteurised milk. Sterilisation kills all living microorganism.

iv. Type of milk producers in India are landless farmers, small scale landholders, contractors and milk co-operatives.

v. Good detergents should spread uniformly over the cleaning surface, they should be soluble in water and they should be non-corrosive.

**B. Match the Columns**

I - d

ii - c

iii - b

iv - a

**C. Fill in the Blanks**

I. Thermal

ii. Radiation

iii. Chemical

# Unit 2.2 Preparing Equipment for Milk Collection

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Demonstrate handling milk material like sampler, sample bottles as per standard.
2. Demonstrate how to maintain cleanliness of the milk collection equipment.
3. Demonstrate how to check that equipment is in good working condition and ready to work.
4. Describe internal processes such as procurement, inventory management, quality management and key contact points for query resolution in the milk centre operations.
5. Demonstrate the management process to maintain hygiene for milk collection equipment.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop Internet connection (if possible) for audio visual clips, Milk collection equipment.

## Field Visit

**Purpose:**

To observe preparation of equipment for milk collection at the VLMCC.

**Resources:** Observation sheet.

**Methodology:** Field Visit

**Expected outcome**

Participants will be able to apply the best practices used while preparing equipment for milk collection.

- Arrange a field visit to a VLMCC.
- Divide the participants into 4 groups. Divide the participants in groups of 4 to 5 depending on the batch size. Arrange for them to visit different VLMCC facilities in around your city.
- Tell the participants that they will have to give a presentation on their observations in class after the field visit on the observations noted.
- While on the field visit, the participants should observe the following:
    1. How was the equipment used for milk collection inspected at the VLMCC?
    2. Equipment to observe: Milk samplers, sample bottles, nylon sieve or nylon cloth, milk chiller and connected equipment
    3. How was the milk collection equipment handled?
    4. What procedure was followed to clean the milk tank?
    5. What were the steps followed to clean the equipment:
        - Milk cans: Manual and mechanical procedure
        - Filter cloth
        - Sampling bottles: Manual and mechanical procedure
    6. What were the type of milk filters used at the VLMCC?
    7. How were these milk filters stored?
    8. Did the VLMCC have a checklist to check the equipment? If so, what were the points included in the checklist.

## Presentation

- Field visit presentation: Ask the participants the following questions:
    - Why is cleaning the equipment at the VLMCC important?
    - Which is a better method of cleaning equipment, manual or mechanical? Why?
    - Was the VLMCC well maintained? If not, then what could have been better?

## Say

- It is critical that the VLMCC is always sanitised and kept clean. If the milk is contaminated, it can be unsafe for consumers. This can also lead to legal and financial consequences. As a VLMCCI you must ensure that the premises and equipment of the VLMCC is clean and maintained hygienically. It is a good practice to come to the centre at least 30 minutes before the milk collection operations begun.
- Take a round of the VLMCC to check if everything is in order.

## Explain

- Explain how to inspect the equipment, milk chiller and the connected equipment.

## Say

- At the VLMCC, the equipment is cleaned manually, mechanically or by using the 'CIP' or Clean-in-place system. There are two steps to maintain the equipment hygiene, draining and pre-rinsing at a VLMCC.

## Explain

- Explain the benefits of using the CIP or clean in place method.

## Say

- The milk cans are cleaned either manually or mechanically. The mechanical can-washer may be of either the rotary or tunnel type. The rotary can washer is used in small plants. It can wash upto 2 to 6 cans and lids per minute.

## Explain

- With the help of the presentation slide explain the step-by-step procedure to clean the milk tank using the CIP method.

## Practical Activity

**Purpose:** To train participants to clean the milk cans, filter cloth and the sampling bottles using the manual or mechanical procedures.

**Resources:** Presentation slides, Milk collection equipment - Milk cans, Filter cloth, Sampling bottles, General purpose detergent and Scrub pads.

**Methodology:** Hands on practice.

**Tentative Duration:** 2 hours 30 minutes.

**Expected outcome**

Participants will be able to clean the milk cans, filter cloth and the sampling bottles using the manual or mechanical procedures.

- Divide the participants into 4 groups depending on the batch size. Show them the presentation slides with the procedures for cleaning the milk cans, filter cloth and sampling bottles. Give each group milk cans, filter cloth, sampling bottles, general purpose detergent and scrub pads. Ask the groups to follow the manual cleaning procedure for each equipment and clean the equipment one by one. One participant must read the procedure while the other performs the procedure as per the instructions given, each participant must perform all the cleaning procedures. If the mechanical cleansers are available, then ask the participants to perform the cleaning procedure also.

## Say

- Filtration of milk is an important process in the dairy industry as it ensures that consumers get safe and hygienic milk. The milk filters keep the milk debri free. The pore size of the filter is between 100 to 250 micrometres. Particles like hair, straw, insects etc. are larger than the pores so they are caught in the filter and cannot enter the milk tank.

## Do

- Bring milk filters of different type, show them to the participants and explain which milk producers use them and how they are used.

## Say

- Filters must be stored in areas that are dust and moisture free. They should not be stored in cupboards or refrigerators that contain medicines and drugs as this can lead to contamination of milk.

## Explain

- Explain the dos and don'ts while using the milk filters.

## Say

- A checklist with items to check will help you to inspect the equipment and check whether they are in good condition to be used or need to be repaired or replaced. Let us do an activity and create a checklist.

## Team Activity

**Purpose:**

To acquaint participants with the creating a checklist to inspect if the equipment is in good condition at the VLMCC.

**Resources:** Presentation slides.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour 30 minutes.

**Expected outcome**

Participants will be able to create a checklist to inspect if the equipment is in good condition at the VLMCC.

- Divide the participants into 4 groups. Ask the participants to discuss and present the checklist to inspect if the equipment at the VLMCC is in good condition at the VLMCC.

## Do

- Show the presentation slide with the checklist.
- Ask the participants to check if the checklist that they have made matches with the one on the slide.
- Ask them to add the points that they may have missed.

## Say

- The VLMCC is the primary site for collection of milk which then goes to the milk chilling centres or the dairy plants. The operations starts with procurement of milk from various sources. At the centre the collected milk is tested for quality. It then transported to the milk chilling centres or the dairy plants as per demand.

## Explain

- Explain how milk is procured at the VLMCC.

## Say

- Quality of milk is managed at the VLMCC means using tests to check that the milk which is collected is safe and meets the health and safety guidelines given by FSSAI. The tests for quality will check the chemical composition of milk, purity of milk and the levels of bacteria in it.

## Explain

- Explain why quality management is important at the VLMCC.
- Explain in detail how the quality management practices at the VLMCC can be implemented.

## Say

- All production and manufacturing units maintain an inventory of their products. This is done for a certain period and is related to the demand of that product in the market.
- In the dairy industry, the main inventory or product is milk. As milk is highly perishable, it cannot be stored for a long time. The milk is procured daily at fixed quantities. Other tools and equipment needed for collecting, testing, and transporting of the milk are maintained by the management and bought as and when the need arises.

## Practical Activity

**Purpose:** To acquaint participants with the creating a checklist to keep track of inspecting, repairing and maintaining the milk collection equipment.

**Resources:** Presentation slides.

**Methodology:** Hands on practice.

**Tentative Duration:** 2 hours 30 minutes.

**Expected outcome**

Participants will be able to create a checklist to keep track of inspecting, repairing, and maintaining the milk collection equipment.

- Divide the participants into 4 groups. Ask the participants to discuss and present the checklist to keep track of inspecting, repairing, and maintaining the milk collection equipment.

## Do

- Show the presentation slide with the checklist.
- Ask the participants to check if the checklist that they have made matches with the one on the slide.
- Ask them to add the points that they may have missed.

## Team Activity

**Purpose:** To acquaint participants with the dos and don'ts for maintaining the VLMCC.

**Resources:** Presentation slides.

**Methodology:** Discussion

**Tentative Duration:** 1 hour.

**Expected outcome**

Participants will be able to describe the dos and don'ts for maintaining the VLMCC.

- Divide the participants into 4 groups. Ask 2 groups to discuss and present the dos for maintaining the VLMCC. The other two groups will discuss and present the don'ts for maintaining the VLMCC.

## Do

- Show the presentation slide with the dos and don'ts for maintaining the VLMCC.
- Ask the participants to check if the dos and don'ts that they have presented matches with the one on the slide.
- Ask them to add the points that they may have missed.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about cleaning and preparing the milk collection equipment, checking that equipment is in good working condition and ready to work and describe the internal processes such as procurement, inventory management, quality management.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The equipment used to measure the quantity of milk at a VLMCC is electronic weighing machine.

ii. The benefits of the CIP method are:

- Reduces the cleaning time
- Ensures that all the equipment is cleaned automatically
- Increases productivity
- Reduces chemical handling
- Simplifies the operations

iii. Procedure to clean the sampling bottles

**A. Manual**

**Step 1:** Remove and drain any left-over milk left in the sample bottle.

**Step 2:** Soak the bottles and their caps in lukewarm water and detergent solution for a few minutes.

**Step 3:** Clean the bottles using a bottle brush so that all the milk solids are removed completely.

**Step 4:** Scrub the caps with a brush.

**Step 5:** Rinse the bottles and cap in tap water.

**Step 6:** Clean the rack meant to store the sample bottles. Sundry after cleaning.

**Step 7:** Place the bottles in an upside-down position on the racks along with the caps.

**Step 8:** Allow the water to be drained so the bottles dry completely.

**B. Mechanical**

**Step 1:** The bottles are pre-rinsed with water at 32 to 38 degrees centigrade

**Step 2:** The bottles are washed using detergents, chelating agents and wetting agents in two stages at different temperatures between 60 to 75 degrees centigrade.

**Step 3:** The bottles are rinsed with warm water to remove all traces of detergent. The temperature of water is reduced between 25 to 45 degrees centigrade and is recirculated.

**Step 4:** The bottles are rinsed with chlorinated water. This is done to prevent contamination of bottles.

**Step 5:** The water is drained from the bottles completely once they come out of the machine.

iv. The things that you should do and not do while handling milk filters are:

- Install milk filters only on the discharge side of the milk pump.
- Ensure that the milk filter is located before the plate cooler to keep the milk warm while filtering.
- Clean your hands or wear clean gloves while changing filters.
- Do not wash the pipeline with a used filter in place as this will reduce the flow of water in the wash cycle and hamper cleaning.
- Do not re-use a disposable milk filter as they are meant for single use only.

v. Checklist to monitor the hygiene at the VLMCC:
   - o Ensure that the milk collection equipment is in order as per the standards set.
   - o Ensure that all the equipment is clean, washed and sanitised after use in the previous shift.
   - o Check if the equipment has any odour, dust or fat stains.
   - o Make sure that the milk samplers and any other articles are not placed on the floor. Ensure that they are placed in shelves or appropriate place.
   - o Make sure that the sample bottles are clean and placed upside down in sample collection trays.
   - o Make sure that the nylon sieve or nylon cloth used for milk collection is odour free. Tie the net properly so that there is no spillage of milk.
   - o Ensure that the dipstick and dipstick socket, and tank corners are free from dust, insects and milk fat deposits.
   - o Check that the dump tank, milk pump, connected pipes etc are clean.
   - o Check the temperature of the ice bank tank. It should be below 1 degree Celsius.

**B. Multiple Choice Questions**

i - a

ii - d

iii - a

**C. The Steps for Manual Cleaning of Sample Bottles in Proper Sequence**

a, c, e, f, h, b, d, g

# Unit 2.3: Preparing for Measurement of Milk and Initial Quality Testing

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the various types of milk quality testing techniques.
2. Demonstrate operating electronic weighing scale to determine quantity of milk.
3. Describe the calibrations of milk testing equipment (milk analyser).
4. Demonstrate operating milk analyser for initial quality testing.
5. Demonstrate how to maintain the quality testing equipments and calibration.
6. Enlist different chemicals and reagents used in quality testing.
7. Show how to label chemicals and reagents.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Milk, Ethyl alcohol, Lactometer, Cryoscope, Sediment tester, Resazurin solution, Test tubes, Distilled water, Sand cloth, Neutral cleaning fluid, Practical activity sheet.

## Say

- The quality of raw milk is the most important factor that determines the quality of milk products. If the raw milk is of good quality, then the milk products produced will also be of good quality. It is critical therefore, for all dairy companies to adopt milk quality testing techniques. The quality of milk is tested at every stage of milk production.

## Explain

- Explain the different quality testing techniques to test the quality of milk.

## Say

- These quality tests are also called platform tests. They are necessary as the raw milk comes at VLMCC is collected from multiple sources. As milk is highly perishable these tests must be quick and accurate. They must be performed on every container of milk that arrives at VLMCC to detect inferior or low-quality milk. This is to prevent the low-quality milk from getting mixed with the high-quality milk. Let us do some of these tests to check the quality of milk.

## Demonstrate

**Tentative Duration:** 30 minutes

Demonstrate the following milk quality testing tests one by one:

- Alcohol Test
- Lactometre Test
- Freezing Test
- Sedimentation Test
- Resazurin Test

Use the presentation slides to show the step-by-step procedure.

## Practical Activity

**Purpose:** To train participants to perform the tests for checking the quality of milk.

**Resources:** Presentation slides, Milk, Ethyl alcohol, Lactometer, Cryoscope, Sediment tester, Resazurin solution, Test tubes, Practical activity sheet.

**Methodology:** Hands on practice

**Tentative Duration:** 2 hours.

**Expected outcome:**

Participants will be able to perform the tests for checking the quality of milk.

Divide the participants into 4 groups. Give the material and equipment needed to conduct the milk quality testing tests. Assign one test to each group. Once they are done with the test assigned, the next test can be assigned. Ensure that all the groups perform all the tests. Ask each participant to fill the practical activity sheet and note their observations and inferences of the tests done.

| **Practical Activity Sheet** | | | |
|---|---|---|---|
| Name of the Participant | Name of the Institute: | Date: | Batch No: |
| Aim of the experiment: | | | |
| Material required: | | | |
| Procedure: | | | |
| Observation: | | | |
| Inference: | | | |

## Say

- Electronic weighing scales measure the quantity of milk accurately. Calculating the exact quantity of milk is needed as the dairy producers are paid as per the weight of the milk.
- Let us see how to operate the weighing scale to determine the quantity of milk.

## Demonstrate

**Tentative Duration:** 15 minutes

- Demonstrate how to operate the weighing scale to determine the quantity of milk. Use the presentation slides to show the step-by-step procedure.

## Practical Activity

**Purpose:** To train participants to operate the weighing scale to determine the quantity of milk.

**Resources:** Presentation slides, Milk, Ethyl alcohol, Lactometer, Cryoscope, Sediment tester, Resazurin solution, Test tubes, Practical activity sheet.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome**

Participants will be able to operate the weighing scale to determine the quantity of milk.

- This is an individual activity. Ask each participant to come and operate the weighing scale as per the demonstration and procedure given.

## Say

- The function of the milk analyser and the different ancillary equipment that comes along with the analyser.

## Demonstrate

**Tentative Duration:** 15 minutes

- Demonstrate how to operate the milk analyser to test the quality of milk. Use the presentation slides to show the step-by-step procedure.

## Practical Activity

**Purpose:** To train participants to operate the milk analyser to test the quality of milk.

**Resources:** Presentation slides, Milk, Distilled water.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome**

Participants will be able to operate milk analyser to test the quality of milk.

- This is an individual activity. Ask each participant to come and operate the milk analyser as per the demonstration and procedure given.

## Say

- Calibration means configuring a device or an instrument to show the result for a sample within the accepted parameters provided.

## Explain

- Explain the importance of calibrating instruments.

## Demonstrate

**Tentative Duration:** 15 minutes

- Demonstrate how to maintain the weighing machine. Use the presentation slides to show the step-by-step procedure.

## Practical Activity

**Purpose:** To train participants to maintain the weighing machine.

**Resources:** Presentation slides, Sand cloth, Neutral cleaning fluid.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome:**

Participants will be able to maintain the weighing machine.

- This is an individual activity. Ask each participant to perform the steps to maintain the weighing machine as per the demonstration and procedure given.

## Explain

- Explain the guidelines for maintaining the Gerber centrifuge on a daily, weekly to monthly and on an annual basis.

## Demonstrate

**Tentative Duration:** 15 minutes

- Demonstrate how the three types of maintenance carried out for the milk analyser:
  1. Daily maintenance for routine cleaning
  2. Daily maintenance for complete flushing
  3. Weekly maintenance for complete flushing
- Use the presentation slides to show the step-by-step procedure.

## Say

- The milk analyser will have water in the system even though it is switched off. This will prevent any milk particles from drying in the system. Place the sample cup on the shelf before turning it 'ON', as the water in the system will drain when it starts.

## Practical Activity

**Purpose:** To train participants to maintain the milk analyser.

**Resources:** Presentation slides, Sand cloth, Neutral cleaning fluid.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome**

Participants will be able to maintain the milk analyser.

- This is an individual activity. Ask each participant to perform the steps to maintain the milk analyser as per the demonstration and procedure given.

## Say

- The raw milk has some naturally occurring chemicals like water, fat, mineral, protein and lactose. Milk as a product has a very short life span. To increase the shelf life of milk and milk products, dairy companies add certain chemicals or preservatives, for example powdered milk and condensed milk. These preservatives have antifungal, antibacterial and antioxidant properties.
- Chemicals used to increase the shelf life of milk products are Sodium benzoate, Potassium sorbate, Natamycin, Calcium propionate, Sorbic acid, Ascorbic acid and Sucrose.
- A reagent is a substance, or a compound added to a system to cause a chemical reaction or to test if a chemical reaction can occur. Reagents are used in the dairy industry for testing the quality of milk during the various stages of milk production.

## Do

- Show the presentation slide on the chemicals used for quality testing and explain the usage of each chemical.
- Show the presentation slide on the reagents used for final quality testing of dairy products and explain the usage of each reagent.

## Say

- All chemicals should be clearly labelled to avoid contamination.

## Do

- Show the participants bottles of chemicals and reagents.
- Show the way in which the bottles are labelled.
- Point out all the information that is printed on the labels like the:
  - Product identifier, contact information of the manufacturer, restrictions on use
  - All hazards regarding the chemical that has been added
  - Precautions to be taken for safe storage; incompatibility if any
  - Characteristics of a chemical properties
  - Date of manufacture, date of expiry of product
  - Name of the manufacturer
  - How to use the product?

## Team Activity

**Purpose:** To acquaint participants with the dos and don'ts while handling reagents.

**Resources:** Presentation slides.

**Methodology:** Discussion

**Tentative Duration:** 15 minutes

**Expected outcome**

Participants will be able to describe the dos and don'ts while handling reagents.

- Divide the participants into 4 groups as per the batch size. Ask the participants to discuss and present the dos of plant while handling reagents.

## Explain

- Explain the dos and don'ts of using chemicals and reagents.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the types of milk quality testing techniques, calibrating, operating, and maintaining the instruments used for milk testing, types of chemicals and reagents used for milk testing and the labelling of these chemicals and reagents.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

i. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

I. The quality of milk is checked for general appearance, colour, consistency, temperature, and flavour.

ii. The function of the milk analyser is to quickly analyse the milk for fat (FAT), non-fat solids (SNF), proteins, lactose, and percentage of water content in the milk. It can also analyse the temperature, pH, freezing point, salts, total solids, conductivity, and density of the same sample of milk.

iii. Describe the step-by-step procedure to operate an electronic weighing scale.

**Step 1:** Check if the weighing machine is clean, dry, and calibrated

**Step 2:** Bring the standard weights near the weighing machine

**Step 3:** Clean the standard weights with dry cloth

**Step 4:** Check the platform level. Check to see if the bubble in the spirit level indicator is pointed at the centre

**Step 5:** Adjust the spirit level indicator if it is not in the centre

**Step 6:** Switch on the weighing machine. Observe the display opening system messages and wait till the display shows 0.00/0.000

**Step 7:** Press re-zero if 0.00/0.000 is not displayed

**Step 8:** Place the standard weights to verify the accuracy of weighing machine as per daily operating range

**Step 9:** Clean the platform again with a dry cloth

**Step 10:** Start measuring the milk in different volumes

iv. The daily maintenance guidelines to be followed for the Gerber centrifuge:

Check the rotor and lid for scratches, dust, or spillage before and after every use.

Seal the lid, if you are using an aerosol-tight rotor.

Wipe the Centrifuge housing, chamber, rotor shaft, rotor, and rotor lid with a lint-free microfibre cloth.

Keep the lid of the centrifuge open to reduce pressure on the spring lifts of the centrifuge lid.

Leave the lid of the centrifuge and the rotor open and allow the device to defrost overnight, if the centrifuge is a refrigerated one.

v. The weekly maintenance procedure to be followed for the milk analyser:

Add the cleaning powder to the sample cup and heated it to 50 degrees centigrade.

Change the liquid each time till all the contamination is removed.

Finally, wash the system with water.

Press 'Power Off' to shut down the system.

The milk analyser will have water in the system even though it is switched off. This will prevent any milk particles from drying in the system.

vi. A reagent is a substance, or a compound added to a system to cause a chemical reaction or to test if a chemical reaction can occur. Reagents are used in the dairy industry for testing the quality of milk during the various stages of milk production. Sodium hydroxide, Resazurin solution, Sulphuric acid, Amyl alcohol, Silver nitrate, Potassium chromate, Ethanol and Brix solution

vii. The label should contain the following information:

Product identifier, contact information of the manufacturer, restrictions on use

All hazards regarding the chemical that has been added

Precautions to be taken for safe storage; incompatibility if any

Characteristics of a chemical properties

Date of manufacture, date of expiry of product

Name of the manufacturer

How to use the product?

**B. Match the Columns**

i – d

ii – c

iii – b

iv – a

**C. Fill in the Blanks**

I. date of manufacture, date of expiry

ii. Sulfuric acid (S/9360) and Isoamyl alcohol (A/7000)

iii. Silver nitrate and potassium chromate

iv. Antibacterial and antioxidant

v. Standardised and reliable

**D. Mark a Tick on the Dos and a Cross on the Don'ts**

Dos – a, c, d, e, g

Don'ts – b, f

**E. The Steps for Resazurin Test in Proper Sequence**

b, a, d,e, c, f

# Unit 2.4: Administration Related to Reception and Testing of Milk

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Carryout proper maintenance of the centre, ensuring availability of power, water, stationary and necessary articles for running the milk reception and testing.
2. Demonstrate maintaining the inventory list, producer masters, and rate charts, etc.
3. Discuss about FSSAI compliances.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Do

- Show the participants the video on the tour of a village level milk collection centre.

  Tour of Village Level Milk Collection Centre- (Duration: 8:13 minutes).

  https://www.youtube.com/watch?v=bnMx4XEyRzs

## Say

- The VLMCCI is responsible for the first level of milk collection and testing of the milk. The VLMCCI must maintain the VLMCC to ensure that the milk does not get contaminated in any way. Ensuring that the infrastructure at the VLMCC is maintained well is the main responsibility of the VLMCCI. Let us do an activity to understand this better.

## Activity

**Purpose:** To acquaint participants with the responsibilities of the VLMCCI.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 1 hour.

**Expected outcome:**

Participants will be able to describe the responsibilities of the VLMCCI.

- Divide the participants into groups of 4-5 as per the batch size. Ask them to discuss the responsibilities of the VLMCCI and present their points. Note their response. Show them the presentation slide and ask the participants to note any points that they may have missed.

## Explain

- Explain how the VLMCCI should ensure that the premises are kept clean.

## Say

- There are three main activities milk collection, milk testing and milk transportation that happen at a VLMCC. It is important to keep records of all the activities at the VLMCC. The records can help in evaluating the progress and success of the VLMCC. All activities should be recorded daily, weekly, monthly and annually depending on the activity and to comply with the statutory and legal requirements. The records should be kept simple. They can be stored in files manually or as soft copies in a computer.

## Explain

- Explain about the milk collection records.

## Practical Activity

**Purpose:** To train participants to create a daily milk collection and purchase statement.

**Resources:** Presentation slides, Paper and Pens.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome**

Participants will be able to create a daily milk collection and purchase statement.

- This is an individual activity. Read out the scenario from the presentation slide. Ask participants to create a daily milk collection and purchase statement by looking at the details given in the scenario.
- **Scenario:** Kirthi Kumari is in-charge of a VLMCC, on 30$^{th}$ of September 2022, Rambabu the milk producer brought 10 litres of cow milk in the morning and 8 litres of buffalo milk in the evening. Suresh Rao another milk producer brought 6 litres of buffalo milk in the evening. Nikhat Banu who owns two cows brought 5 litres of cow milk in the morning. The rate of cow milk is Rs 35 per litre and for buffalo milk it is Rs 40 per litre. Assume that Kirthi Kumari knows the fat and SNF percentage of all the milk that has been brought by Rambabu, Suresh Rao and Nikhat Banu.

## Explain

- Explain about the milk testing records register which is also the Fat and SNF register.
- Explain about the two milk transportation records that must be maintained at the VLMCC.

## Practical Activity

**Purpose:** To train participants to create a daily milk collection and purchase statement.

**Resources:** Presentation slides, Paper and Pen.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome**

Participants will be able to create a daily milk collection and purchase statement.

- This is an individual activity. Read out the scenario from the presentation slide. Ask participants to create a daily milk collection and purchase statement by looking at the details given in the scenario.
- **Scenario:** On 17th August 2021, the oil and oil filter of the truck were replaced. The cost for this was Rs 323, the mileage of the truck at that time was 5,600. Then on 23rd Oct of the same year, the AC discharge hose was broken, and it was replaced at a cost of Rs 440, the mileage of the truck at that time was 6,300. On 15th Feb 2022, the truck went for a regular service where a general inspection was done and the tyres of the truck were rotated. The mileage shown was 10,000. The charges for this service were Rs 750. All these repairs and maintenance tasks were done by the truck dealer.

## Explain

- Explain about the general administration records.

## Say

- FSSAI is an independent body established under the regulations of the Indian Government's Food Safety and Standard Act 2006. It is compulsory for a food manufacturing company to get a FSSAI certificate. The FSSAI license provides the food companies a legal advantage. It builds goodwill and trust amongst the consumers.

## Explain

- Explain the objectives of FSSAI.

## Elaborate

- Describe the functions of FSSAI.

## Explain

- Explain the FSSAI standards of evaluating milk.

## Say

- With the new categories and FSSAI Standards for milk and milk products and Government involvement, the consumers can ensure that the milk and milk products are safe in the Indian markets. Adulteration of milk is an issue that FSSAI is addressing. While some of the common contaminants like water, urea, starch invert sugar and glucose can be tested at home; other adulterants need sophisticated instruments and must be tested in a food testing laboratory.

## Explain

- Explain the guidelines for packaging milk products.

## Notes for Facilitation

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the maintenance of the VLMCC, maintaining the various documents required at the VLMCC and the FSSAI compliances.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

iii. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The Village Level Milk Collection Centre Incharge (VLMCCI) should ensure that the premises are kept clean. Ensure that all the equipment and containers for the collection and testing of milk are cleaned and maintained as per SOP. Ensure that the staff maintain personnel hygiene and follow all the safety rules while collecting and testing milk. Ensure that there is sufficient potable water. Ensure that there is no water logging in and around the building. Ensure that the there is no drop in voltage and the power supply. Ensure that wastewater and affluents generated after cleaning all the milk equipment is disposed appropriately. Ensure that there is minimum impact to the environment and health of neighbours due to affluents from diesel generator and other polluting agents.

ii. The rate charts are based on the fat, SNF and protein content etc in the milk. The rates are decided based on the SNF percentage decided by the FSSAI. The rates also include increments to the farmers/producers.

iii. FSSAI is an independent body established under the regulations of the Indian Government's Food Safety and Standard Act 2006. It is compulsory for a food manufacturing company to get a FSSAI certificate. The FSSAI license provides the food companies a legal advantage. It builds goodwill and trust amongst the consumers.

iv. The objective of FSSAI is to generate confidence among all the stakeholders of being a friendly, accessible, and responsive (public service) body or authority, to ensure the establishment of Standards and practices that fully assure consumers interest and adhere to the highest degree of integrity possible, to build capacity of various stakeholders for an active participatory role in food safety, to expand effective information dissemination channels allowing consumers to make informed choices regarding the food they consume and to create a framework of food safety with the definite responsibility of each food business operator.

v. The FSSAI drafts regulations to lay down the standard guidelines concerning articles of food and requiring any appropriate system of implementing various standards. It places mechanisms and guidelines for the authorization of certification bodies engaged in certification of food safety management system for food business operators. It places processes and guidelines for the authorization of laboratories and notification of the authorized laboratories.

It provides scientific information and technical support to Central and State Governments in the materials related to inclosing the policy and rules in areas that have a direct or indirect bearing of food safety and nutrition. It collects and collaborates data regarding food consumption, incidence, and prevalence of biological risk, contaminants in food, residues of various pollutants in food products, identification of emerging threats, and introduction of the rapid alert system.

It creates an information data network across the country so that the consumer, public, etc. receive fast, dependable, and objective data about food safety and issues of concern. It conducts training programs for people who are involved and proposed to get involved in food businesses in India. It contributes to the development of international procedural standards for food, sanitary and Phyto-sanitary methods. It creates general awareness about food safety and food standards all over India.

**B. Match the Columns**

I. c

ii. a

iii. b

iv. d

**C. Fill in the Blanks**

I. VLMCC milk dispatch register

ii. Fat and SNF sample wise register

iii. Daily milk collection and purchase statement

iv. Vehicle maintenance and inspection record

**D. Mark a Tick on the Correct FSSAI standards and a Cross on the Wrong Ones**

I. correct

ii. wrong

iii. correct

iv. correct

v. wrong

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ASCI
Agriculture Skill Council of India

# 3. Process of Milk Collection, Milk Testing and Transportation

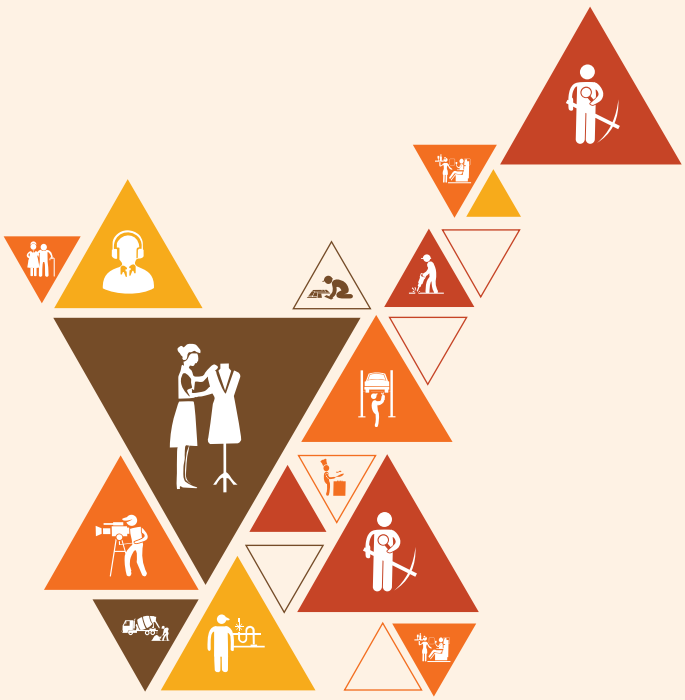
Unit 3.1 - Milk Collection and Sanitisation

Unit 3.2 - Milk Sampling and Testing

Unit 3.3 - Equipment Used for Milk Testing

Unit 3.4 - Measuring the Milk

Unit 3.5 - Transporting the Milk



AGR/N0708

## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstrate management of the activities of milk collection.
2. Demonstrate recording milk testing data.
3. Describe the process of milk collection and transportation.

## Key Learning Outcomes

**After the completion of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Explain grading and sampling of milk according to optimum standard.<br>2. Explain the process to analyse the milk specifications.<br>3. Describe about various equipment for Milk testing.<br>4. Describe about their using method<br>5. Explain Organoleptic test, Clot on boiling test, Adulteration test.<br>6. Discuss the procedure of transferring milk to the vehicle<br>7. Discuss on the recording technique while milk is being transported<br>8. Explain weighing and sampling techniques<br>9. Describe the SOP for milk collection, lid opening and sanitization<br>10. Describe on the SOP to be followed for milk collection. | 1. Demonstrate milk collection supplied by farmers in buckets and cans.<br>2. Demonstrate lid opening and sanitization according to SOP for milk collection.<br>3. Demonstrate conducting organoleptic test and identification of doubtful milk.<br>4. Demonstrate measuring the milk and recording the relevant data and generating electronic slip.<br>5. Show how to ensure there is no wastage of milk while transferring<br>6. Demonstrate recording total quantity of milk procured and providing acknowledgment slip to the farmers for milk supplied<br>7. Demonstrate the methods to calibrate equipment<br>8. Demonstrate the cleaning and disposal of equipment and material according to the SOP |

# Unit 3.1: Milk Collection and Sanitisation

## Unit Objectives

**After the completion of this module, the participants will be able to:**

1. Describe the SOP for milk collection.
2. Demonstrate milk collection supplied by farmers in buckets and cans.
3. Demonstrate lid opening and sanitization according to SOP for milk collection.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Do

- Show the presentation slide with the journey of milk.

## Explain

- Explain the journey of milk starting from the milk producers to the consumers. Explain the role of the VLMCC as the collection centre for milk and the first testing and sampling point.

## Say

- The milk collection centre where the milk is collected and tested before sending to the dairy processors is an important stage in the journey of milk. A standard operating procedure or SOP is followed to collect, sample, test and transfer the milk for its onward journey. The SOP can be divided into three stages: before collection, during collection and post milk collection.
- Let us do an activity to understand the SOP of milk.

## Team Activity

**Purpose:** To acquaint participants with the SOP for milk collection.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 2 hours

**Expected outcome**

Participants will be able to describe the SOP for milk collection.

- Divide the participants into 3 groups. Allot each group a stage of the SOP of milk collection:
  - Before milk collection
  - During milk collection
  - Post milk collection
- Ask them to discuss and present the SOP for the stage given to them.
- Explain the three stages of milk collection. Tell them with the help of the presentation slides, what is the exact sequence to be followed at every stage.

## Do

- Show the participants the following video about the procedures for milk receiving personnel.
- Tell the participants to watch the demonstration carefully as they will have to use what they saw for the activity that will follow the video. Proper Procedures for Milk Receiving Personnel - (Duration: 13:55 minutes).

  https://www.youtube.com/watch?v=ObKjRhEc8JE

## Team Activity

**Purpose:** To acquaint participants with the SOP for lid opening and sanitisation during milk collection.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 2 hours

**Expected outcome:** Participants will be able to describe the SOP for lid opening and sanitisation during milk collection.

- Divide the participants into 4 -5 groups keeping the batch size in mind. Ask the participants to recall the video and all the steps that were performed while opening the lid of the tanker and the sanitation procedure that followed. Ask them to discuss and list the sequence opening the lid of the tanker and sanitization when the tanker arrives at the VLMCC. Ask the participants to keep the following stages in mind while discussing and presenting:

A. Before opening the lid
B. After opening the lid
C. Unloading the milk
D. Cleaning the tanker

- Explain the SOP for each stage with the help of the presentation slides.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about milk collection and sanitisation procedures.
ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

i. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. SOP Before Milk Collection

1. Clean and sanitise the VLMCC premises before the collection activity.
2. Ensure that all the reagents and equipment needed for milk collection are ready.
3. Check if all the equipment is in good working condition and weighing scales and milk analyser is calibrated for tests.
4. Ensure that the cans are rinsed and clean and filters have been applied on them for milk collection.

ii. SOP During Milk Collection

1. Collect the milk brought in cans by the milk producers/farmers.
2. Test the sample of milk submitted by the producers for density of milk by using the lactometre.
3. Ask the producer to pour the milk from the cans into a milk collection vessel.
4. Take a sample of the milk and examine if it is fresh or stale.
5. Test the same milk sample for fat and SNF.
6. Place the milk container on the electronic weighing scale which is attached to the milk tank.
7. Transfer the milk into the milk tank after measuring the milk quantity.
8. Record the details either manually or in an automatic milk software.
9. Generate a milk receipt containing all the details of the milk.
10. Handover the receipt/acknowledgement slips to the producers.
11. Send the same details of the milk transaction as SMS on the producers mobile.
12. Send the same details of the milk transactions if the producers use the farmers app.

iii. SOP After Opening the Lid:

1. Carefully open the lid and visually examine the milk.
2. Report any concerns to your supervisor.
3. Use your sanitised thermometer to take the temperature of the milk.

iv. SOP Post Milk Collection

1. Place the milk in the cooling vats or BMC or Bulk milk coolers.
2. Check the milk quantity in the BMC using a dipstick.
3. Take a few milk samples in isolated cans and label them with a unique code.
4. Test the milk for grading.
5. Transport the milk in a milk tanker to the dairy.

**B. Fill in the Blanks**

I. cooling vats

ii. SMS on mobile or farmer's app

iii. fat and SNF

iv. isolated cans, unique code

v. approved or cleared

vi. wash tag

# Unit 3.2 Milk Sampling and Testing

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Explain grading and sampling of milk according to optimum standard.
2. Explain the process to analyse the milk specifications.
3. Explain various sampling techniques such as organoleptic test, clot on boiling test, adulteration test.
4. Demonstrate conducting organoleptic test and identification of doubtful milk.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual links, Milk, Spoon, Test tube or any other suitable container, Milk, Automatic measure, Sulphuric acid (Gerber acid), Milk butyrometer (range 0–10%), Amyl alcohol, Lactometer, Richmond's scale.

## Ask

- What is grading of milk?

**Expected Answers**

- Evaluation of milk based on its quality.

## Say

- Milk is judged or evaluated for its quality based on different attributes. The quality of milk is determined by the organoleptic test of smell and taste. This classification is based on physical characteristics such as colour, smell, taste, and presence of visible foreign material in milk. The samples which come under "acceptable category" are further divided into grades.

## Explain

- Explain the different grades of milk and the methyl blue test conducted to test of they are suitable for regular consumption.
- Explain the rules of grading.

## Say

- The graders should be able to observe the aroma immediately after removal of the milk sample and introduce a sufficient volume into the mouth for tasting. They should be able to observe the sequence of flavours and create a mental picture of the taste and smell reactions and concentrate upon the sample being examined.

## Explain

- Explain how the milk is evaluated by using the sensory reactions and how the milk is scored based on the flavour of the milk.

## Say

- Sampling of milk is done to ensure that the milk is safe for consumption.

## Ask

- What is the apparatus required for sampling?

**Expected Answers**

- Sample bottles
- Thermometer
- Pen or pencil
- Watch

## Explain

- With the help of the presentation slide explain the type of apparatus needed for sampling of milk.

## Demonstrate

**Tentative Duration:** 10 minutes

- Get all the apparatus required for an organoleptic test and demonstrate the test.
- With the help of the presentation slide explain the sequence of observations for an organoleptic test.
- Tell the participants not to shake or move the sample can up and down and to place it on the table in an upright position only.

## Explain

- Certain standard specifications have been laid down to prevent adulteration in milk and milk products. The specifications given by Directorate General of Health Services Ministry of Health and Family Welfare Government of India are mandatory or legal standards. These are also known as PFA (Prevention of Food Adulteration) Standards. The standards prescribed by AGMARK, or BIS are optional quality standards.
- Explain the average composition of milk and milk powders as required by AGMARK.

## Say

- The quality tests are performed to test the major components of milk and milk products like moisture, fat, protein, lactose, and minerals. There are many different tests used to analyse milk components. The three main factors that are considered while doing the tests are speed, accuracy, and sensitivity.
- Let us perform these quality checks to analyse the milk.

## Demonstrate

**Tentative Duration:** 10 minutes

- Demonstrate the Gerber method to analyse milk for fat.

## Say

- Total solids content is the entire residue left after complete evaporation of water from milk. This includes fat protein, lactose, and mineral matter. Let us look at the two-formula based test first.

## Demonstrate

**Tentative Duration:** 10 minutes

- Demonstrate the Richmond's formula and ISI formula to analyse SNF and total solids in the milk.

## Say

- Richmond's scale is the most suitable and most used method for determining SNF content in milk. The Richmond's scale is used for immediate results for the total solid content in the milk. This device is in the form of a ruler with a sliding centre slip. The total solids can be determined with Richmond's scale if the lactometer reading, temperature of milk and fat content is known.

## Demonstrate

**Tentative Duration:** 10 minutes

- Demonstrate the Richmond's scale method to determine the SNF content in the milk.

## Team Activity

**Purpose:** To train participants to perform the different type of tests to analyse the specifications of milk.

**Resources:** Milk, Automatic measure, Sulphuric acid (Gerber acid), Milk butyrometer (range 0–10%), Amyl alcohol, Lactometer, Richmond's scale.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome:**

Participants will be able to perform the different type of tests to analyse the specifications of milk.

- Divide the participants into groups of 4 as per the batch size. Ask them to perform the following tests:

  **Practical 1:** Analyse Milk for Fat by using Gerber method.

  **Practical 2:** Analyse S.N.F. (Solid Not Fat) and Total Solids of Milk by using the Richmond's formula.

  **Practical 3:** Analyse S.N.F. (Solid Not Fat) and Total Solids of Milk by ISIS formula.

  **Practical 4:** Analyse S.N.F. (Solid Not Fat) and Total Solids of Milk by using the Richmond's scale.

| **Practical Activity Sheet** | | | |
|---|---|---|---|
| Name of the Participant | Name of the Institute: | Date: | Batch No: |
| Aim of the experiment: | | | |
| Material required: | | | |
| Procedure: | | | |
| Observation: | | | |
| Inference: | | | |

## Say

- There are two ways of sampling the milk, the organoleptic test does not require any equipment and is done by using the senses of sight, smell, and test.
- The Clot on boiling test is the oldest test performed to check the acid content (pH < 5.8) and abnormalities like cholesterol or mastitis in milk. If a milk sample fails this test, then the milk contains many acid or rennet producing microorganisms or the milk has an abnormal high percentage of proteins like cholesterol milk. This milk will not be able to stand the heat treatment in milk processing and must be rejected.
- Let us do these tests now.

## Practical Activity

**Purpose:** To train participants to perform the different type of sampling tests for milk.

**Resources:** Milk, Spoon, Test tube or any other suitable container.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome:**

Participants will be able to perform the different type of tests to sampling test for milk.

- Divide the participants into groups of 4 as per the batch size. Ask them to perform the following tests:

  **Practical 1:** Organoleptic test to check the appearance, taste, and smell of milk

  **Practical 2:** Clot on boiling (COB) test to check for abnormalities like cholesterol and mastitis in milk.

| **Practical Activity Sheet** | | | |
|---|---|---|---|
| Name of the Participant | Name of the Institute: | Date: | Batch No: |
| Aim of the experiment: | | | |
| Material required: | | | |
| Procedure: | | | |
| Observation: | | | |
| Inference: | | | |

## Say

- Milk in its pure form contains protein, fat, vitamins, minerals, and carbohydrates in the right proportion. It is in high demand in India as it is considered a complete food. Adulterants are added to increase the shelf life, the demand for milk is high compared to the supply and the consumers have a low purchasing power. Adulteration of milk is harmful as it brings down the nutritional value of milk. The adulterants can cause allergies and different types of diseases.

## Explain

- Explain the difference between adulteration and contamination.

## Demonstrate

**Tentative Duration:** 20 minutes

- Demonstrate the tests to check for adulterants in milk.

## Practical Activity

**Purpose:** To train participants to perform the different type of test to check for adulterants in milk.

**Resources:** Adulterated milk samples, Iodine, Soyabean powder, Test tube or any other suitable container.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour

**Expected outcome:**

Participants will be able to perform the different type of tests to check for adulterants in milk.

- Divide the participants into groups of 4 as per the batch size. Give each group samples of milk that contain water, starch, urea, detergent, and synthetic milk. Ask them to perform the tests on each sample to check if milk is adulterated for water, starch, urea, detergent, or synthetic milk.

| Practical Activity Sheet | | | |
|---|---|---|---|
| Name of the Participant | Name of the Institute: | Date: | Batch No: |
| Aim of the experiment: | | | |
| Material required: | | | |
| Procedure: | | | |
| Observation: | | | |
| Inference: | | | |

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the grading and sampling of milk according to optimum standard, the process to analyse the milk specifications and the various sampling techniques

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Milk is judged or evaluated for its quality based on different attributes. The quality of milk is determined by the organoleptic test of smell and taste.

ii. Rules for Grading Milk

The grading evaluators should be in good physical and mental condition while evaluating the milk. They should have the knowledge of the correct set up for each product.

They should know how to use the score card.

They should know the grades of each product

They should know of defect intensities allowed in each grade.

They should have the samples of products at the right temperature e.g., milk at l5 degrees centigrade.

They should be able to observe the aroma immediately after removal of the sample and introduce a sufficient volume into the mouth for tasting.

They should be able to observe the sequence of flavours and create a mental picture of the taste and smell reactions and concentrate upon the sample being examined.

The quality tests are performed to test the major components of milk and milk products like moisture, fat, protein, lactose, and minerals. The three main factors that are considered while doing the tests are speed, accuracy and sensitivity.

iii. The sequence of observations while performing an organoleptic test:

Look at the appearance of the can of milk

Check if the can is rusted from inside and outside

Examine the colour of the milk. It should be uniform

While pouring the milk into a beaker, observe the viscosity of milk: Is it high, normal or low?

Check if there are any sediments at the bottom of the can after it has been emptied

Place a spoonful of milk on the tongue and check for any defects in flavour or odour

Take a sample of milk aseptically and then test for fat, total solids, bacteria, sugar, adulterants, and preservatives.

iv. The different type of tests performed for sampling of milk are organoleptic test and clot on boiling test.

v. The steps followed in the Gerber method for testing milk are:

1. Using an automatic measure, transfer 10 ml of sulphuric acid (Gerber acid) into milk butyrometer (range 0–10%)
2. Mix the milk sample well.
3. Slowly transfer 10.75 ml from the side of the butyrometer wall taking care not to wet its neck.
4. Add 1 ml of amyl alcohol and close the butyrometer with a lock stopper and shake well.
5. Centrifuge the contents for 5 min at 1100–1200 rpm.
6. The fat will appear as a colourless column on the butyrometer stem.

vi. The cause for any abnormal smell and taste may be:

Atmosphere taint: Example: barny/cowy odour

Physiological taints: Example: Hormonal imbalance, cows in late lactation, spontaneous rancidity

Bacterial taints

Chemical taints or discolouring

Advanced acidification (pH level < 6.4)

vii. Difference between adulteration and contamination:

Adulteration is a deliberate act performed to intentionally degrade the quality and increase the quantity of milk to make profit illegally. Adulteration of milk poses a serious threat to the lives of consumers. Common milk adulteration techniques are adding water to the milk and adding detergents to the milk.

Contamination of milk happens when substances get added to the milk unintentionally resulting in the downgrading of milk quality. Contamination can be prevented by quality control practices. Milk is contaminated due to environmental contamination and bad handling practices. It can also happen if the milk is not stored properly or there are quality issues related to its supply-chain management.

**B. Match the Columns**

i - b

ii - a

iii - d

iv - c

**C. Fill in the Blanks**

I. Water

ii. Starch

iii. Synthetic milk

iv. Detergent

# Unit 3.3: Equipment Used for Milk Testing

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the various equipment for milk testing and their uses.
2. Demonstrate the methods to calibrate equipment.
3. Demonstrate various calculation methods used in dairy routine at VLMCC.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection,

## Recap

- Recall the learnings of the previous unit.

## Say

- Testing the quantity of milk is the first step that is performed after collecting milk. However, as payment for the milk is done as per the milk solids present it is right to weigh the milk. The volume of milk can be measured by using containers that which hold a certain quantity of liquid like ½ litre or 1 litre container. A dipstick or graduated stick can also be used to measure the quantity of milk but for this the containers must be of equal size.

## Do

- Show the weighing scale and the flow metre and explain how this equipment are used and how they work.

## Say

- There are various instruments used to test the quality of food products, however, some specifically designed equipment is used to test the quality of milk.

## Demonstrate

**Tentative Duration:** 30 minutes

- Bring all the equipment like Gerber centrifuge, Lactometer, Electronic milk tester, Infra -red milk analyser, Lacto-star automatic milk analyser and Lactoscope to the class/ or take the class to the practical lab.
- Familarise the participants with each instrument and its working.
- Show each instrument and the indicators in each instrument and how each instrument is used.
- Advise the participants to handle the instruments carefully. Do not damage any instrument while using it. In case of any malfunction ask the participants to inform you immediately.

## Do

- Do a quick quiz using the presentation slides.
- Show the participants the pictures of the equipment.
- Ask questions about the usage of each equipment.
- Lastly show the answers from the presentation slide.

## Say

- Calibration means establishing and recording the measurement uncertainty of measuring equipment. Let us look at how the milk testing instruments are calibrated.

## Explain

- Explain the comparison method and the BIS method used to calibrate milk butyrometers, milk pipettes, lactometer. Explain in detail the mathematical method of calibration and graduation for milk pipettes. Explain how the burette is checked at various intervals for determining the accuracy of its scale and its capacity.

## Demonstrate

**Tentative Duration:** 30 minutes

- Demonstrate the calibration for milk butyrometers, milk pipettes, lactometer and burette using all the methods.

## Practical Activity

**Purpose:** To train participants to calibrate the different instruments used to check the quality of milk.

**Resources:** Milk, Distilled water, Milk Butyrometers, Milk pipettes, Lactometers, anhydrous sodium carbonate, ethanol.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour 30 minutes.

**Expected outcome:**

Participants will be able to calibrate the different instruments used to check the quality of milk.

- Divide the participants into groups of 4 as per the batch size. Give each group one instrument and ask them to calibrate it. Rotate the instruments between groups so that all the participants can calibrate all the instruments.

## Explain

- Explain how the total solids in the milk are calculated by adding the fat and SNF percentage.
- Explain the formula with the help of the example given in the presentation slide.

## Activity

**Purpose:** To train participants to calculate the total solids present in the milk.

**Resources:** Presentation slides, Paper and Pen.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour 30 minutes.

**Expected outcome:**

Participants will be able to calculate the total solids present in the milk.

- This is an individual activity. Give the participants numerical problems on how calculate the total solids present in the milk by applying the formula for total solids.
- Discuss the calculations for the numeric problem.

## Notes for Facilitation

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about how the instruments used for checking the quality and quantity of milk are calibrated.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

iii. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. It is important to test the quantity of milk as payments to the milk producers are done as per the weight of the milk. The quantity of milk is tested by using the bench weighing scale and the flow metre at the VLMCC.

ii. The volume of milk is measured by using a flow metre dipped in the milk tanker. The air from the milk is removed first with the help of a de-aerator.

iii. The electronic milk tester uses the principle of dilution, homogenization and photometric measurement of light scattered by the fat globules present in milk sample. The fat content is displayed quickly and accurately on a digital readout

iv. The two methods of calibrating Butyrometers:

1. **Comparison method:** In this method the accuracy of newly purchased butyrometers is compared by with the butyrometers in use, which are well calibrated and known to be accurate. The fat in the milk sample is determined by Gerber method in a one milk sample and compared to the fat sample of previous batch. If the readings of the fat values of new butyrometers are the same as of old ones, then the new butyrometers are accepted otherwise rejected.

2. **BIS method:** In this method a specially designed mercury pipette is used to calibrate the butyrometers. The method is based on the principle that the internal volume of the graduated tube of the milk butyrometer is 0.125 ml corresponding to each 1% fat range. In other words, the full scale of graduated tube from 0 to 10% fat marks, has the internal volume of 1.25 ml. Accordingly an automatic mercury pipette has been designed to dispense exactly 0.3125 ml mercury which fills the tube corresponding to 2.5% fat graduation limits.

v. Calibrate the lactometre using the comparison and BIS methods:

1. **Comparison method:** In this method each lactometer is calibrated by floating side by side in a liquid, against a standard lactometer. If the lactometer readings of newly purchased lactometers are like the standard lactometer, then the new lactometers should be accepted otherwise rejected.

2. **BIS method:** Dissolve appropriate mass of anhydrous sodium carbonate given in 300 ml of distilled water. Add 50 ml of ethanol to the solution obtained. Add distilled water to make up the total volume of 500 ml. Compare the accuracy of each lactometer in all the solutions.

**B. Match the Columns**

i. b

ii. d

iii. a

iv. c

# Unit 3.4: Measuring the Milk

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Explain milk weighing and sampling techniques.
2. Demonstrate measuring the milk and recording the relevant data and generating electronic slip.
3. Demonstrate recording total quantity of milk procured and providing acknowledgment slip to the farmers for milk supplied.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, , Internet connection (if possible) for audio visual clips, Dead Weights, Calibrated Measuring Jars, Reagents, Electronic Weighing Scale, Analyser.

## Say

- Milk weighing is an important step while collecting milk from the farmers as payments are made based on the weight of the milk. The milk is measured based on the milk solids that it contains. So, the measurement is done in kilograms and not litres. One litre of milk weighs about 1.031 kgs.

## Do

- Show the participants the apparatus like plunger, long handle dipper and sample bottles that are used for sampling.
- Explain the specifications of each of these apparatuses.

## Say

- The milk is measured by volume and by weight. The container method, the dipstick method and the flow metre method are the three methods used to check the volume of milk. The milk is weighed by using the bench weighing scale method or the platform weighing scale method.

## Do

- Show the participants the container, dipstick and the flow meter, weighing scale or the platform weighing scale.
- Explain how each of these are used.

## Say

- All methods of sampling are based on one principle, the principle of checking the quality of milk. Testing and sampling are done at various stages of milk production. The first stage when the milk is sampled at the VLMCC is when it is brought in by the farmers. Sampling at this point is done from individual cans and multiple containers.
- Let us look at how the sampling is done.

## Demonstration

**Tentative Duration:** 15 minutes

- Demonstrate the procedure to take samples from individual containers, multiple containers and cold milk cans.

## Practical Activity

**Purpose:** To train participants to take the sample of milk from individual containers, multiple containers, and cold milk cans.

**Resources:** Milk, Plunger, Individual container, Multiple containers, Cold milk cans, Dipper, Weight vat or Tipping tank, Thermometer.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour 30 minutes.

**Expected outcome:**

Participants will be able to take the sample of milk from individual containers, multiple containers, and cold milk cans.

- Divide the participants into groups of 4 as per the batch size. Ask them to perform all the tests as demonstrated. Rotate the equipment between groups so that all the participants can take the sample of milk.

## Explain

- Explain the dos and don'ts that need to be followed while taking milk samples.
- With the help of the presentation slide explain the procedure to record the quantity of milk procured. Explain the contents of the acknowledgment slip given to the milk producers after the milk is collected.

## Team Activity

**Purpose:** To acquaint participants with the procedure to record the quantity of milk procured.

**Resources:** Presentation slides.

**Methodology:** Role play.

**Tentative Duration:** 1 hour

**Expected outcome:**

Participants will be able to explain the procedure to record the quantity of milk procured.

- Show the scenario on the presentation slide. The scenario is given below for your reference. Tell the participants that this is a role play activity. Ask for four volunteers. The volunteers will play the role of a VLMCCI, milk producer, milk sampler and milk recorder. Ask them to play out the scenario keeping in mind the procedure to be followed to record the quantity of milk procured. Ask the other participants to observe and give their feedback at the end of the role play.
- **Scenario:** Somnath Verma is a new milk producer, he has come to Krishna VLMCC to deliver 15 litres of buffalo milk for the first time. The VLMCCI shows him how the milk will be collected. Somnath receives the slip but is unable to understand all the details, explain the details that are included in the acknowledgment slip.

## Say

- As the VLMCCI you must organise educational programs to create awareness about clean milk producing practices for the milk producers.

## Ask

- What is the type of awareness programs that you as VLMCCI can organize to create awareness for milk producers?

**Expected Answers**

- Feeding practices
- Housing management of the animals
- Animal care
- Health management of the animals
- Handling vessels while milking

## Say

- You can call experts and ask them to advise the farmers on feeding practices, housing management of the animals, animal care, health management of the animals and handling vessels while milking etc. You can also display charts and posters about clean milking practices from udder hygiene to milk reception at the VLMCC.

## Team Activity

**Purpose:** To train participants to create display charts to spread awareness amongst the milk producers for clean milk handling practices.

**Resources:** Presentation slides, Chart paper, Pencils, Colour pencils, Crayons and any other stationery needed to create display charts.

**Methodology:** Collaborative work.

**Tentative Duration:** 1 hour 30 minutes.

**Expected outcome:**

Participants will be able to create display charts to spread awareness amongst the milk producers for clean milk handling practices.

- Divide the participants into 4 groups. Give them chart papers, pencils, colour pencils and other stationery. Allot one topic of milk handling practices to each group. Ask them to create display charts to spread awareness amongst the milk producers as per the topic allotted to them. Tell them to make the charts as attractive as they can and to think and include all the points that they feel will be necessary for the topic given.
- Debrief by showing them the presentation slides with points that they could have included for the topics given to them.

## Ask

- What do you think will be the consequences of adulterating milk?

**Expected Answers**

- Loss of income
- Loss of reputation
- Loss of business
- Threat to public health

## Explain

- Milk is tested and checked for adulteration at different stages of milk production and processing. The first stage is the VLMCC. If the milk is found adulterated, then the milk is rejected and the milk producer who has brought the adulterated milk is not paid. The milk producer will come in the bad books of the VLMCC. If the milk is found adulterated at the chilling centre or at the dairy processing centre then the milk is traced back to the farmer and the VLMCC. The VLMCC and the farmer both will lose business as the milk will be rejected.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about how the milk weighing and sampling techniques, measuring the milk and recording the relevant data and generating electronic slip and recording total quantity of milk procured and providing acknowledgment slip to the farmers for milk supplied.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The Apparatus Used for Sampling

Plunger: It should be 1 metre long, with a diameter of 150 mm and disc with 6 holes in it. The specifications should be of ISI make.

Long handle dipper: It should have a solid handle 150 mm long with a capacity of 80 ml. The specifications should be of ISI make.

Sample bottle: The bottle may be plastic or glass. The capacity of the bottle must be 100/150/250 ml to be able to hold milk samples for chemical analysis.

ii. The flow metre method to measure the volume of milk in a tanker:

The milk transported in road tankers is measured by a flow metre. However, a de-aerator is necessary to remove air from the milk in the tanker. This is necessary as air enters the milk during pumping and can result in increased milk volumes.

iii. The acknowledgement slip contains the following details:

- Name of the VLMCC
- Name of the producer
- Identification number of the producer
- Cattle type
- Date
- Shift
- Type of milk
- Fat percentage in milk
- SNF percentage in milk
- Rate of milk
- Price paid

iv. Write your advice for the following cases?

a. Do not bring milk in plastic containers, empty paint containers or jerry cans. The vessel should be made of should be stainless steel.

b. If the milk is found adulterated, then the milk is rejected and the milk producer who has brought the adulterated milk is not paid. The milk producer will come in the bad books of the VLMCC. If the milk is found adulterated at the chilling centre or at the dairy processing centre then the milk is traced back to the farmer and the VLMCC. The VLMCC and the farmer both will lose business as the milk will be rejected.

v. Awareness programs can be conducted on:

- Feeding practices
- Hosing management of the animals
- Animal care
- Health management of the animals
- Handling vessels while milking.

**B. The Steps for the Procedure to Take Milk Samples from Multiple Containers**

c, b, d, a

**C. Mark a Tick on the Dos and a Cross on the Don'ts.**

Dos - a, d, e

Don'ts - b, c

# Unit 3.5: Transporting the Milk

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the procedure of transferring milk to the vehicle.
2. Discuss on the recording technique while milk is being transported.
3. Show how to ensure there is no wastage of milk while transferring.
4. Demonstrate the cleaning and disposal of equipment and material according to the SOP.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, All the equipment and material needed for milk collection.

## Field Visit

**Purpose:**

To observe the procedure of transferring milk to the vehicle and the SOP for cleaning and disposal of equipment after the end of the shift.

**Resources:** Observation sheets.

**Methodology:** Observation

**Expected outcome**

Participants will be able to apply the best practices used for transferring milk to the vehicle and the SOP for cleaning and disposal of equipment after the end of the shift.

- Arrange a field visit to a VLMCC.
- Divide the participants in groups of 4 to 5 depending on the batch size. Arrange for them to visit different VLMCC's near your city.
- While on the field visit, the participants should observe the following:
  - What is the procedure followed while transferring milk to the vehicle?
  - How is the milk spillage and wastage prevented while the milk is transferred from the milk can of the producers to the storage vats at the VLMCC?
  - What does the loading and unloading chart include?
  - What was the SOP followed for cleaning and disposal of equipment after the end of the shift?
- After they come back to class, participants will give a presentation on what they observed at the VLMCCs.

## Presentation

- Field Visit Presentation: Ask the participants the following questions:
  - Why is transportation of milk so important?
  - For how long do they keep the sample bottle of milk in the VLMCC?
  - Was the VLMCC well maintained? If not, then what could have been better?

## Say

- As milk is a highly perishable commodity it is important to plan the transportation of milk. The milk is transported by cans or bulk tankers. The milk transported by milk cans does not stay cool for long, so it needs to be transported within three hours of milking. The milk collected at the VLMCC is usually transported in bulk tankers. These tankers are insulated, and temperature can be maintained to prevent spoilage of milk and contamination.

## Explain

- Explain the procedure of transferring milk from the VLMCC storage vats to the tanker vehicle.

## Say

- Stringent records must be maintained while the milk is being transported from the VLMCC to the dairy units. A loading and unloading chart should be maintained. The tanker challan should also have the same details with the seal number.

## Explain

- Explain the information that should be included in the loading and unloading chart.

## Say

- The personnel at the VLMCC should be careful while opening the cans, taking milk samples, weighing the milk and transferring the milk from the cans to the storage vats or to the procurement vans. They should make sure that the milk is not wasted while it is being transferred from the milk can of the producers to the storage vats at the VLMCC.

## Explain

- Explain the reason why milk wastage at the VLMCC is minimum and why the wastage may be only 0.01% for the total milk intake in the day at the centre.

## Demonstrate

**Tentative Duration:** 15 minutes.

- Demonstrate the cleaning and disposal of equipment and material as per SOP at the end of the shift.

## Practical Activity

**Purpose:** To train participants to clean and dispose equipment and material as per SOP at the endo of the shift.

**Resources:** Participant Handbook, Presentation slides, All the equipment and material needed for milk collection.

**Methodology:** Hands on practice.

**Tentative Duration:** 1 hour.

**Expected outcome:**

Participants will be able to clean and dispose equipment and material as per SOP at the end of the shift.

- Divide the participants into groups of 4-5 depending on the batch size. Tell the participants to assume that they are working at a VLMCC and it is the end of the shift. Ask them to follow the SOP and clean and dispose the equipment.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the procedure of transferring milk to the vehicle, recording technique while milk is being transported, ensuring there is no wastage of milk while transferring and cleaning and disposal of equipment and material according to the SOP.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The procedure to transfer the milk from VLMCC storage vats to the milk tanker vehicle.

1. Check if the milk tanker is cleaned properly
2. Inspect the tanker
3. Transfer the milk from the storage vats
4. Draw a sample of milk from the tanker once all the milk is transferred
5. Check this sample for fat, SNF, temperature and acidity of the milk as per quality norms
6. Seal the tanker manhole and valve box
7. Write the seal number on the gate pass for the dairy
8. Write the details of the milk being transported and seal number in the tanker challan
9. Acknowledge and sign the tanker challan
10. The tanker is now ready to leave

ii. The contents of the loading and unloading charts.

- Name of the VLMCC
- Location Address
- Date
- Time of Loading/Unloading (Morning and Evening)
- Quantity of milk
- Temperature of milk
- Fat and SNF %
- Acidity of milk

iii. The SOP to be followed for cleaning and disposal of equipment after a shift in the VLMCC is:

1. Shut down the system as per manufacturer guidelines
2. Clean the milk analyser as per SOP
3. Clean all the equipment after collection
4. Dispose of sample milk
5. Store all the records and chemicals in their respective locations

**B. Fill in the Blanks**

I. contaminants

ii. ID code

iii. teats

iv. 48

v. filter cloth

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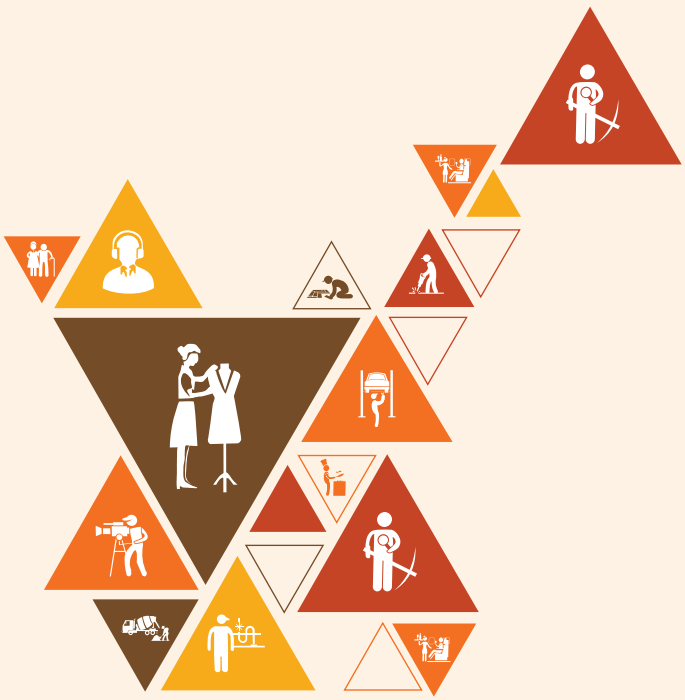
ASCI
Agriculture Skill Council of India

# 4. Process of Documentation and Record Keeping of Milk Operation

Unit 4.1 - Documentation and record keeping of essential records in milk collection

Unit 4.2 - Basic computer skills



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Describe the documentation system followed in the milk collection.
2. Demonstrate the record keeping of inventory, farmers' information and storage parameters.

## Key Learning Outcomes

**After the completion of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Describe the documentation system of loading and unloading chart.<br>2. Explain on the correct methodology for storage and storage parameter as per the organization requirement.<br>3. Explain the details to be recorded and maintained on preventive maintenance.<br>4. Explain on the management techniques for routine checks, service, repairs, replacements, etc.<br>5. Discuss about entering the details in the computer system and process of email.<br>6. Describe the detection of adulteration in milk.<br>7. Describe on the inventory management and record keeping on farmer's data.<br>8. Discuss on the information and data storage for proper interpretation. | 1. Demonstrate maintaining records pertaining to milk collection such as Fat & SNF reading sample wise register, MCC stationery, MCC stock dispatch register.<br>2. Show how to record milk temperature, collection time and date pickup.<br>3. Show how to document and maintain records like weight of milk, farmers' information and milk storage.<br>4. Demonstrate entering details on the computer system.<br>5. Show how to verify details and records.<br>6. Show how to document and maintain records of storage parameters such as producers' code, average SNF, total milk in kgs.<br>7. Demonstrate basic computer knowledge and e-mailing skills.<br>8. Demonstrate maintaining legal records like audit reports, meeting proceedings and share records, etc. |

# Unit 4.1: Documentation of Essential Records for Milk Collection

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Describe the documentation system of loading and unloading chart.
2. Explain documentation related to storage and storage parameter as per the organisation requirement.
3. Show how to record milk temperature, collection time and date pickup.
4. Demonstrate maintaining records pertaining to milk collection such as Fat & SNF reading sample wise register, MCC stationery, MCC stock dispatch register.
5. Show how to document and maintain records like weight of milk (total milk in kgs), farmers' information, average SNF and milk storage.
6. Show how to maintain records of sales data, sales proceeds, expenses, profitability.
7. Show how to verify details and records.
8. Explain the details to be recorded and maintained on preventive maintenance, routine checks, service, repairs, replacements.
9. Demonstrate maintaining legal records like audit reports, meeting proceedings and share records, etc.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Formats of inventory register, Milk collection record.

## Explain

- Explain the importance of record keeping and documentation in the milk collection business to ensure milk is as per acceptable standard. Put up the slide and show documentation that needs to be maintained at each stage of the milk collection process.
- Proceed to explain the milk collection records in particular, using the slide. Explain each type with respect to the following:
  When to maintain (the time of day/ frequency)
  Purpose
  How to maintain

## Do

- Show sample formats of records of a live milk collection centre, if available. If not, use the formats on the slide to show.

## Activity

**Purpose:** To enable participants understand the documentation in the loading and unloading processes.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 15 minutes

**Expected outcome:**

Participants will be able to explain the activities in the loading and unloading process, and the use of loading and unloading charts.

- Put up the slide on loading and unloading process. Let participants volunteer to interpret the chart and explain the process on their own. Facilitate their understanding with focus on when and where the loading and unloading charts are to be maintained and by whom.

## Explain

- Put up the slides on the sample formats of Loading and Unloading charts and Milk Procurement
- Point (MPP) wise Can collection and weighment register. Explain the details that are to be captured in the charts.
- Proceed to speak about the inventory record of milk. Explain the terms opening and closing stock.

## Activity

**Purpose:** To enable participants understand the milk inventory register and milk collection record

**Resources:** Formats of inventory register, milk collection record

**Methodology:** Learning by doing.

**Tentative Duration:** 45 minutes

**Expected outcome:**

Participants are to fill up the inventory register and milk collection record as an exercise.

- Form 4 teams. Two teams are to prepare inventory register and two other teams to prepare milk collection record. Distribute sample formats of inventory register and milk collection records to the teams. Participants are to interpret the data.

## Explain

- Put up the slide with the sample records filled up. Enable participants to interpret the data as shown in the slide.
- Proceed to explain how to record milk temperature while ensuring milk is at the target temperature range of 32-40 $^{o}$F (0-4.4 $^{o}$C).
- Explain the importance of maintaining records and documentation in verification of details for their accuracy and to track in case of concern areas. Put up the slide on verification of the various registers/records that are to be carried out as part of the process.
- Conclude the unit by explaining the need for maintaining legal records such as the inventory report and cash book of the year that must be kept ready. Discuss the records, the process and frequency at which the documentation is to be done and verified.

## Practical Activity

**Purpose:** To enable participants understand the milk inventory register and milk collection record

**Resources:** Formats for inventory register, milk collection, milk temperature recording, MCC stationery, MCC stock dispatch, farmer's information.

**Methodology:** Learning by doing.

**Tentative Duration:** 3 hours.

**Expected outcome:**

Prepare the various registers, formats, reports and other documentation pertaining to milk collection, storage, sales data and legal matters.

- Evaluation parameters:
  - Recording milk temperature, collection time and date pickup.
  - Milk collection records to document Fat & SNF reading sample wise register, MCC stationery, MCC stock dispatch register.
  - Documenting and maintaining records like weight of milk (total milk in kgs), farmers' information, average SNF and milk storage.
  - Maintaining records of sales data, sales proceeds, expenses, profitability.
  - Procedure for verification of details and records.
  - Maintaining legal records like audit reports, meeting proceedings and share records.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the various documentation, records to be maintained.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Various records and documents to be maintained with regards to milk collection:

Loading charts: Quantity of milk sent by the VLMCC in the morning and evening to the dairy are to recorded in the Loading charts.

Inventory records (Milk Collection Centre stationery): Inventory record is needed to maintain record of every equipment used in the milk collection centre. Details such as the item purchase, date of purchase, price, receipt number are to be recorded.

Register related to VLMCC Union: A register to record details of the union must be maintained.

Cash book: It records all expenditure of the VLMCC in a given year needed for auditing purposes.

Financial records: A milk producer group must maintain all financial records that clearly shows how the group earns and spends the funds. Information related to sales data, sales proceeds, expenses and profitability are to be maintained.

Bank statements: All bank statements must be maintained separately.

ii. Loading of milk is done at the milk collection centre while unloading is done at the chilling and dairy centre. Loading charts are maintained at the milk collection centre while loading the milk and unloading charts at the chilling and dairy centres while unloading.

iii. Maintaining records and documentation help in verification of details for their accuracy and to track in case of concern areas.

**B. Match the Columns**

I. c
ii. a
iii. e
iv. b
v. d

# Unit 4.2 Basic Computer Skills

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Demonstrate basic computer knowledge and e-mailing skills.
2. Discuss about entering the details in the computer system and process of email.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Computers, Email software, Office suite software.

## Ask

- Which are the dairy related activities that can be done using a computerised system?

**Expected Answers**

- Milk analysis
- Quality monitoring
- Maintaining data related to milk collection, quality monitoring, technical inputs
- Payments to pourers

## Explain

- Put up the slide and explain the importance of maintaining a computerised system. Discuss the manual system and how using a computerised system in milk collection and billing can hasten the process and bring in more efficiency in the system.
- Put up the slide and discuss the use of computers in milk operations.

## Elaborate

- Put up the slides on email communication, how to send and receive mails, and email etiquette. If possible, show a live demonstration of these on a computer.

## Practical Activity

**Purpose:** To demonstrate sending and receiving emails.

**Resources:** Computers with Office application loaded, email application, internet access.

**Methodology:** Learning by doing.

**Tentative Duration:** 6 hours.

**Expected outcome:**

Participants learn to use a computer, send and receive mails, learn office application software for basic operations.

- Let participants do a safe browsing of the internet. Introduce them to emails, creating logins, creating passwords, sending and receiving mails. They may practice doing so with each other. Introduce them to office application software for creating simple documents, formatting them, cut-copy-paste functions, using bullets and numbering, wrapping text, creating tables, saving and printing documents. Further, introduce them to spreadsheet applications. Explain when and where to use them. Show them how to create a simple spreadsheet. Introduce them to features such as – text alignment, deleting cells, basic functions such as sum, average, sort, filter. Introduce them to presentation software inserting rows/columns,. Participants can learn to prepare simple presentations using basic features.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the various software applications learnt.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements for internet access for the class to practice sending and receiving emails.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Data entry and storage, performing calculations, preparing reports, tracking, sending /receiving messages, making payments

ii. Never type with CAPS lock ON; add the email address of the recipients after typing out the mail, in the end; put a subject line to communicate the agenda

iii. Steps to create a Gmail account:

**Step 1:** Visit Google account creation page, accounts.google.com

**Step 2:** Click on Create account.

**Step 3:** The sign-up form will appear. Enter your first and last name.

**Step 4:** Choose a Username for your account. (Here you can also use an existing email address)

**Step 5:** After choosing a username, enter a password. Type the password again to confirm. (As per Google's instruction always use 8 or more characters with a mix of letters, numbers & symbols)

**Step 6:** At last tap on Next. (Right corner of the screen)

**Step 7:** On the next page enter your phone number to verify your account. (It is a two-step verification process for security)

**Step 8:** On the given mobile number you will receive a text message from Google with a verification code. Enter the verification code and tap on Verify.

**Step 9:** On the next page enter your DOB in the specified fields.

**Step 10:** Choose a Gender.

**Step 11:** Tap on Next.

**Step 12:** Read, Google's Terms of Service and Privacy Policy will appear on the screen and click on I agree.

**B. Multiple Choice Questions**

i - d

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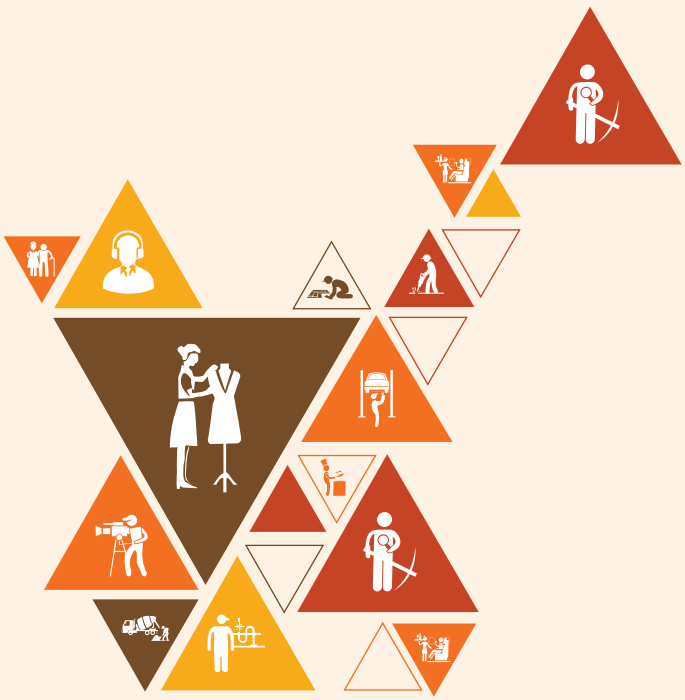
# 5. Process of Making Payments to Farmers/Suppliers

Unit 5.1 - Milk pricing and payment cycle

Unit 5.2 - Making payments and maintaining ledger

Unit 5.3 - Grievance handling and redressal



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstrate how to make payment to farmers/suppliers.

## Key Learning Outcomes

**After the completion of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Describe the milk pricing calculation methods and payment cycle<br>2. Explain the process of money withdrawal from bank and payment to farmers in cash or digitally<br>3. Explain the procedure of payments to the farmers/suppliers<br>4. Describe the detection of adulteration in milk<br>5. Explain about basic principles of accounting<br>6. Describe about functioning of Dairy Cooperatives/ SHGs<br>7. Describe the procedure of grievance handling | 1. Show how to prepare producer-wise and consolidated payment cycle and maintain individual and general ledger<br>2. Demonstrate payment to farmers in cash or digitally<br>3. Show how to maintain transparency during milk collection, testing and making payments<br>4. Show how to verify details and records<br>5. Demonstrate maintaining the grievance register and record grievances from farmers/suppliers<br>6. Demonstrate how to organize meetings with the producer members at regular intervals |

# Unit 5.1: Milk Pricing Mechanism

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Describe the milk pricing calculation methods.
2. Describe the detection of adulteration in milk.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Milk samples, Iodine solution, Test tube, Soybean powder, Red litmus paper.

## Explain

- Discuss the factors that influence the pricing of a product. Explain the pricing structure of milk using the slide. Explain the different pricing systems for milk procurement. Proceed to explain ways to detect adulteration in milk, the common milk adulterants, their harmful effects and how to detect them.

## Practical Activity

**Purpose:** To detect adulterants in milk.

**Resources:** Milk samples, iodine solution, test tube, soybean powder, red litmus paper.

**Methodology:** Learning by doing.

**Tentative Duration:** 3 hours.

**Expected outcome:**

Performing experiments to detect adulterants such as starch, water, urea, detergent in milk.

- Divide participants into five teams. Assign a practical activity to each team.

  **Team 1:** To detect water as an adulterant

  **Team 2:** To detect starch as an adulterant

  **Team 3:** To detect urea as an adulterant

  **Team 4:** To detect detergent as an adulterant

  **Team 5:** To detect synthetic milk
- Explain the harmful effects of each adulterant first. Prepare the teams to perform the experiments as seen on the slide. The teams are to present their conclusions.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the various methods of milk pricing and the different milk adulterants, their harmful effects and ways to detect them.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. fat, SNF

ii. Fat content, Volume/weight, total milk solids, species of milch animal, cost of milk production, use of milk, two-axes pricing, Two axes formula, Kio fat system, Double exes pricing

iii. This system calculates the pricing for buffalo as well cow's milk on the basis of their two components namely fat and SNF. The purchase rate for fat and SNF of buffalo's milk and cow's milk are determined based on ruling market prices/ consumer preference of white ghee(from buffalo's milk fat) and yellow ghee (cow's milk fat) (yellow ghee). Accordingly, the difference between prices paid for buffalo's milk and cow's milk is reduced.

iv. Make arrangements to demonstrate software application for creating rate chart and maintaining records in a VLMCC.

**B. Match the Columns**

i - e

ii - c

iii - d

iv - b

v - a

# Unit 5.2: Making Payments and Maintaining Ledger

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Explain the basic principles of accounting.
2. Describe the payment cycle and the procedure of payments to the farmers/suppliers.
3. Show how to prepare producer-wise and consolidated payment cycle and maintain individual and general ledger.
4. Explain the process of money withdrawal from bank and payment to farmers in cash or digitally.
5. Demonstrate payment to farmers in cash or digitally.
6. Show how to maintain transparency during milk collection, testing and making payments.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Ledger samples, Apps downloaded for making digital payments.

## Explain

- Put up the slide and introduce the topic of accounting and its need. Show the various accounting terms and encourage participants to explain what they mean, before showing them the slide with the descriptions of the terms.

## Do

- Put up the slide on milk payment mechanism. Let participants see the chart and explain the procedure.

## Explain

- Using the slide, explain the payment procedure to farmers. After this, explain the different modes of payments and cash withdrawals from banks, using the slides. Discuss the various digital modes of payments to enable cashless transactions. Participants can share their experiences in using digital payment modes for various services. Conduct a brief discussion on the advantages and disadvantages of using cashless transactions.
- Using the slides, about mobile and internet banking, use of cheques, UPI, NEFT, ECS, IMPS modes of payment. If possible, show a demonstration. Put up the slide on the different cashless modes, the services offered and the resources/device needed to use the service.
- Using the subsequent slides, conclude the unit by discussing the importance of maintaining payment ledgers and in maintaining transparency during milk collection, testing and making payments and how these can be achieved.

## Practical Activity

**Purpose:** To prepare producer-wise and consolidated payment cycle and maintain individual and general ledger; to demonstrate payment to farmers in cash or digitally and to maintain transparency during milk collection, testing and making payments.

**Resources:** Ledger samples, apps downloaded for making digital payments.

**Methodology:** Learning by doing.

**Tentative Duration:** 6 hours.

**Expected outcome:**

Maintaining individual and general ledgers, digital payments, maintaining transparency.

- There are four parts to the Practical activity. Each is a team activity. Give a case scenario of farmers for whom payment needs to be made and ledgers are to be maintained.

  Part 1 Calculate the pricing amount using the data on fat and SNF levels. The amount has to be paid to through any cashless mode.

  Part 2 Participants can choose any digital medium and demonstrate the steps (using dummy entries). Part 3 Post this an entry has to be made in the ledger, Pass book of the farmer.

  Part 4 Perform a Role Play to explain how as VLMCCI, you will ensure transparency in the business. One person to play the role of VLMCCI and 3-4 team members as farmers.
- Evaluate the work of the teams, and how they present. Provide feedback. Show the slides once again, if need be.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the making payments to farmers and maintaining ledgers.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The milk Union depending on the quality and quantity of the milk decides the price of the milk. The Union supplies a price chart to the societies. The society pays the farmers/suppliers on a daily/weekly basis or after every ten days as per the decision of the managing committee. The card/Pass book of the members and the registers of the society are updated with the payment details.

ii. Document financial performance, Detect discrepancies, Discover payment issues, Prevent payment delays, Improve financial performance.

iii. To build trust and confidence amongst farmers, society members, Union and other stakeholders, To build a stronger business relationship.

**B. Match the Columns**

i. a, c

# Unit 5.3: Grievance Redressal and Handling

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the functioning of Dairy Cooperatives/ SHGs.
2. Describe the procedure of grievance handling.
3. Demonstrate maintaining grievance register and record grievances from farmers/suppliers.
4. Demonstrate how to organise meetings.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible), Chart papers and Pens.

## Activity

**Purpose:** Explain the functioning of dairy cooperatives by taking some live examples.

**Resources:** Participant Handbook, Chart papers, Pens, Internet access.

**Methodology:** Flipped classroom.

**Tentative Duration:** 30 minutes

**Expected outcome:**

To discuss the functioning of dairy cooperatives, the structure of the society and its functions.

- Begin the unit with an activity. Mention the topic for the day and tell participants that the topic will be covered by them and that you will facilitate. They are to open their Participant Handbooks and read the section. They can read up from the internet too. Allot some time for this. Post that, they are to come up, present and explain the topic. Individuals can make charts, presentations, or use the internet to show and tell, explain.
- As Facilitator, steer the discussion along these directions:
    1. Structure of the society
    2. Milk trading services
    3. Input services
    4. Other services
- Other participants are encouraged to ask questions. In this manner, ensure this entire segment is covered by participants themselves. Summarise by using the slides.

## Explain

- Proceed to the next topic which is grievance handling. Explain what a grievance is; the various levels at which grievances can occur in a MCC and why they need to be resolved in a timely manner by a VLMCCI.

## Practical Activity

**Purpose:** Demonstrate resolution of grievances and maintaining grievance records.

**Resources:** PowerPoint slide, Internet access.

**Methodology:** Role Play.

**Tentative Duration:** 1 hour: 30 minutes

**Expected outcome:**

Handling and recording grievances.

- **Situations:**
  1. A farmer/pourer has come with a grievance with respect to milk weight and quality and therefore the price paid to him.
  2. There is a grievance from a transport vendor with respect to delay in dispatch and partially filled tanker as per threshold limit.
  3. The VLMCCI is confronted with a salary related grievance and OT work put in by some staff.
- For each situation, two volunteers are needed. One will play the role of the aggrieved person and the other, the VLMCCI who will offer a resolution.
- Evaluate the VLMCCI's performance w.r.t the following:

  Patient hearing of the grievance

  Documenting the grievance

  Steps being initiated to resolve the grievance

  Closure of the grievance in the register

## Explain

- Put up the slide on grievance and redressal mechanism and summarise the understanding. Proceed to explain the procedure for submission of complaints and grievance redressal.
- Conclude the unit by explain the importance of meetings between the Managing Committee members as well as amongst the members of the cooperative society and the procedure for the same.

## Practical Activity

**Purpose:** Demonstrate how to organise meetings

**Resources:** PowerPoint slide, Internet connection

**Methodology:** Charts, Pens.

**Tentative Duration:** 1 hour

**Expected outcome:**

Prepare agenda and minutes

- Participants are to prepare:
  1. Agenda for a Managing Committee meeting
  2. Agenda for a meeting amongst members of a cooperative society
  3. Minutes of the meeting
- Participants are to present the same.
- Once the activity is done, using the slide, summarise the various elements of an agenda and minutes of meeting.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about grievance handling and their redressal.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Milk trading services, input services, other services. Milk trading services include milk reception, testing, pricing, sale, dispatch, payment, accounting, profit distribution. Input services include technical inputs for production enhancement, cattle and group insurance schemes. Other services include capacity building of members, involvement of women, awareness of clean milk production.

ii. Every complaint /application is tagged with a specific number.

Within 3 days of receipt of the complaint, an acknowledgement must be sent to the complainant.

Every application is tagged with the name, designation and telephone number of the official handling the grievance.

The complainant must be informed of the action taken on the complaint lodged.

A record of all complaints must be maintained.

No grievance must be rejected. In case it is, reasons must be recorded and communicated to the complainant within a stipulated time period.

iii. Prepare the agenda and circulate prior to the meeting.

Circulate the action taken on the various issues raised in the previous meeting.

Fix a date and time that is suitable to all members of the society.

Start the meeting only if requisite attendance is present.

Prepare the minutes of the meeting.

**B. Multiple Choice Questions**

I. a

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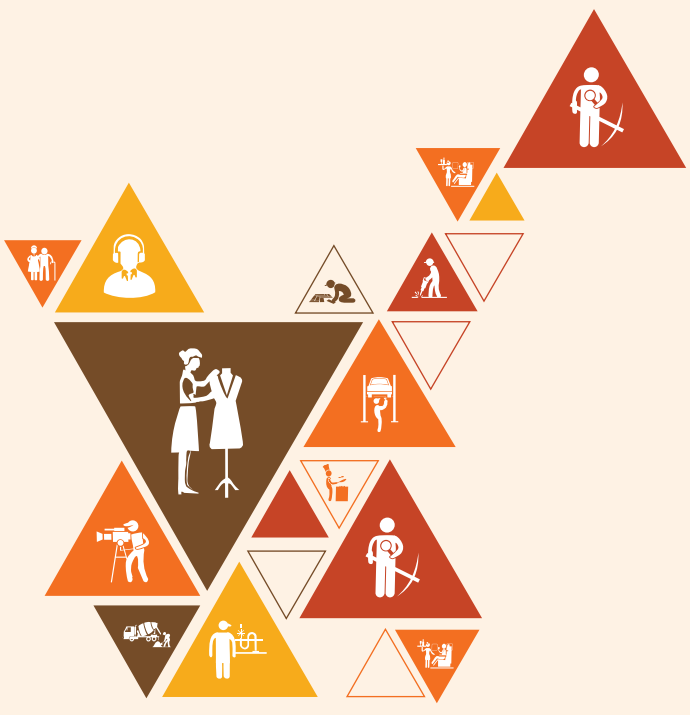
# 6. Operate and Maintain the Automatic Milk Collection Unit

Unit 6.1 - Operation of the Automatic Milk Collection Unit (AMCU)

Unit 6.2 - Calculating amount payable using AMCU

Unit 6.3 - Troubleshooting and routine maintenance of AMCU



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstrate the activities of operating and routine maintenance of the Automatic Milk Collection Unit (AMCU).

## Key Learning Outcomes

**By the end of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Describe the applicable PPE to be used while working on AMCU<br>2. Describe the SOP of operating and maintaining AMCU<br>3. Enlist different components of AMCU and their functioning<br>4. Explain the weighing and sampling techniques Describe Automatic Milk Collection Unit (AMCU) software application<br>5. Describe the operational and functional requirements for AMCU<br>6. Describe the FSSAI compliance related to milk collection unit<br>7. Describe how to troubleshoot any problem in day-to-day operation and report any problem to the concerned authority | 1. Demonstrate identifying different components of the AMCU and their functioning<br>2. Demonstrate using AMCU for instant weighing of milk, measuring fat, SNF & water content<br>3. Show how to calculate the amount payable to the member based on fat, SNF and weight<br>4. Demonstrate printing the amount calculated thereof with member identification details<br>5. Demonstrate transfer of data online to parent organisation<br>6. Demonstrate how to transfer payments to milk producers in their bank accounts directly following the protocol<br>7. Show how to carry out routine maintenance of AMCU<br>8. Show how to troubleshoot any problem arising in day-to-day operation |

# Unit 6.1: Operation of Automatic Milk Collection Unit

## Unit Objectives

**By the end of this unit, the participants will be able to:**

1. Describe the applicable PPE to be used while working on AMCU.
2. Describe the SOP of operating and maintaining AMCU.
3. Enlist different components of AMCU and their functioning.
4. Demonstrate identifying different components of the AMCU and their functioning.
5. Describe the operational and functional requirements for AMCU.
6. Describe Automatic Milk Collection Unit (AMCU) software application.
7. Describe the FSSAI compliances related to milk collection unit.
8. Explain the weighing and sampling techniques.
9. Demonstrate using AMCU for instant weighing of milk, measuring fat, SNF and water content.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, PPE, AMCU.

## Do

- Carry the following PPE to the class – Goggles, hearing protection aid, helmet, gloves, hair net, mask, body protection jacket

## Explain

- Begin by explaining what is PPE and its importance. Emphasise on protecting milk from contamination and safety of the persons handling milk. Using the slide, show the various PPE and their use. Explain importance of training staff on use of PPE.

## Do

- Show the Automatic Milk Collection Unit (AMCU) to participants. Explain and elaborate the functioning by actually demonstrating the use of it.

## Explain

- Explain what AMCU is, its objectives, the identify the various components.

## Elaborate

- Elaborate on each component and its function. Demonstrate the use of the AMCU as you elaborate as per the SOP and functioning of AMCU. Put up the slides on the SOP, as you show and tell. Demonstrate how to weigh, measure SNF%, water, fat% using the AMCU. Demonstrate as per the SOP using the slide.

## Explain

- Using the slide, explain the functional operational requirements of AMCU. Proceed to explain briefly about the AMCU software application. Close the unit by explaining the FSSAI (Food Safety and Standards Authority of India) compliances, their purpose

## Practical Activity

**Purpose:** Familiarise and use AMCU for weighing of milk, measuring fat, SNF and water content

**Resources:** AMCU, milk sample

**Methodology:** Learning by doing.

**Tentative Duration:** 6 hours.

**Expected outcome:**

Identify different components of components of AMCU and their functioning; Demonstrate AMCU for instant weighing of milk, measuring fat, SNF and water content

- Begin by getting participants to familiarise with the AMCU. They must name each component and state the function.
- Provide a case scenario. Divide the class into three teams. First team will calculate weight/quantity of milk using the weighing scale, analyse the milk and generate the milk receipt.
- Evaluate the demonstration to see if the SOP is being followed.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the AMCU its various components and functioning.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The Automatic Milk Collection Unit (AMCU) is a computer-based milk collection unit. It automates the conventional milk collection and procurement process followed by the dairy Industry. AMCU is used for weighing of milk, measuring fat and SNF content, calculating the amount payable to members based on fat and/or fat and SNF weight and printing the amount calculated with member identification details in each shift.

ii. Hairnet to cover the hair, hand gloves, hygienic and sterilised clothing and shoes with disposable shoe caps.

iii. Operational and functional requirements for AMCU:

- **Functional requirements:** Weigh up to 200 kg per batch at a time, Measure milk component contents such as fat from 0.5 % to12 % and SNF from 6% to 12 %, Calculate amount payable to members, Print amount calculated with member identification details, Maintain main records of the collection centre along with details of milk business transactions of the village co-operative society /MCC, Provide online data transfer to milk union and designated local banks for transfer of payments to milk producers in their bank accounts directly.
- **Operational requirements:** Components' capability to operate in hot, dusty, humid environment, Components' capability to operate in places with power fluctuations/ power outages.
- **Power supply:** 160 to 260+10 % V (AC); 50 Hz + 3% / 12 V (DC); Ambient temperature: 5 - 500 degrees C.
- **Relative Humidity:** 50 % to 95 % 2.2, Installation & Commissioning: Supplier should assemble, configure, commission all components to ensure smooth milk collection.
- **Warranty:** All components in the AMCU shall be warranted for 3-year comprehensive warranty except for burnt & broken items. Supplier to ensure the installation and commissioning of proper earthing before start of actual operation of AMCU. Supplier to provide Annual Maintenance Contract.
- **Training:** Supplier shall impart training to staff on operation, routine checks, maintenance of AMCU
- **Operational and cleaning SOPs:** Provide leaflets, wall charts on operation and cleaning of Milk Analyser for display

**B. Match the Columns**

i. b

ii. c

iii. a

# Unit 6.2: Calculating Amount Payable

## Unit Objectives

**After the completion of this unit, participants will be able to:**

- Show how to calculate the amount payable to the member based on fat, SNF and weight.
- Demonstrate printing the amount calculated thereof with member identification details.
- Demonstrate how to transfer payments to milk producers in their bank accounts directly following the protocol.
- Demonstrate transfer of data online to parent organisation.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, PPE, AMCU.

## Explain

- Put up the slide on calculating the amount payable and printing of slip. First explain using the slide. Move to the AMCU to demonstrate the same step by step.
- Explain that amount payable to the member is calculated based on fat, SNF and weight. Draw attention of participants on the details on the slip generated such as quantity, fat, SNF, rate, amount.
- Proceed to explain the procedure of transferring payments to pourers. Show the slide to show the sequence of steps.

## Practical Activity

**Purpose:** Steps to print the amount and transfer payments to pourers

**Resources:** AMCU.

**Methodology:** Learning by doing, Viva

**Tentative Duration:** 6 hours.

**Expected outcome:**

Printing the amount, transferring payments to milk producers

- While demonstrating the procedure, ask the following viva questions:
  1. On what basis is the amount to be paid calculated -

     (Answer: fat, SNF and weight of milk)
  2. What are the details listed on the slip generated

     (Answer): Member's code, Cattle Type, Milk Weight, Fat %, SNF %, Rate in Rs., Amount in Rs.
- The second part of the practical on - Transferring payments to milk producers, will be a viva. Participants are to explain the procedure.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings regarding calculating amount payable to members, printing the amount and transferring the amount.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i.

- Stir the milk sample
- Analyse milk using Milk Analyzer
- Data Processing Unit displays Fat and SNF value
- Measure the milk
- Data Processing Unit displays quantity
- Slip is generated

ii.

- Member's code
- Cattle Type
- Milk Weight
- Fat %
- SNF %
- Rate in Rs
- Amount in Rs

i. The AMCU has the capability for online data transfer to milk union and designated local banks for transfer of payments to milk producers in their bank accounts directly. The pourer wise data from the AMCU is sent to server. The payment details are sent to the bank directly by the AMCU. The AMCUs uses dairy-to bank concept where the pourer's bill amount is directly deposited in the bank account. Without going to the bank, the pourer can withdraw the money as per the requirement directly from the milk collection centre.

**B. Fill in the Blanks**

i. fat, SNF, weight

ii. Bank, AMCU

# Unit 6.3: Trouble Shooting and Routine Maintenance of AMCU

## Unit Objectives

**After the completion of this unit, participants will be able to:**

- Clean the milk analyser display for clear view of the readings.
- Show how to carry out routine maintenance of AMCU.
- Describe how to troubleshoot any problem in day-to-day operation and report any problem to the concerned authority.
- Show how to troubleshoot any problem arising in day-to-day operation.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, PPE, AMCU.

## Explain

- Explain the need and benefits of routine maintenance and proceed to speak specifically about the same with respect to AMCU.
- Put up the slide on cleaning the procedure milk analyzer. As you explain demonstrate the procedure to the participants as per the procedure seen on the slide. Explain “complete flushing”. Proceed to explain weekly cleaning and the manual cleaning procedures.
- With the help of the slide, explain the troubleshooting and routine maintenance of the AMCU.

## Practical Activity

**Purpose:** : Steps to carry out routine maintenance of AMCU and to troubleshoot any problem arising in day-to-day operation

**Resources:** AMCU, PowerPoint slide

**Methodology:** Learning by doing.

**Tentative Duration:** 6 hours.

**Expected outcome:**

Demonstrate routine maintenance and troubleshooting of AMCU

- Participants are to practice cleaning the milk analyzer, routine cleaning, complete flushing, weekly cleaning and manual cleaning operations. Ensure the practical activity is conducted as per the SOP. Explain dos and don'ts if any and precautions to undertake while performing the practicals.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings regarding troubleshooting and routine maintenance of AMCU.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Routine cleaning is recommended when the time duration between 2 following measurement analyses exceeds more than 30 minutes or a number of analyses have been initiated. During such a situation, the device triggers the beep sound continuously, displaying the message 'Cleaning Needed'. The following procedure needs to be followed during this time period:

- Place a sample cup with clean warm water (preferably 45-50 degrees) on the sample surface under the pipette.
- Next, press the clean button which commences the flushing procedure. The device is structured to filter in the required amount of water it needs and returns it to the cup. This procedure is repeated for about five times consecutively.
- After this, remove the sample cup which is placed on the sample shelf.
- The completion of this procedure allows the device to get ready for the measurement step.

ii. Periodic maintenance is necessary to ensure accuracy and reliability.

iii. Ensure routine cleaning, complete flishing, weekly and manual cleaning of milk analyzer are carried out. VLMCCI must report any problems in the AMCU at the right time to the concerned authority. Any errors displayed in the system has to be checked and rectified by the VMCCI.

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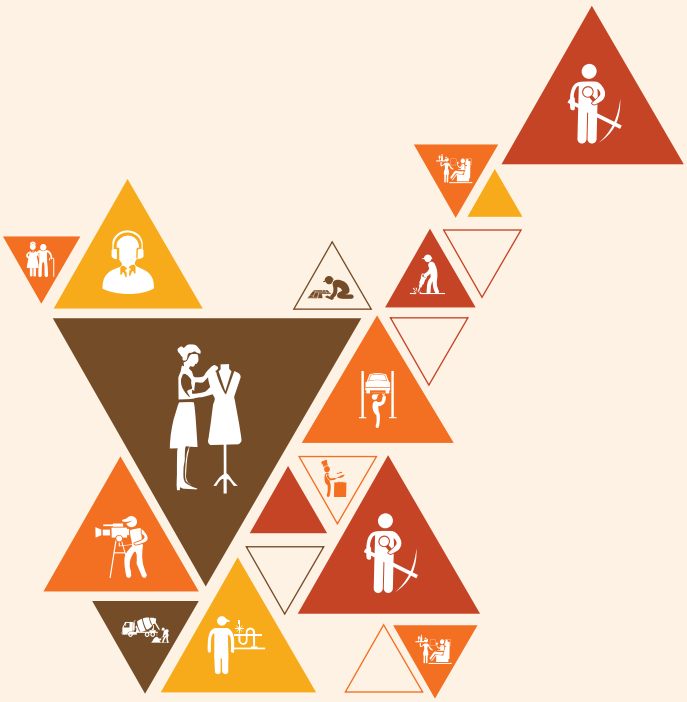
# 7. Maintaining Safety, Hygiene and Sanitation at Milk Collection Centre

Unit 7.1 - Safety and Hygiene Standards

Unit 7.2 - Handling Accidents and Emergencies at Workplace

Unit 7.3 - Cleaning and Sanitation of Equipment and Work Area

Unit 7.4 - Housekeeping Practices



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstrate activities of maintaining cleanliness and hygiene at milk collection centre.
2. Demonstrate safety practices at milk collection centre.

## Key Learning Outcomes

**After the completion of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Describe the safety and hygiene standards followed by the organization.<br>2. Describe possible physical, chemical and biological hazards and their methods to prevention.<br>3. Enlist different types of sanitizers and procedure to use them.<br>4. Describe the process of cleaning and sanitization of equipment and work area.<br>5. Describe the safety checklist for all equipment.<br>6. Describe the housekeeping practices to be followed.<br>7. Describe the safe food practices for milk and milk products. | 1. Demonstrate how to follow safety and hygiene procedure as per organization standards.<br>2. Demonstrate practicing safety and sanitation related functions for collection of milk and storage.<br>3. Show how to maintain cleanliness of milk hauling vehicles and equipment and at the collection centre.<br>4. Show how to follow housekeeping practices.<br>5. Demonstrate safe food practices by labeling milk and finished products.<br>6. Demonstrate use of safety equipment.<br>7. Show how to identify, report and find solution of problems like pests and rodents.<br>8. Show how to display advisory regarding appropriate behaviour practices. |

# Unit 7.1: Safety and Hygiene Standards

## Unit Objectives

**After the completion of this module, the participants will be able to:**

1. Describe the safety and hygiene standards followed by the organization.
2. Demonstrate how to follow safety and hygiene procedure as per organization standards.
3. Describe possible physical, chemical, and biological hazards and their methods to prevention.
4. Describe the safe food practices for milk and milk products.
5. Demonstrate safe food practices by labelling milk and finished products.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Weighing machine, Chart paper, Pencils, Pens and Other stationery to create charts.

## Do

- Start with a leading question that intends to establish the need to study this unit.

## Ask

- What are the factors that affect the dairy plant hygiene?

**Expected Answers**

- Building maintenance
- Equipment
- Personnel
- Access to water

## Say

- The milk and milk product contact surfaces in a dairy account for 60% of the total contamination. The cleaning and sanitisation of the milk and milk product contact surfaces is a requirement for the creation of a high-quality product. The VLMCC's cleanliness is influenced by the elements like building maintenance, equipment, personnel and access to water.

## Elaborate

- Elaborate on each factor and their maintenance aspect to keep the VLMCC clean.

## Say

- There are standard protocols to be followed at VLMCC to help the staff in safe and hygienic collection, testing and transport the milk collected. The duties and responsibilities of a VLMCCI involves preparatory activities at the VLMCC, the milk collection and testing activities and post-milk collection activities.
- Let us do an activity to understand these activities better.

## Team Activity

**Purpose**: To acquaint participants with the safe and hygienic process for milk collection activities.

**Resources:** Presentation slides

**Tentative Duration:** 20 minutes.

**Methodology:** Discussion.

**Expected outcome**: Participants will be able describe the safe and hygienic process for milk collection activities.

- Show the participants the scenario on the presentation slide. The scenario is given below for your reference.
- **Scenario:** Arvind, Pramod and Vinod are under training to become VLMCCIs. They are currently training on the job at a VLMCC. Today their supervisor has given them tasks to follow safe and hygienic processes at the VLMCC. Arvind must prepare the VLMCC for milk collection activities. Pramod must take care of the milk collection and testing and Vinod has take care of the post collection activities. Join the three and help them to prepare for these activities by following the safe and hygienic process.
- Divide them into teams as per the names of the trainee VLMCCI. Ask them to discuss and present the safe and hygienic process that they will follow at the VLMCC for each of the activities allotted to them.
    - Arvind's team: Prepare the VLMCC for milk collection activities.
    - Pramod's team: Prepare for milk collection and testing.
    - Vinod's team: Prepare for post milk collection activities.
- With the help of the presentation slides explain the activities that they will do to keep the VLMCC safe and hygienic at each stage.

## Team Activity

**Purpose**: To acquaint participants with the dos and don'ts while collecting milk.

**Resources:** Presentation slides

**Methodology:** Discussion.

**Tentative Duration:** 10 minutes.

**Expected outcome**:

Participants will be able describe the dos and don'ts while collecting milk.

- Divide the participants into 4 groups. Ask two groups to discuss the dos and two groups to discuss the don'ts while collecting milk. Ask them to discuss and present their points.
- Explain the dos and don'ts.

## Demonstration

**Tentative Duration:** 10 minutes

- Demonstrate how to keep the milk analyser ready for use.

## Practical Activity

**Purpose:** To train participants to keep the milk analyser ready for use.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 10 minutes.

**Expected outcome**

Participants will be able to keep the milk analyser ready for use.

- Ask the participants to perform the steps to handle the milk analyser and keep it ready for use.

## Demonstration

**Tentative Duration:** 10 minutes

- Demonstrate how to keep the weighing machine ready for use.

## Practical Activity

**Purpose**: To train participants to keep the weighing machine ready for use.

**Resources:** Presentation slides, weighing machine.

**Methodology:** Discussion.

**Tentative Duration:** 10 minutes.

**Expected outcome**:

Participants will be able to keep the weighing machine ready for use.

- Ask the participants to perform the steps to handle the weighing machine and keep it ready for use. Tell the participants to ensure that the electronic weigh scale is calibrated and certified annually by the Legal Metrology Department.

## Ask

- What is a hazard?

**Expected Answers**

- Danger

## Say

- The term 'hazard' means probable danger or risk.

## Ask

- How can food safety hazards be categorised?

**Expected Answers**

- Physical, chemical, and biological hazards.

## Say

- The quality of milk can be impacted by a various factors including biological, chemical, or physical agents. Such hazards can be a risk at any step in the dairy production and processing - milking, collection, transportation, storage, processing, packing, labelling, and serving. Milk also includes water and nutrients, and the quality of milk can be impacted during the production process, thus shortening its shelf-life.

## Team Activity

**Purpose**: To acquaint participants with the material and sources of physical, chemical, and biological hazards

To acquaint participants with the impact of the physical, chemical, and biological hazards

To acquaint patricians with the measures to control the physical, chemical, and biological hazard

**Resources:** Presentation slides, Chart paper, Pencils, Pens and Other stationery to create charts.

**Methodology:** Collaborative work.

**Tentative Duration:** 10 minutes.

**Expected outcome**:

Participants will be able describe the dos and don'ts while collecting milk.

Participants will be able describe the material and sources of physical, chemical, and biological hazards

Participants will be able describe the impact of the physical, chemical, and biological hazards.

Participants will be able describe the measures to control the physical, chemical, and biological hazard.

- Divide the participants into 3 groups. Allot one hazard to each group. Ask the participants to create a chart about the hazards, the material and sources that cause these hazards and the impact and control measures of the hazards.
- Explain the material and sources that cause the hazard and the preventive measures.

## Do

- Show the participants the following video on the three food hazards, namely, physical, biological and chemical from the given link (Duration: 11:28 minutes), Introduction to Food Safety (Module 1) | FSSAI - https://www.youtube.com/watch?v=WYosZ4zru5Y

## Ask

- Raw milk is prone to contamination and spoilage. How can you prevent contamination and spoilage of raw milk?

**Expected Answers**

- Keeping milk in a clean area
- Maintaining hygiene and cleanliness
- Cooling milk at low temperatures
- Maintaining low temperature until further processing

## Explain

- Explain the practices to prevent contamination and spoilage of milk.

## Say

- Packaging labels of food products provide information about the pricing, quality, quantity, usage, ingredients, nutritive value, and attributes of the items. Packaging and labelling have a direct impact on sales and profitability. The packaging also features the brand name, its logo and message, which aids in easy access to the customer.

## Do

- Show labels of different milk and milk products.
- Explain the information that is given on the products.
- Tell the participants that this information is mandatory as per FSSAI rules.

## Team Activity

**Purpose**: To acquaint participants with the labelling and packaging of finished products.

**Resources:** Presentation slides, Paper and Pen.

**Methodology:** Collaborative work.

**Tentative Duration:** 10 minutes.

**Expected outcome**:

Participants will be able to create labels for packaging of finished products as per FSSAI rules.

- Divide the participants into pairs. Show the presentation slide with the scenario. The scenario is given below for your reference. Ask them to create labels for all the three products, keeping in mind the information required as per FSSAI.
- **Scenario:** Sachin, runs a dairy farm. He has just expanded his business and is now making flavoured milk, curd and ghee. He sells the milk in cartons of 150ml. The curd is packaged in plastic containers of 150 ml and 250 ml respectively. The ghee is sold in sachets of 250 ml.
- After they are done, at random ask 2 or 3 pairs to read the information on the labels that they have created.
- With the help of the presentation slide, explain the mandatory information required on the labels.

## Do

- Show the participants the following videos on labelling of food products as per the FSSAI rules and regulations.
- Tell the participants that even though these videos do not talk about milk products the rules by FSSAI are applicable to all food products including milk and milk-based products. The first video also talks about an audit done by the FSSAI authorities and is interesting to note the learnings of the FBO after the audit was done at their facility.
- Videos:
  1. New FSSAI Guidelines – Labelling Of Food Products in India- Complete Checklist and Regulations 2022 - (Duration: 12:07 minutes).

     https://www.youtube.com/watch?v=oFCMk1Dj0pM
  2. Know Your Food Products | Basic Features of Labelling - (Duration: 14.20 minutes).

     https://www.youtube.com/watch?v=dKp7aH6MPEU

## Summarize

I. Conclude the unit by calling for volunteers to sum up one by one the learnings about the safety and hygiene standards followed by the organization, physical, chemical and biological hazards and their methods to prevention and safe food practices by labelling milk and finished products.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

I. The step-by step procedure to keep the milk analyser ready for use:

1. Keep the milk analyzer (UTMA) or tester (EMT) connected to the battery
2. Check if the printer, UPS, data processor/ computer, and electronic weigh scale are in good working order
3. Record any actions taken to adjust the calibration of the EMT/milk analyzer in the logbook
4. Calibrate and verify the milk analyser's test results using the control sample
5. Turn on the milk analyser before collecting milk and let it warm up for at least 30 minutes
6. Perform pre-operational procedures for the milk analyseras per operation manual

The milk analyser is ready for use.

ii. The main factors that influence the dairy plant hygiene are:

Building maintenance

Equipment

Personnel

Access to water

iii. The step-by step procedure to keep the milk weighing machine ready for use:

1. Ensure that the electronic weigh scale has a suitable power source and earthing
2. Make sure the weigh scale's balancing knobs are securely placed on the levelled surface or floor
3. Turn on the electronic weigh scale and give it at least 30 minutes to warm up before beginning milk collection
4. Ensure that the electronic weigh scale is set to auto tare
5. The milk weighing machine is ready for use

**B. Match the Columns.**

i – d

ii – f

iii – g

iv – b

v – a

vi – c

vii – e

**C. Multiple Choice Questions**

i – c

ii – a

iii – d

**D. Mark a Tick on the Dos and a Cross on the Don'ts.**

Dos: a, d, f, j

Don'ts: b, c, e, g, h, i

# Unit 7.2 Handling Accidents and Emergencies at Workplace

## Unit Objectives

**After the completion of this unit, the participant will be able to:**

1. Describe the commonly reported hazards at the workplace
2. Demonstrate how to deal with accidents and emergency situations at the workplace.
3. Describe labelling requirements for chemicals, sanitisers and refrigerant gases.
4. Demonstrate use of safety equipment.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Fire extinguisher.

## Ask

- What do you understand by the term hazard?

**Expected Answers**

- The term 'hazard' means probable danger or risk.

## Say

- The term 'hazard' means probable danger or risk. It is important and mandatory to know the types of hazards that you may face at work. It will then be easy to prevent this risk at work.

## Activity

**Purpose**: To acquaint participants with workplace hazards.

**Resources:** Presentation slides.

**Methodology:** Game.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Familiarize participants with workplace hazards.

Educate participants about the causes of workplace hazards.

- Show the participants the presentation slide. Ask them to look at the picture and identify the hazards in the picture. Give them 5 minutes. Note the responses. Now, show them the next slide with the answers. Tell them that hazards at the workplace can cause illness, injury or even death. The hazards at work can occur due to:
  - Incorrect handling of equipment
  - Unsafe working practices
  - Behaviour of people
- Ask them to share their experience of being involved in a mishap that happened at work.

## Explain

- Explain in detail about the type of workplace hazards and employees who are affected due to these hazards.

## Say

- Injuries and illness can happen to anyone at the workplace. Preventing the possible causes of these injuries will keep the work environment and the employees safe.

## Elaborate

- Elaborate on HIRA and how it helps to prevent risks caused by hazards at the workplace.

## Team Activity

**Purpose**: To acquaint participants with identifying and preventing hazards at workplace.

**Resources:** Presentation slides.

**Methodology:** Brainstorming.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Participants will be able to ask questions to identify workplace hazards, evaluate the risks, record the findings, and review the result.

- Divide the participants into four teams. Give each team one task given below:
  1. Identifying the hazard
  2. Evaluating the risk
  3. Recording the finding
  4. Reviewing the result
- Ask each team to brainstorm and think of the questions that they will ask for each task. For example: For task one, a question that they can ask is who are at risk? Give them time to discuss and present their questions. Note the response. Show the participants the presentation slide with the answers and de-brief.

## Activity

**Purpose**: To acquaint participants with the emergency situations that can occur at the workplace.

**Resources:** Presentation slides.

**Methodology:** Quiz.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Participants will be able to identify the emergency situations that can occur at the workplace.

- Show the presentation slides and ask the participants to identify the emergency situations one by one. Note their response.
- Post the quiz, show the presentation slide with the correct answers.

## Explain

- An emergency can be a natural disaster or an accident. Workers can be involved in accidents at workplace, and these can be caused by the physical, biological or chemical hazards.
- There are three factors that contribute to accidents at the workplace chance occurrence, unsafe condition at the workplace and unsafe acts on the part of the employees.
- Let us do an activity to understand these factors.

## Activity

**Purpose**: To increase the knowledge of participants about the different factors that contribute to accidents at workplace.

**Resources:** Presentation slides.

**Methodology:** Game.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Ability to identify the factors that contribute to accidents at the workplace.

- First prepare 3 chits of paper. These will have one factor each that causes accidents. Select 3 participants and allot one chit each for factors:
  - Chance occurrence
  - Unsafe condition at the workplace and
  - Unsafe acts on the part of the employees
- Prepare small chits which will contain the names of all the examples that come under the three main factors. You can refer to the Participant Handbook for all the examples. Jumble up the chits and keep them in a bowl. Ask participants to pick a chit from the bowl and then walk to the factor under which the example given occurs. Show the presentation slide and explain the factors and the examples.

## Say

- Chance occurrences include medical emergencies like heart attack, weather conditions like floods and storms, natural calamities like earthquakes and sudden power failures. Unsafe conditions at the workplace are the biggest cause of accident at workplace. These are also called 'technical causes or 'improperly guarded equipment'. Unsafe acts on the part of employees are tasks or acts that a worker performs without any knowledge or skill.

## Ask

- What is the importance of preparing for emergencies at the workplace?

**Expected Answers**

- It helps to keep workers safe
- It can prevent life threatening situations
- It can minimise damage to the environment, equipment, machinery, tools, etc.

## Do

- Show the presentation slide for importance of preparing for emergencies.

## Say

- You need to have a good safety plan in place to minimise the workplace emergencies.

## Explain

- Explain the four elements of an emergency plan including prevention, preparation, response, and recovery.

## Say

- It is important to respond and report an accident quickly as this can prevent a similar accident from recurring.

## Team Activity

**Purpose**: To acquaint participants steps to follow while dealing with accidents.

**Resources:** Presentation slides

**Methodology:** Brainstorming.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Participants will be able to describe the steps to follow while dealing with accidents.

- Divide the participants into 4 groups. Give them each one accident situation at workplace. Ask the groups to discuss and present the steps they will follow while dealing with accidents.
- Explain the steps to follow while dealing with accidents.

## Say

- Fire accidents can be life-threatening and fatal. Protection from threats of fire accidents starts with prevention.

## Explain

- Explain the importance of an effective evacuation plan during a fire.
- Explain the five different types of fire extinguishers and how they work.

## Say

- Protection from threats of fire accidents starts with prevention. To prevent fires at the workplace one must keep the following ready. It is very important to participate in the fire drill exercises arranged by the management at regular frequencies. The evacuation plan will train employees to follow the instructions of the fire warden, move promptly and calmly through the nearest exit and assemble at the designated area. Fire extinguishers must be installed at all workplaces.
- The steps to use the fire extinguisher are:
  **P:** Pull the pin
  **A:** Aim the nozzle at the base of the fire
  **S:** Squeeze the handle
  **S:** Sweep from side to side

## Do

- Show the participants the following two videos.
  1. Demonstrates the steps to use the fire extinguisher from the link given below (Duration: 3:24 minutes) - How to use Fire Extinguisher - https://www.youtube.com/watch?v=6mX07wNJuYE
  2. Explains the best practices to be followed for fire safety from the link given below (Duration: 3:06 minutes) - 8 Best Practices for Industrial Fire Safety - https://www.youtube.com/watch?v=VTfJZ0Y5k2w

## Activity

**Purpose**:

To train the participants to use the fire extinguisher

To understand the guidelines to be followed if a fire occurs.

**Resources:** Presentation slides, Fire extinguisher.

**Methodology:** Guest Lecture and Demonstration.

**Tentative Duration:** 1 hour.

**Expected outcome**:

Participants will be able use the fire extinguisher to douse fire.

Participants will be able to explain the guidelines to be followed if a fire occurs.

- Arrange for a guest lecture to demonstrate the steps to use the fire extinguisher.
- The guest lecture should include how to deal with fire at the workplace and the guidelines to be followed if a fire occurs. Ask a few participants to volunteer and demonstrate the steps to use the actual fire extinguisher.

## Ask

- What do you understand by first aid?

**Expected Answers**

- First aid is the first help or support that you give to a person who is sick or involved in an accident. First aid does not mean giving medical help like medicines.

## Elaborate

Define first aid. Elaborate on the universal rule of first aid.

## Ask

- Why do you think it is important to report the first aid administered to the reporting officer at your workplace?

**Expected Answers**

- To keep all employees safe and prevent accidents from happening.

## Say

- Every employee or worker in a company is responsible for the safely handling equipment and machinery, however accidents can happen due to human error or technical faults.
- It is important to report these accidents and the first aid that has been administered as the data gathered about the injuries can be tracked on a regular basis.
- The safety teams and the supervisors of the company can then find solutions to the problems to prevent future injuries due to accidents.

## Team Activity

**Purpose**: To acquaint participants with questions to be asked to gather data needed for the first aid report.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 20 minutes.

**Expected outcome**:

Participants will ask questions to gather data needed for the first aid report.

- Divide the participants into 4 groups. Ask them to discuss the questions that they will have to ask to gather data to create a first aid report. Ask them to discuss and present the questions.
- Post the presentation, use the next slide and de-brief.

## Say

- Labels on the chemicals, sanitisers and refrigerants provides information about their properties. The label on the chemicals determines the compatibility and hazard levels.

## Ask

- What is the importance of labelling chemicals, sanitisers, and refrigerant gases?

**Expected Answers**

- Helps in safe transportation
- Helps in safe use and storage
- Helps in safe handling

## Explain

- Explain how the chemicals and sanistisers must be labelled and stored.

## Say

- There are five common hazards in chemicals and the labels use the colour codes and hazard symbols to determine the hazard class of a chemical.

## Explain

- With the help of the presentation slide explain the colour codes and hazard symbols of the chemicals.

## Say

- Normally 30 to 40 VLMCCs having a capacity of 100 - 500 litres of milk collection in a day form one cluster for bulk milk cooler (BMC) or chilling center (CC) where refrigerant gases are required. Refrigerants come in different types of cylinders, including small cans or ISO (large volume) containers, transport or recovery cylinders, refillable or non-refillable cylinders, etc. Refrigerants are subject to regulations on chemicals.
- Labels on refrigerants provide information on risks, safety measures, storage requirements, and emergency procedures related to its handling, transit, storage, and usage.

## Explain

- Explain the importance of labelling the refrigerant cylinders.
- Explain the information that is needed on the refrigerant cylinders.
- With the help of the presentations read the tips on how to handle the chemicals.

## Say

- Even with robust technical controls and safety measures, accidental chemical exposures can still happen. Exposure to any dangerous material or chemicals and a brief delay in medical care can result in serious harm.

## Ask

- How do eyewashes and safety showers help workers?

**Expected Answers**

- Eyewashes and safety showers enable workers to flush potentially harmful substances away.

## Explain

- Explain about the emergency showers and eyewashes and how they are used.

## Notes for Facilitation

I. Conclude the unit by calling for volunteers to sum up one by one the learnings about the commonly reported hazards at the workplace, how to deal with accidents and emergency situations at the workplace, labelling requirements for chemicals, sanitisers and refrigerant gases and how to use safety equipment.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

iii. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Hazards at work can occur due to: incorrect handling of equipment, unsafe working practices and behaviour of people.

ii. The four steps by which hazards can be prevented at workplace are:

1. Identifying the hazard: To check the risk/hazard by asking series of questions about - how the tasks are performed at the workplace and identify the risk.
2. Evaluating the risk: Some hazards may be more dangerous and can cause more damage than others, this needs to be evaluated and addressed immediately.
3. Recording the finding: This is an important step as it will document all the evaluations, findings and solutions to the hazards.
4. Reviewing the result - This is important to prevent the hazard does not occur and if the solution provided is working

iii. The importance of preparing for emergencies are:

It helps to keep workers safe

It can prevent life threatening situations

It can minimise damage to the environment, equipment, machinery, tools, etc.

iv. The four elements of an emergency plan are:

1. Prevention: Policies and procedures to minimise the occurrence of emergencies.
2. Preparation: Activities and procedures to make sure your organisation is ready to effectively respond.
3. Response: The action to be taken when an emergency occurs.
4. Recovery: Practices to resume to normal business operations.

v. PASS technique: Correct sequence: c,a,d,b

vi. Fire extinguishers, First aid box, Safety shower, Eye wash station.

vii. Labels on the chemicals, sanitisers and refrigerants provides information about their properties. The label on the chemicals determines the compatibility and hazard levels. Labelling contributes to safe use, transport, handling and storage of chemicals and refrigerants.

**B. Match the Columns**

i d

ii e

iii b

iv c

v a

# Unit 7.3: Cleaning and Sanitation of Equipment and Work Area

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. List different types of sanitisers and procedure to use them.
2. Describe the process of cleaning and sanitisation of equipment and work area.
3. Demonstrate how to maintain cleanliness of milk hauling vehicles and equipment and at the collection centre.
4. Describe the safety checklist for all equipment.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Milk cans, Sample bottles, Sanitisers and Detergents.

## Field Visit

**Purpose**: To observe the maintenance and cleanliness of milk hauling vehicles and equipment and at the milk collection centre.

**Resources:** Observation sheets

**Methodology:** Observation

**Expected outcome**:

Participants will be able to apply the best practices to maintain and clean milk hauling vehicles and equipment and at the milk collection centre.

- Arrange a field visit to different VLMCCs around your city.
- Divide the participants in groups of 4 to 5 depending on the batch size.
- While on the field visit, the participants should observe the following:
  - What is the process followed to clean the tankers?
  - How were the milk collection equipment cleaned and sanitised?
  - What was the method used to clean the different milk collection equipment?
  - What were the type of sanitisers used to clean the work areas in the VLMCC?
- After they come back to class, participants will give a presentation on what they observed at the VLMCC.

## Explain

- Explain how water, heat and chemicals are used in cleaning the work area.

## Explain

- Explain how water, heat and chemicals are used in cleaning the work area.

## Ask

- What does cleaning the milk collection equipment involve?

**Expected Answers**

- Dirt
- Milk traces
- Water deposits
- Detergent
- Sanitiser traces
- Sediments
- Any other foreign objects.

## Say

- Explain the different methods of cleaning milk collection equipment.

## Demonstration

**Tentative Duration:** 15 minutes

- Demonstrate the complete procedure to clean and sanitise any one milk equipment like the milk can.

## Explain

- With the help of the presentation slides explain why each stage of the process is necessary while cleaning the milk collection equipment.

## Practical Activity

**Purpose**: To train participants to clean the milk collection equipment by following the correct procedure.

**Resources:** Presentation slides, Milk cans, Sample bottles, Sanitisers and Detergents

**Methodology:** Hand on practice.

**Tentative Duration:** 1 hour

**Expected outcome**:

Participants will be able to clean the milk collection equipment by following the correct procedure.

Divide the participants into groups of 3-4 depending on the batch size. Ask them to clean the milk cans and sample bottles by following the steps shown in the demonstration.

Ask the participants the following questions:

- Why is pre-rinsing of the equipment necessary?
- Why are acid detergents used for cleaning the equipment?
- How is the sanitising treatment effective?
- Why is drying of equipment important?

## Practical Activity

**Purpose**: To train participants to clean and sanitise the frequently touched surfaces.

**Resources:** Presentation slides, Different types of Sanitisers and Cleaning Accessories.

**Methodology:** Hand on practice.

**Tentative Duration:** 30 minutes.

**Expected outcome**:

Participants will be able to clean and sanitise the frequently touched surfaces.

Ask the participants the following questions:

- Ask 3 or 4 participants to volunteer. Show them the sanitisers and cleaning equipment. Ask them to pick the right cleaning agent and sanitiser. Ask the volunteers to describe and demonstrate the correct method of cleaning frequently touched surfaces.
- Ask the participants the following questions:
  - Why is it important to clean the frequently touched surfaces?
  - Why is it important for the users adhere to the instructions on the label of the cleaning agents?
- With the help of the presentation slide, show and reiterate the steps to clean the frequently used surfaces.

## Presentation

- Field Visit Presentation: Ask the participants to form groups of 3-4 and make a flow chart with all the activities and processes they have observed for cleaning the milk hauling vehicles at the VLMCC. Participants should collate their observations and present a note on the best practices that were followed while cleaning the milk hauling vehicles.
- Ask the participants the following questions:
  - How should the tankers be built to prevent contamination in milk?
  - What are the cleaning agents used to clean the tanks?
  - Why should aluminium cans not be used for collection processing and storing of milk?
  - When should the vehicles that transport milk be cleaned?
  - What are the mandatory requirements for a tanker driver of a milk tanker/vehicle?

## Explain

- With the help of presentation slides explain how the milk hauling tankers/vehicles are cleaned and maintained.

## Say

- Proper monitoring of milk collection containers and equipment is necessary to ensure the milk collection operations can run without any interruption due to equipment failure, malfunction and contamination of milk. Maintenance entails a constant process of checking, repairing, and servicing operating equipment. Monitoring the operations will help in timely action and avoid disruption of regular working at the centre.

## Explain

- Explain the three elements of quality and safety monitoring.

## Team Activity

**Purpose**: To train participants to create a checklist for routine monitoring of hygiene conditions of milk collections operations.

**Resources:** Presentation slides, Paper and Pens

**Methodology:** Collaborative work.

**Tentative Duration:** 30 minutes.

**Expected outcome**:

Participants will be able to create a checklist for routine monitoring of hygiene conditions of milk collections operations.

- Divide the participants into groups of 3-4 depending on batch size. Ask them to discuss and create a checklist to monitor the routine hygiene conditions of the milk collection operations.
- Ask each team to come and present the point in the checklist that they have made.
- Show the presentation slides and explain all the checklist points.
- Ask the teams to observe each other's presentation and give suggestions and ideas as feedback.

## Notes for Facilitation

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about different types of sanitisers and procedure to use them, the process of cleaning and sanitisation of equipment and work area, how to maintain cleanliness of milk hauling vehicles and equipment and at the collection centre and the safety checklist for all equipment.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Hazards at work can occur due to: incorrect handling of equipment, unsafe working practices and behaviour of people.

ii. The four steps by which hazards can be prevented at workplace are:

1. Identifying the hazard: To check the risk/hazard by asking series of questions about - how the tasks are performed at the workplace and identify the risk.
2. Evaluating the risk: Some hazards may be more dangerous and can cause more damage than others, this needs to be evaluated and addressed immediately.
3. Recording the finding: This is an important step as it will document all the evaluations, findings and solutions to the hazards.
4. Reviewing the result - This is important to prevent the hazard does not occur and if the solution provided is working

iii. The importance of preparing for emergencies are:

It helps to keep workers safe

It can prevent life threatening situations

It can minimise damage to the environment, equipment, machinery, tools, etc.

iv. The four elements of an emergency plan are:

1. Prevention: Policies and procedures to minimise the occurrence of emergencies.
2. Preparation: Activities and procedures to make sure your organisation is ready to effectively respond.
3. Response: The action to be taken when an emergency occurs.
4. Recovery: Practices to resume to normal business operations.

v. PASS technique: Correct sequence: c,a,d,b

vi. Fire extinguishers, First aid box, Safety shower, Eye wash station.

vii. Labels on the chemicals, sanitisers and refrigerants provides information about their properties. The label on the chemicals determines the compatibility and hazard levels. Labelling contributes to safe use, transport, handling and storage of chemicals and refrigerants.

**B. Match the Columns**

i c

ii a

iii b

# Unit 7.4: Housekeeping Practices

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the housekeeping practices to be followed.
2. Demonstrate how to identify, report and find solution of problems like pests and rodents.
3. Demonstrate practicing safety and sanitation related functions for collection of milk and storage.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop.

## Team Activity

**Purpose**:

To acquaint participants with the good housekeeping practices that should be followed at the VLMCC

To acquaint participants with the inclusions necessary for the housekeeping programme.

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Participants will be able to describe the good housekeeping practices to be followed at the VLMCC and the inclusions necessary for the housekeeping programme.

- Divide the participants into groups of 3-4 depending on batch size. Ask them to discuss and present their points on what are the good housekeeping practices and what should be included in a good housekeeping programme.
- With the help of the presentation slides explain the housekeeping practices to be followed and what should be included in a good housekeeping program for the VLMCC.

## Say

- A good housekeeping programme will help in implementing the maintaining the VLMCC in a planned and organised manner. There are some more things that you need to keep in mind to implement these housekeeping practices. Let us do another activity to understand this.

## Team Activity

**Purpose**: To acquaint participants with the tips for good housekeeping practices that should be followed at the VLMCC

**Resources:** Presentation slides.

**Methodology:** Discussion.

**Tentative Duration:** 20 minutes.

**Expected outcome**:

Participants will be able to describe the tips for good housekeeping practices to be followed at the VLMCC.

- Divide the participants into groups of 3-4 depending on batch size. Show them the scenario on the presentations slide. The scenario is given below for your reference.
- Scenario: Piyush has been working as a VLMCCI for 3 years. Srikant, his friend has just joined a VLMCC as the incharge. This is Srikant's first posting as a VLMCCI. He is facing issues in the upkeep of his VLMCC. Srikant wants to make his VLMCC as a model for all other VLMCC's to follow.
- Ask them to discuss and present the tips that they think Piyush should give to Srikant.
- With the help of the presentation slides show the tips about the housekeeping practices to be followed at the VLMCC.

## Say

- Milk collection facilities not maintained properly can attract a variety of pests and insects. These pests and insects can enter the food chain at various stages and contaminate surfaces, materials, equipment, and dairy products. Food intended for human consumption can be harmed by rodents through eating, faeces and urine contamination, as well as other physical and microbiological pollutants.

## Ask

- What are the risks associated with pests and rodents at the VLMCC?

**Expected Answers**

- Disease transmission
- Damage to property and food
- Contamination of food and work surfaces

## Explain

- Explain the risks associated with pests and rodents.

## Say

- It is important to implement the necessary pest control measures and record operations in accordance with best practices and legal requirements. Pesticides are toxic substances and to ensure safety and prevent contamination it has to be stored properly as per regulations.

## Explain

- Explain the control measures like implementing an IPM.
- Explain what rodenticides and their usage are.
- Explain about the safe use of rodenticides.

## Team Activity

**Purpose**: To acquaint participants with the ways in which harbourage of pests and rodents be avoided at the VLMCC.

**Resources:** Presentation slides

**Methodology:** Discussion.

**Tentative Duration:** 15 minutes.

**Expected outcome**: Participants will be able to explain how harbourage of pests and rodents be avoided at the VLMCC.

- Divide the participants into groups of 3-4 depending on batch size. Ask them to think, discuss and present the ways in which the harbourage of rodents can be avoided at the VLMCC.
- With the help of the presentation slide show the ways in which harbourage of pests and rodents can be avoided.

## Team Activity

**Purpose**: To help the participants to recall the entire process for practicing safety and sanitation related functions for collection of milk and storage at the VLMCC.

**Resources:** Presentation slides

**Methodology:** Discussion.

**Tentative Duration:** 20 minutes.

**Expected outcome**: Participants will be able to recall the entire process for practicing safety and sanitation related functions for collection of milk and storage at the VLMCC.

- Divide the participants into groups of 3-4 depending on batch size. Ask them to think, discuss and present the process for practicing safety and sanitation related functions for collection of milk and storage at the VLMCC.
- With the help of the presentation slide explain the process for practicing safety and sanitation related functions for collection of milk and storage at the VLMCC.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about housekeeping practices to be followed, how to identify, report and find solution of problems like pests and rodents and practicing safety and sanitation related functions for collection of milk and storage.

ii. Get participants to open their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. A good housekeeping programme will help in implementing the maintaining the VLMCC in a planned and organised manner. A good housekeeping programme must be designed to include the following:

Routine cleaning activities

Care and maintenance of tools and equipment

Inspection of chemicals, cleaning agents

Building maintenance

Reviewing the operational processes

Reviewing the facilities and resources provided for the working staff

Pest management activities

ii. Risks associated with pests and insects:

Disease transmission

Damage to property and food

Contamination of food and work surfaces

Negative public perception and reputation loss

Penalties, prosecution, closure or cancellation of license by regulatory authorities

Negative staff relations

iii. Process for practicing safety and sanitation related functions for collection of milk and storage at the VLMCC:

1. Clean and sanitise the milk collection area with approved detergents and sanitizers
2. Comply with safety and hygiene procedures suggested by the organisation
3. Clean, maintain, and monitor milk collection equipment periodically
4. Use safety equipment such as fire extinguisher, first aid kit and eye-wash solution when required
5. Identify, document and report problems of rodents and pests during milk collection and storage
6. Carry out workplace audits before and after milk collection and storage to ensure safety and hygiene

**B. Match the Columns**

i d

ii f

iii e

iv b

v g

vi e

vii c

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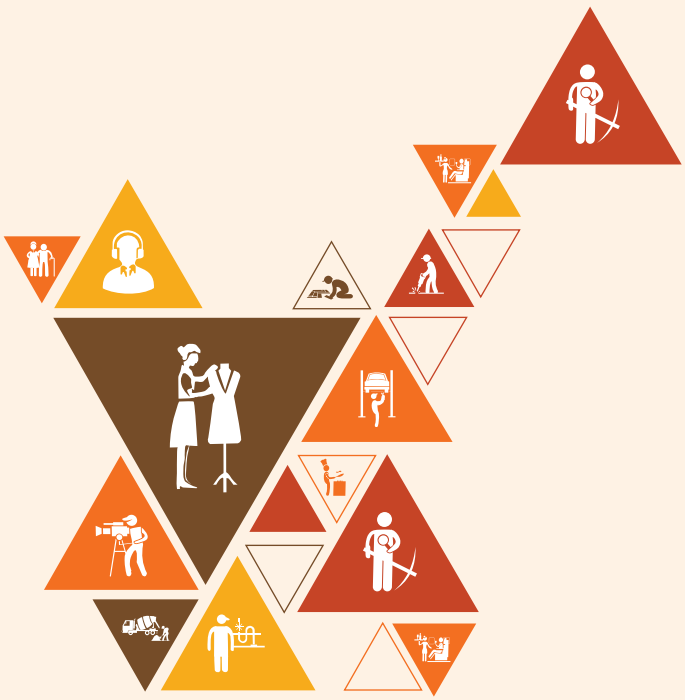
# 8. Maintaining Personal Hygiene and Cleanliness

Unit 8.1 – Personal hygiene and Hygiene Guidelines

Unit 8.2 – Hygiene at milk collection centre



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstrate personal hygiene and cleanliness at the milk collection centre.

## Key Learning Outcomes

**By the end of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Describe SOP related to personal hygiene.<br>2. Describe on the process for cleaning and sanitation at collection center.<br>3. Describe the various personal gears/equipment used for personal hygiene.<br>4. Describe the correct handling of equipment.<br>5. Explain the government guidelines pertaining to endemics.<br>6. Describe the methods of communicating instructions regarding hygiene practices.<br>7. Describe on the process for creation policy document to be followed as standard document for all collection centre. | 1. Demonstrate use of gloves, hairnets, appropriate shoes to maintain personal hygiene.<br>2. Demonstrate following personal hygiene and sanitation according to the SOP.<br>3. Demonstrate following government guidelines pertaining to endemics.<br>4. Show how to get displayed various signs related to personal hygiene at the collection center.<br>5. Demonstrate the implementation of SOP regarding milk collection.<br>6. Demonstrate the policy creation methodology. |

# Unit 8.1: Personal Hygiene

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Describe the SOP related to personal hygiene.
2. Demonstrate use of gloves, hairnets, appropriate shoes to maintain personal hygiene.
3. Describe the various personal gears/equipment used for personal hygiene.
4. Demonstrate following personal hygiene and sanitation according to the SOP.
5. Explain the government guidelines pertaining to endemics.
6. Demonstrate following government guidelines pertaining to endemics.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Chart papers, Pens, PPE.

## Explain

- Introduce the topic of personal hygiene and what it means.

## Ask

- What are the different aspects of personal hygiene that you follow in your day to day life?

**Expected Answers**

- Brushing teeth, bathing, keeping hair neat and tidy, wearing clean clothes.

## Activity

**Purpose:** To create a standard operating procedure for maintaining personal hygiene at workplace

**Resources:** Chart papers, pens, PPE, Participant Handbook

**Methodology:** Discussion.

**Tentative Duration:** 4 hours

**Expected outcome:**

To list the various PPE used in milk collection and how they contribute to personal hygiene

- Divide participants into three groups. Give the following topics to the groups

  Group 1 – Hand wash

  Group 2 – Clothing

Group 3 – Using PPE

- Each group is to discuss and present how personal hygiene is to be maintained with respect to the topic given to them.
- Further they are to explain in what way use of the hygiene methods / PPE would help them maintain personal hygiene. The group of PPE has to demonstrate how to wear / use the PPE to protect themselves while at work. Participants can refer to their Participant handbooks if need be.
- Check if participants are able to demonstrate the correct use and removal of PPE

## Explain

- Using the slides, reiterate the learnings from the activity concluded. Speak about the SOP on hygiene, and the various personal gears and equipment for use to maintain personal hygiene.
- For demonstration of use of PPE, some more participants can come forth to perform the demonstration with the equipment, as you explain, using the slides. Speak about the dos and don'ts, cautions to be taken wearing/removing the PPE.

## Elaborate

- Put up the slide on the procedure to observe personal hygiene and sanitation at the milk collection centre and dairy and milk plants.

## Explain

- Explain why one must be aware of the hygiene guidelines laid down. Discuss the key hygiene practices for the dairy industry using the slide. Conclude the unit by discussing the guidelines from the government on endemics to control the spread of COVID-19. Using the slides, discuss the generic guidelines to follow to stay safe and protected from COVID-19.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the various methods of maintaining personal hygiene and workplace and otherwise.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Brushing teeth twice a day, bathing daily, wearing washed and clean clothes, keeping hair neat and tidy, cutting nails and keeping them clean, using a deodorant

ii. Gloves - keep our hands safe and clean from dirt/dust/stains. We must work from clean to dirty areas while wearing gloves

Hair net – keeps us hair in place and prevents hair fall/shedding while working

Shoes - Disposable, fluid-resistant shoe covers protect while splashing is expected

iii. Keep physical distance of at least 1 metre from others, even if they do not appear to be sick. Avoid crowds and close contact.

Wear a mask that fits properly covering your nose and mouth fully.

Clean your hands frequently with alcohol-based hand rub or soap and water.

Cover your mouth and nose with a tissue when you cough or sneeze. Dispose of used tissues immediately and clean hands regularly.

If you develop symptoms or test positive for COVID-19, self-isolate until you recover.

iv. Wash hands with soap and water before and after leaving the milk processing unit.

Maintain good personal hygiene. People working in the plant unit should wear clean and sterilised clothes, face masks, hair caps and gloves. Use reinforced safety boots or shoes.

Practice superior hygiene standards in the milking process through use of modern equipment and advanced milking monitoring measures.

Impart training on equipment handling, functioning of machinery so that bacterial contamination can be prevented.

Adhere to equipment cleaning, sterilisation and sanitisation standards after milk processing.

**B. Multiple Choice Question**

I. b

**C. Fill in the Blanks**

a. prevents hair from falling/shedding

b. contamination

c. hands

# Unit 8.2. Hygiene at Milk Collection Centre

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the correct handling of equipment.
2. Describe the methods of communicating instructions regarding hygiene practices.
3. Show how to display various signs related to personal hygiene at the collection center.
4. Describe on the process for cleaning and sanitation at collection center.
5. Demonstrate the implementation of SOP regarding milk collection.
6. Describe on the process for creation policy document to be followed as standard document for all collection centre.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Signages for communicating personal hygiene.

## Explain

- Using the slides, explain the various signs used in communicating awareness about personal hygiene and hygiene at milk collection centre. Proceed to explain the process for cleaning and sanitation at the collection centre. Explain the SOP /policy document to be followed with respect to hygiene and cleanliness during the various activities at the milk collection centre.

## Activity

**Purpose**: Demonstrate personal hygiene at the collection centre.

**Resources:** Signages for communicating personal hygiene.

**Methodology:** Learning by doing.

**Tentative Duration:** 4 hours

**Expected outcome**:

Identify various communication signs, implementation of SOP w.r.t cleanliness.

- Divide the class into three teams. Allot the following topics to the teams:

  Team 1: Preparing milk chilling centre for milk collection

  Team 2: Milk collection activities

  Team 3: Post milk collection

- Each of the teams is to demonstrate implementation of cleanliness as per standards w.r.t to the stage of milk collection allotted to them.
- Evaluation parameters are as follows:

  Identifying the various signages such as
  - o No smoking
  - o No tobacco chewing
  - o No spitting
  - o Hand sanitising
  - o Wearing clean and washed clothing

| | | |
|---|---|---|
| **Team 1 -** Inspection of the following:<br>• Milk collection accessories<br>• Sample bottles<br>• Nylon sieve/cloth<br>• Milk chiller<br>• Personal hygiene | **Team 2 -** Cleanliness of the following:<br>• Re-loading of empty cans | **Team 3 -** Cleanliness of the following:<br>• Milk collection system<br>• Silo tank<br>• Sample bottles<br>• Filter cloth |

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about cleaning and sanitation at the milk collection centre

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Wearing clean clothes and uniform

Washing hands before and after handling milk

No smoking/No tobacco chewing

Not handling milk if unwell

ii. Pre-rise – Caustic wash – Intermediate rinse – Final rinse – Sanitizing rinse

No smoking, no tobacco chewing, and no spitting sign boards t milk collection center

No stray dogs/cats entering the milk collection center

Adequate protection measures taken to keep milk collection center free from flies, mosquitos, birds, rodents

No accumulation of waste and water around the center

Milk collection area not to be used for washing hand

No open and loose wires hanging in the milk collection area

iii. The milk collection Incharge must check cleanliness of the milk collection accessories, sample bottles, nylon sieve /nylon cloth, Milk chiller and connected equipment and ensure staff maintains personal hygiene.

**B. Put the steps in the cleaning procedure of sample bottles in the correct sequence.**

1 b

2 a

3 e

4 c

5 d

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# 9. Process of Planning, Budgeting and Marketing

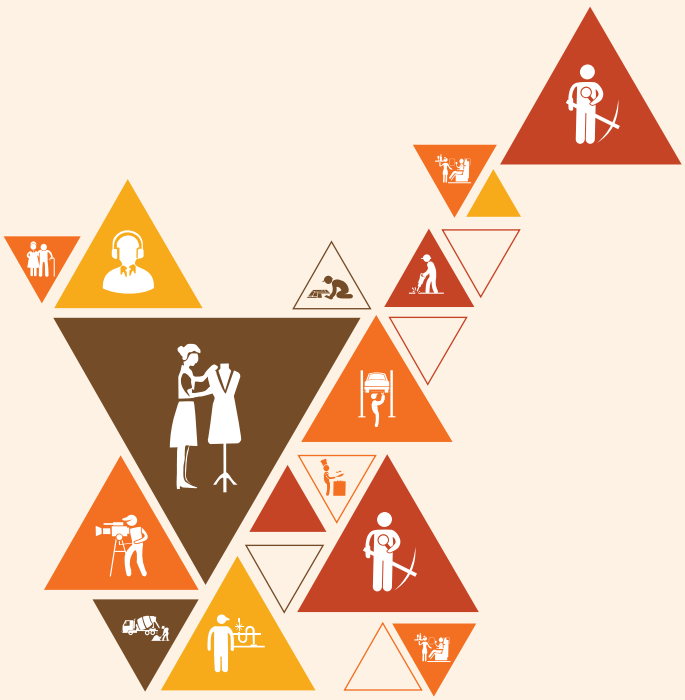
Unit 9.1 - Dairy Farm Business

Unit 9.2 - Planning and Budgeting of Dairy Business

Unit 9.3 - Dairy Business Operations

Unit 9.4 - Marketing in Dairy Business

Unit 9.5 - Payments in Dairy Business



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstrate the business activities of dairy farm.
2. Describe the process of planning the dairy enterprise/ business.
3. Describe the process of managing the dairy production process.
4. Describe the process of managing the post-production and marketing processes.

## Key Learning Outcomes

**By the end of this module, the participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Explain how to analyse the demand and supply of the relevant dairy produce in the market.<br>2. Describe the process of identifying the target customers and assess their needs and expectations with respect to the quality and price of the produce.<br>3. Explain how to identify various types of dairy entrepreneurship/ business opportunities.<br>4. Explain how to prepare a basic business plan for dairy entrepreneurship/business activities.<br>5. State the appropriate sources of funding for the dairy entrepreneurship/ businesses.<br>6. State the relevant government schemes and programs.<br>7. Explain the importance of ensuring compliance with the government. structural reforms and framework, along with the applicable rules and regulations.<br>8. List various resources required for dairy production.<br>9. Describe the process of planning dairy production and the use of relevant technologies to enhance production.<br>10. Explain the importance of ensuring no cause adverse impact on the environment and produce during production.<br>11. State the recommended practices to be followed for efficient input resource management.<br>12. Describe the process of optimising the production processes and output through the amalgamation of existing practices with smart technologies.<br>13. Explain the recommended sustainability practices to be followed during dairy production to prevent and deal with deforestation, loss of biodiversity, soil degradation, etc. | 1. Demonstrate how to analyse the demand and supply of the relevant dairy produce in the market.<br>2. Prepare a sample basic business plan for dairy entrepreneurship/ business activities.<br>3. Demonstrate how to calculate the costs incurred and determine the price of the product for profitability.<br>4. Prepare a sample marketing plan considering the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness.<br>5. Demonstrate the process of using the relevant digital services such as e-commerce, e-payments, electronic recordkeeping, etc. |

| | |
|---|---|
| 14. Explain how to collect information related to the wholesale and retail price of dairy produce.<br>15. Explain how to calculate the economics of the produce viz. production cost, price of the produce, B:C Ratio etc.<br>16. Explain the relevant government schemes with the provision of subsidies/funds for the promotion of dairy produce.<br>17. Describe the process of selecting appropriate marketing channels for marketing dairy produce, and the applicable requirements and constraints.<br>18. List the relevant buyers of different types of dairy produce.<br>19. Explain how to identify and manage various risks to production and post-production processes.<br>20. Explain how to undertake outreach programs to promote dairy products and services, and expand agri- business.<br>21. Explain the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness considered while preparing and executing a marketing plan.<br>22. Explain the use of the relevant digital services such as e-commerce, e- payments, electronic recordkeeping, etc.<br>23. Explain the importance of using efficient post-production logistics.<br>Explain the importance of maintaining various records accurately. | |

# Unit 9.1: Dairy Farm Business

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Describe the main activities of a dairy farm.
2. Explain how to identify various types of dairy entrepreneurship/ business opportunities.
3. Explain how to analyse the demand and supply of the relevant dairy produce in the market.
4. Describe the process of identifying the target customers and assess their needs and expectations with respect to the quality and price of the produce.
5. Demonstrate how to analyse the demand and supply of the relevant dairy produce in the market.

## Resources to be Used

- Participant handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection, tools and equipment needed by the florist

## Say

- In India, dairy farming is an important source of income. Most rural families produce milk as a secondary source of income. Dairy farms are now being managed professionally.

## Ask

- List the main activities of the dairy farm business.

**Expected Answers**

- Milking cows and buffaloes.
- Managing health of the animal.
- Feeding the animals.
- Following health and safety and wellbeing procedures for the cattle and during milking

## Say

- The main work of a dairy farmer is handling cattle, so knowing about the animals is very important. As dairy is a business, it is equally important to have the skills to manage a business.

## Ask

- What are the skills required for running a successful dairy farm business or as dairy entrepreneurs?

**Expected Answers**

- Good animal-handling skills and an understanding of animal welfare
- Accounting skills
- Business skills

## Do

- Show the slide with the must have skills for dairy entrepreneurs.

## Explain

- The relevant legislation and policies related to small dairy farms using the presentation slides.

## Say

- Very high level of hygiene is to be maintained in the dairy industry as milk is a perishable product and get contaminated very easily. The hygiene starts from milk production at the farm and at the dairy plant/ processing plant. Personnel hygiene is very important while handling food. Let us do an activity to understand relevant health and safety requirements applicable in a dairy enterprise.

## Team Activity

**Purpose**: To acquaint participants with relevant health and safety requirements applicable in small dairy enterprise.

**Resources:** Presentation slides, Chart papers and Coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 15 minutes.

**Expected outcome**:

Participants will be able to state the relevant health and safety requirements applicable in small dairy enterprise.

- Divide the participants into three groups or as per the batch size. Assign one topic to each team from the health and safety requirements:
  1. Milk Production Hygiene
  2. Dairy Plant Hygiene
  3. Personnel Hygiene

- The teams will discuss and come up with the points on how can they maintain health and safety requirements in a small dairy enterprise to avoid contamination and maintain high levels of hygiene. Distribute the chart papers and coloured pens and ask them to present the points discussed - to the class.
- De-brief the activity by consolidating the main points discussed using the presentation slide.

## Elaborate

- Elaborate on the importance of maintaining good hygiene in dairy plants.

## Say

- You can employ consultancies to help you deal with the problems of the dairy farm business stage of small dairy enterprise.
- You can approach the local government dairy boards for advice and support.

## Activity

**Purpose**: To understand how these consultancy services for advice and support works

**Resources:** Guest lecture and Q&A

**Methodology:** Guest Lecture and Demonstration.

**Tentative Duration:** 1 hour.

**Expected outcome**:

Participants will be aware of the services provided for advice and support on dairy farm activities and how this support system works.

- Arrange for a guest lecture who can give more information on the consultancy services, advice and support services offered by the Government to small dairy farm business.
- The guest lecture should include how to approach these agencies, what are the services offered etc.
- Include a question – answer session (Q & A) at the end of the lecture.

## Say

- Dairying has become an important secondary source of income for millions of rural families and has assumed the most important role in providing employment and income generating opportunities, particularly for marginal and women farmers.
- The opportunities to become an entrepreneur exist in the providing technology, equipment, value added products and dairy farming.
- Here is an activity for you all to identify opportunities in the dairy business.

## Activity

**Purpose:** To acquaint participants with types of dairy entrepreneurship opportunities.

**Resources:** Presentation slides.

**Methodology:** Quiz.

**Tentative Duration:** 10 minutes.

**Expected outcome**

Participants will be able to identify various types of dairy entrepreneurship opportunities.

- Put up the slides one by one to show some examples of entrepreneurship opportunities related to providing technology, equipment, value added products and dairy farming.
- Ask each class to respond to the question for the example given on the slide.
- Note the response. Show the participants the presentation slides and de-brief:
  - Business opportunity in the dairy business
  - Factors to consider while looking for business opportunities

## Do

- Post the activity show the participants the following video on automated technology in dairy farming activities from the given link.

  https://www.youtube.com/watch?v=lS802qYRVMU

  Amazing Modern Automatic Cow Farming Technology - Fastest Feeding, Cleaning and Milking Machines (Duration: 9:39 minutes).

## Say

- In a dairy business it is important to:
  - Analyse the demand and supply of the relevant dairy produce in the market.
  - Identify the target customers and assess their needs and expectations with respect to the quality and price of the produce.
- Demand is an economic word that refers to the quantity of a product that consumers want to purchase at a given price.
- Supply is the economic term that describes the total quantity of a product that can be supplied to the consumers at a given price.
- Let us do a simple quiz to analyse the demand and supply with an example.

## Activity

**Purpose:** Analyse the demand and supply for a product using the sales figures.

**Resources:** Presentation slides.

**Methodology:** Quiz.

**Tentative Duration:** 15 minutes.

**Expected outcome**

Participants will be able to analyse the demand note the condition of supply.

- Put up the slide to show the sales chart of the Krishna dairy farm - sales of paneer in the last six months.
- Put up the next few slides with the question on the slide: 'What do you think is the condition of supply for the month .....'. Ask the class to respond to the question for the example given on the slide.
- Note the responses. Show the participants the presentation slides with the answers and de-brief.

## Explain

- Explain the steps to analyse the demand and supply of the product with the same example: Krishna dairy farm - sales of paneer in the last six months.
- Give another example how the demand of milk increases during festival and marriage season. The demand of milk and milk products in India increases during festival and marriage season. This demand can be predicted by looking at yearly demand and supply charts of the previous years.

## Team Activity

**Purpose**: To acquaint participants with relevant health and safety requirements applicable in small dairy enterprise.

**Resources:** Presentation slides, chart papers and coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 10 minutes.

**Expected outcome**:

: Participants will be able to state the relevant health and safety requirements applicable in small dairy enterprise.

- Divide the participants into three groups or as per the batch size. Assign one topic to each team from the health and safety requirements:
  1. Milk Production Hygiene
  2. Dairy Plant Hygiene
  3. Personnel Hygiene
- The teams will discuss and come up with the points on how can they maintain health and safety requirements in a small dairy enterprise to avoid contamination and maintain high levels of hygiene. Distribute the chart papers and coloured pens and ask them to present the points discussed - to the class.
- De-brief the activity by consolidating the main points discussed using the presentation slide.

## Ask

- What are the factors for demand and supply?

## Do

- Note the responses from the class. List the factors using the presentation slide.

## Say

- Deciding who you will sell the milk and the milk products is an important question that you will need to answer before setting up a dairy unit or any other dairy related business.
- The people who will buy the milk/milk products from you are the target customers.

## Ask

- What are the questions you will ask yourself to define your target customers?

## Do

- Note the responses from the class.
- Put up the slide on - Identifying the Target Customers for Milk – with the questions to ask to define target customers of the business.
- Ask the participants to open the example of the survey form included in the section on Identifying the Target Customers for Milk.
- Ask the class to pair up with their fellow participants. One participant will be the customer and the other business owner – and fill up the survey form to understand customer likes and dislikes.

## Team Activity

**Purpose**: To identify the product/s and target customers for the business and describe the factors for demand and supply.

**Resources:** Presentation slides, Chart papers and Coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 20 minutes.

**Expected outcome**:

Identify the product/s and target customers for the business.

Analyse the demand and supply of the relevant dairy produce in the market.

- Divide the participants into four groups or as per the batch size. Assign one scenario to each team. Distribute the chart papers and coloured pens to the teams. The teams will discuss and build on to the scenario and by preparing a survey questionnaire do the following activity for the given scenario:
  - Identifying the product/s for the business scenario assigned
  - Identifying the target customers for the business scenario
  - Describing the various factors for demand and supply

- **Business Scenarios**
  1. Raghav owns a small dairy farm which is located close to a tourist destination. He has a milk parlour on the highway where tourist stop to enjoy the chilled milk. He wants to expand his business to attract more tourists with some new products which can be served at the same milk parlour. He also wants to supply some of these products at the food stalls of the tourist spot.
  2. Seema runs a breakfast stall at the local train station in a small town. She sells take aways for the office goers who pick up the breakfast which is in a very convenient packaging. She has got very good feedback from her customers and she is planning to add some nutritious milk product/s to go along with her regular and popular breakfast menu of idli, dosa, poha and upma. She has approached Krishna dairy farm to partner with her in this initiative.
  3. Anish owns a small dairy farm and sells the produce to consumers through a bakery in the same locality. He has a facility to pasteurise and package the milk which he gives it at the bakery. He can see an opportunity to expand his business by making other milk products. He plans to have a partnership with the bakery owner on a profit sharing basis for the milk product/s.
  4. Srikanth owns a few cows and buffaloes. He manages the milking and animal care with his family members. Over a time, he has realised the milk that he is supplying is more than the demand in the locality. His family has a business idea for him, they want to convert the excess supply by making packaged items – sweets or desserts. His house is located a little away from the city. To sell these products he will have to find shops in the town where he can retail them.
- Post the discussion ask the teams to present their case including the following:
  - The product/s identified for the given scenario.
  - The factors for the demand and supply they have considered for the given scenario.
  - The target audience for the product/s identified.
  - The method used to identify the target customers, their likes and tastes, the affordability of the product/s, the consumption pattern etc.

## Say

- Dairy farming can be a profitable business as it done all through the year and is not specific to any season. A good dairy farm business plan will help you in achieving your short- and long-term goals.

## Explain

- Explain the importance of a business plan and list the components of a business plan using the presentation slides.

## Do

- Brief the class on the team activity (given below) – to prepare a business plan. Tell the class to brainstorm and come up with some business ideas.
- Post the brainstorming, list all the accepted business idea the board. Ask some volunteers from the class to put it up on the board.
- Guide the class to select 5 good business ideas out of the listed ones. See that there are no re repeats. Give a code or number to each business idea selected by the class for the activity.
- Brief the class that they will be preparing a business plan as a team for the selected business ideas. Tell the class that this activity will be done in sections in the sessions to follow.

## Team Activity

**Purpose**: To prepare a business plan.

**Resources:** Presentation slides, chart papers and coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 20 minutes.

**Expected outcome**:

Participants will be able to list the components of a business plan and prepare a business plan.

- Divide the participants into five groups. Assign one business idea to each team. Distribute the chart papers and coloured pens to the teams. The teams will first write the code and the business idea assigned to the team.
- Use the presentation slide and discuss the first two components of the business plan –
  - Opportunity
  - Expectations
- Show the mind map created on the slide which is a template for the business plan and the questions here will help them to write the brief on the components.
- Give the teams enough team to discuss and write the brief for the components. They will discuss and put their brief as responses to the questions and present it to the class. The participants will use the chart papers for the presentation. Every chart paper used by the team will be coded with the business idea assigned.
- Each team will select one representative for presenting their business idea and the section of the business plan.
- Call for volunteers and ask them to collect all the chart papers of the ideas and business plan, organise it in the coded sequence. Keep this in the class to continue the activity in the next sessions.

## Summarize

i. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

ii. Give a sneak peak of what is to come in the forthcoming units within this module.

iii. Conclude the session by speaking a little more about dairy business.

## Notes for Facilitation

I. E resource for Business Plan - https://www.tnrtp.org/wp-content/uploads/2021/10/Dairy-Business-Plan.pdf

ii. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. The business opportunities in the dairy industry business:

Supplying advanced technology to increase the proficiency of milk procurement

Supplying value added solutions to the dairy industry

Developing new products for the dairy industry

Providing veterinary care and diagnostic services for cattle

Providing value added dairy products as per the demand.

ii. The factors that you must look while looking for business opportunities in the dairy business:

Trends or changes in the current economy

Current consumer trends

Changes in the government rules and regulations

Changes in your relationship with your partners/ suppliers/ competitors

Opportunity of getting funds

iii. The demand and supply of ghee for the month of October for Gokul dairy.

As per the sales of august and September, the trend is about 50 kgs.

The sales in both the months was less than the supply.

The sale has increased by 5 kgs in the month of September. Bu the supply is still more than the demand. So, in this case, Gokul dairy should keep the production to 50kgs.

iv. Rohini should ask herself the following questions to identify the customers:

Are you selling the milk to a dairy or to individuals?

Where the dairy located? Where do your customers stay?

If the customers are individuals, then do they live in urban or rural area?

What is the average income of your customers?

If the customer is a big dairy, then how much milk does the dairy produce?

How often do your individual customers purchase milk? Is it daily, weekly etc?

v. Components of a Business Plan:

If you want to get into the dairy farm business, then you must first create a detailed business plan.

Introduction: Should describe the nature of the business, purpose to set up the business, challenges, basic details of the proposed business.

Mission statement: Should include the main aim or objective of the proposed business. Example: To produce the milk of the highest possible quality and provide it at an affordable price to the consumers.

Location of the business: Should include the proposed location of the farm with the complete address; size of the land; whether the land is leased or own.

Machinery and Equipment: Should include the number of cattle, types of tools, equipment and machinery needed for the farm.

Strategies and ideas: Should contain information about marketing strategies, partnerships and ideas for future expansion etc.

Summary of the Implementation plan: Should include the timelines for the start and completion of the business and management practices. Financial summary should include the proposed farm income, cash flow and working capital etc.

**B. Fill in the Blanks**

a. demand

b. supply

c. economy

d. festival and marriage

# Unit 9.2 Planning and Budgeting of Dairy Farm Business

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Describe the steps of dairy farming planning and budgeting
2. State the appropriate sources of funding for the dairy entrepreneurship/ businesses
3. State the relevant government schemes and programs
4. Explain the importance of ensuring compliance with the government structural reforms and framework, along with the applicable rules and regulations.
5. Explain the relevant government schemes with the provision of subsidies/funds for the promotion of dairy produce.
6. Prepare a sample basic business plan for dairy entrepreneurship/ business activities.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips.

## Do

- Arrange for a field visit to a small, medium and large dairy farm.
- Divide the class into teams and send the teams to different dairy farms.
- Brief the class about the field visit and the observations to be noted during the visit.

## Field Visit

**Purpose**: To observe the various activities at the dairy farm and the facilities available including technology/ automation used.

**Resources:** Observation sheets

**Methodology:** Observation

**Expected outcome**:

Participants will be able to observe and state the different types of facilities at the dairy farms (of different sizes).

- Arrange a field visit to dairy farms.
- Divide the participants in groups of 4 to 5 depending on the batch size. Arrange for them to visit the dairy farms selected.
- While on the field visit, the participants should observe the following:
  a What are the different activities at the dairy farm?
  b. What are the facilities available at the dairy farm?
  c. What are the challenges faced by the dairy farmers with respect to the dairy activities?
  d. What are the technologies and automation used in the dairy farm activities?
- After they come back to class, participants will give a presentation on what they observed at the dairy farm facility.

## Presentation

- Field Visit Presentation: Ask each team to present their observations on the field visit.
- Post the presentations ask the participants the following question:

  What were the similarities and differences in the dairy farms visited by the teams?

## Say

- As an entrepreneur you must make sure that your business is profitable and does not go into a loss. For this you will need to plan all the activities on the farm and determine your needs, which will include your personal financial need and the finances needed to run the dairy farm.

## Explain

- Explain the importance of planning and budgeting.
- List the steps for planning and budgeting in a dairy farm using the presentation slide.

## Do

- Post the activity show the participants the following video on Business Budgeting in 4 Easy Steps from the given link. Business Budgeting in 4 Easy Steps (Duration: 1:23 minutes). https://www.youtube.com/watch?v=IxAN5YBOWsM

## Explain

- Describe the various books of accounts and the other financial transactions to be maintained using the presentation slides.
- Talk about the appropriate sources of funding for dairy business and the NABARD dairy farming yojana.
- Using the presentation slides show the information on the government schemes and programs for dairy industry.

## Say

- There are many reforms being implemented in the dairy industry to empower the dairy farmers like:
  - A. Milk and Milk Products Order (MMPO 92)
  - B. Registration of Dairy Farms
  - C. Inspection Agencies
- There are various government schemes that provide subsidies for dairy produce like:

  Animal Husbandry Infrastructure Development Fund (AHIDF)

  National Livestock Mission (NLM)
- Let us look at the details of these reforms and schemes.

## Do

- Put up the presentation slides and describe the details about the:
  - Reforms implemented in the dairy industry to empower the dairy farmers.
  - Government schemes that provide subsidies for dairy produce.
- Brief the class on the team activity (given below) – to prepare a business plan to be continued. Tell the class that they will continue to work on the business plan in teams.
- Divide the class into five groups. Distribute the business ideas worked on in the previous session to the teams - (mix the teams – have different teams for every section of the business plan activity).

## Team Activity

**Purpose**: To prepare a business plan – (components: Financial plan and statements).

**Resources:** Presentation slides, Chart papers and Coloured pens, Business plans – prepared by the teams in the previous session.

**Methodology:** Collaborative work.

**Tentative Duration:** 2 hours.

**Expected outcome**:

Participants will be able to prepare a brief on the financial plan as part of the business plan.

- Divide the participants into five groups – mix up the groups from the previous session. Distribute the chart papers and coloured pens to the teams. Distribute the business plans prepared in the previous session to the teams (one per team).
  - Financial plan – forecasting, financing
  - Statements – P & L, Balance Sheet, Cash flow statement.
- Use the presentation slide and discuss the following components of the business plan –
- Show the mind map created on the slide which is a template for the business plan components -and the questions here will help them to write the brief on the components.
- Give the teams enough team to discuss and write the brief for the components. They will discuss and put their brief as responses to the questions and present it to the class. The participants will use the chart papers for the presentation. Every chart paper used by the team will be coded with the business idea assigned.
- Each team will select one representative for presenting the business plan for the components discussed – Financial plan.
- Post the presentation - call for volunteers and ask them to collect all the chart papers of the ideas and the sections of business plan worked on by the teams. Ask the volunteers to organise it in the coded sequence. Keep this in the class as sets to continue the activity in the next sessions.

## Summarize

i. Conclude the session by speaking a little more about dairy business.

ii. Give a sneak peak of what is to come in the forthcoming units within this module.

iii. End by urging participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers to the exercises in the class.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Planning helps in:

Taking stock of the existing resources

Identifying the supply needs for the resources

Identifying if new resources are needed

Identifying the cash needed at various times

Forecasting the income that will be generated

Budgeting will help you to understand:

Cash requirement at the right time for the right work

If there is any surplus cash and if that can be used for expansion or some other business activity

If any loans are required

ii. The main components of a cash flow statement:

The cash flow statement can contain the following:

Salaries of the staff and yourself

Rent (if the premises are rented)

Loans to be paid back

EMIs for any equipment

Return on capital (livestock, machinery, and equipment): Your return on capital must be 10%. It means that you need to make more money than all the payments and loans that you must pay for. 10% is the margin that you can keep being safe and achieve a reasonable profit.

Any unforeseen circumstances like disease, abnormal weather, change in market conditions etc.

iii. List of Documents to Record Transactions

Debtors and creditors register: To record credit transactions

Stock register: To record input and output of goods, sale, wastage, and balance of stock

Fixed Assets register: To record details of cost of assets, depreciation, and balance of assets

Loan register: To record details of loans taken and the interest on the loan

Register for making a record of transactions between farm and farm household

Cost analysis register: To record the profit or loss of each activity

Pass books/monthly cards

Purchase registers

Sample testing notebook

Payment registers

Members' registers

Cash book

General ledger

iv. Funds that you want to raise can be classified based on the way you will utilise the funds.

Short-term loan: You must pay back the borrowed money within one year or less.

Medium-term loan: You must pay back the borrowed money within one to five years.

You will need a medium-term loan for replacement of equipment and machinery or renovation and modification of the dairy unit/farm.

Long-term loan: Here, you may repay the loan beyond five years. You will need this loan type of to expand your business and to increase production for which you will need bigger equipment and machinery.

v. Raghav can opt for a scheme for small dairy units with cross bred cows where an investment of Rs5Lakh is being made for the unit of 10 animals. Theunit size should be 2 animals with an extended limit of 10 animals. Expenditure of 25% (33 .33 % for the SC / ST farmers) has been covered for a unit of 10 animals (₹ 1.67 lakh for SC/ST farmers). The highest permitted capital subsidy for the unit of 2 animals is 25,000 (₹ 33,300 for SC/ST farmers). The subsidy remains restricted on a pro-rata basis which is dependent on the ize of the animal unit.

vi. The main features of MMPO 92?

Milk and Milk Products Order (MMPO 92)

This regulation is in place to regulate production, supply, and distribution of milk in India. With the enactment of FSSAI, 2006 the MMPO has been subsumed as MMPR-92 after notification of provision of Sec 99 of FSSA,06. Now MMPR-92 is being administered by FSSAI, M/O H&FW.

The main features of MMPO 92 are:

Central and state registration limit has been revised from 1 LLPD (lakh litre per day) to 2 LLPD liquid milk and milk solid 5000 MT (metric tonnes) to 10000 MT per annum.

The provision for allocation of milk shed area has been done away with.

50% of the registered capacity is required for development of chilling facilities by installation of bulk milk cooler/milk chilling centres for procurement of raw chilled milk.

**B. Match the Columns.**

i – c

ii – b

iii – a

**C. Multiple Choice Questions**

i – a

ii – a

iii – b

# Unit 9.3: Dairy Business Operations

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. List various resources required for dairy production.
2. Describe the process of planning dairy production and the use of relevant technologies to enhance production.
3. State the recommended practices to be followed for efficient input resource management.
4. Describe the process of optimising the production processes and output through the amalgamation of existing practices with smart technologies.
5. Explain how to identify and manage various risks to production and postproduction processes.
6. Explain the importance of using efficient post-production logistics.
7. Explain the importance of maintaining various records accurately.
8. Explain the importance of ensuring no cause adverse impact on the environment and produce during production.
9. Explain the recommended sustainability practices to be followed during dairy production to prevent and deal with deforestation, loss of biodiversity, soil degradation, etc.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop Internet connection (if possible) for audio visual clips.

## Explain

- Explain the different resources from the nature, human resources, and capital resources to produce dairy products.
- Explain the eight steps in dairy production and how technology can be used to enhance production.

## Do

- Explain the practices to be followed for efficient resource input.
- Conduct an activity on listing the practices for efficient use of resources.

## Team Activity

**Purpose**: To list some practices to be followed for efficient use of input.

**Resources:** Presentation slides, Chart paper and coloured pens.

**Methodology:** Collaborative work.

**Tentative Duration:** 20 minutes.

**Expected outcome**:

List the practices to be followed for efficient resource input.

- Divide the participants into groups four groups depending on the batch size. Assign one type of resource input to each team from the following:
  - Management of Cattle Sheds
  - Management of Heat and Cold
  - Fodder and Water Management
  - Health Management
- Distribute the charts and coloured pens to the teams. Ask the teams to discuss and they have to come up with the points on practices to be followed for efficient resource input. Give them some cues or leading points for the discussion.
- Each team will present their points post discussion. Consolidate the points presented, add your remarks and de-brief the activity using the presentation slides.

## Explain

- List the techniques for efficient resource planning and scheduling.
- List the guidelines for efficient resource management.

## Say

- In today's competitive business environment, the dairy farmers have to keep innovating by using new age technology to optimise dairy production. Let us take an example of one of the dairy activity - Monitoring the Health of the Cattle.
- In the old method - Veterinarians are called at regular intervals to check the health of the cattle at the farm.
- With the new technology - Gadgets like human fitness trackers have been developed. These trackers are implanted in the cattle's ears, tail, legs, neck or any part of the body to monitor their activities.
- The benefits of new technology - help the farmers to track monitor and manage the health and nutrition, including pregnancy, milking frequency and any anomaly in milk production in real-time.
- Let us do an activity and identify some of these new technologies in dairy activities and their benefits.

## Team Activity

**Purpose**: To identify new technologies in dairy operations and their benefits.

**Resources:** Presentation slides, Chart papers and pens, Access to internet.

**Methodology:** Collaborative work.

**Tentative Duration:** 20 minutes.

**Expected outcome**:

Identify new technologies in dairy operations and their benefits.

- Divide the participants into groups of 3 or 4 as per class size. Assign any 2 dairy operations from the following to each team. Ask each group to research and discuss in the group and come up with the new technologies available in the dairy operations. They will list the benefits of using this technology.
- Put up the slide with the dairy activity listed and the old method followed for the listed activity.
- Post the discussion in the group, each team will select one representative to present their findings on the new technology and the benefits of the assigned dairy operation.
- Post the presentation de-brief the activity using the presentation slides.

## Say

- When evaluating the financial health of a business, the cost of production should be taken into account. Total production cost can be determined by adding together the total direct materials and labor costs as well as the total production overhead costs.

## Say

- Dairy farming can be a risky business as some of the operations are dependent on the weather and the health of the cattle. The dairy producers can also face financial, human resource, marketing, and legal risks.

## Do

- Initiate a discussion on the risks involved in dairy industry. Lead the discussion to bring out the risks involved in the following areas:
  - Production and yield risks
  - Market and price risks
  - Social and legal risks
  - Human risks associated with the labour management
  - Financial risks
- Discuss managing risks at the dairy farm.
- Using the presentation slides summarise the discussion.

## Explain

- Explain the importance of post-production logistics due to the high risk of spoilage of milk.
- Explain that the goal of the dairy producers and processors must be to ensure that the milk and milk products do not remain at one place for too long in the supply chain.

## Elaborate

- Elaborate on the supply chain cycle of milk, supply chain management in a dairy business and the factors considered in milk supply chain management.

## Say

- Making sure the dairy product is delivered safely, hygienically and on time from the VLMCC / dairy farm to the dairy processing plant is a complex process.

## Ask

- What are the challenges faced at the VLMCC during post production operations?

## Do

- Note the responses and list the challenges during post production operations in detail.
- List the effective supply chain management guidelines to be adhered to while transporting milk and milk products.
- Ask the participants to open their handbooks and go through the flow chart given on Supply chain management in a dairy – from the dairy farm to the consumers.

## Say

- Dairy farming is like any other business activity where production and financial transactions happen. The main resource in the dairy farm are the cattle. Apart from the books of accounts, the records of the animals are crucial to run the dairy business.

## Activity

**Purpose:** To acquaint participants with importance of maintaining records accurately in dairy farm business.

**Resources:** Presentation slides, Papers and Pens.

**Methodology:** Discussion.

**Tentative Duration:** 15 minutes.

**Expected outcome**

Explain the importance of maintaining various records accurately.

- This activity will be done in pairs. Ask the class to pair up with their fellow participant sitting next to them for this activity. Put up the slide with the types of records to be maintained to run a dairy business. Distribute papers and pens to each pair for the activity.
- The task is to pick any three types of records given in the slide. The participants will discuss and come up with the benefits of maintaining the records and importance of maintaining records.
- One participant from the pair will present the benefits and the other participant will explain the importance of maintaining the record for the selected types of record.
- De-brief the activity with the importance of maintaining records using the presentation slides.

## Say

- Dairy farming requires large amounts of cattle feed, meal supplements, antibiotic drugs and other inputs. Dairy farmers in India must use the natural resources like water and soil efficiently without exploiting them. The key elements like animals, soil, water, and energy can be preserved by using some traditional farming practices. Here is another interesting activity for the class.

## Activity

**Purpose:** To recommend sustainability practices to be followed during dairy production and the importance of ensuring minimum impact on the environment.

**Resources:** Presentation slides, Chart papers and Pens, Access to internet.

**Methodology:** Brainstorming.

**Tentative Duration:** 15 minutes.

**Expected outcome**

Explain the importance of ensuring no adverse impact on the environment and produce during production.

Explain the recommended sustainability practices to be followed during dairy production to prevent and deal with deforestation, loss of biodiversity, soil degradation, etc.

- Divide the participants into groups of 3 or 4 as per class size. Ask the teams to brainstorm and come up with some sustainability practices which can be followed during dairy production to prevent and deal with deforestation, loss of biodiversity and soil degradation. The suggested practices should ensure that there is no adverse impact on the environment and produce during production.
- Post the brainstorming/ discussion in the group, each team will select one representative to present their findings to the class.
- Post the presentation de-brief the activity using the presentation slides.

## Team Activity

**Purpose**: To prepare a business plan – (components: Operations, Milestones).

**Resources:** Presentation slides, chart papers and coloured pens, Business plan sets – prepared by the teams in the previous session.

**Methodology:** Collaborative work.

**Tentative Duration:** 1 hour.

**Expected outcome**:

Participants will be able to prepare a brief on operations and define the milestone metrics of the business plan.

- Divide the participants into five groups – mix up the groups from the previous session. Distribute the chart papers and coloured pens to the teams. Distribute the business plan sets prepared in the previous session to the teams (one business plan set per team).
- Use the presentation slide and discuss the following components of the business plan –
  - Operations
  - Milestones
- Show the mind map created on the slide which is a template for the business plan components -and the questions here will help them to write the brief on the components.
- Give the teams enough team to discuss and write the brief for the components. They will discuss and put their brief as responses to the questions and present it to the class. The participants will use the chart papers for the presentation. Every chart paper used by the team will be coded with the business idea assigned.
- Each team will select one representative for presenting the business plan for the components discussed.
- Post the presentation - call for volunteers and ask them to collect all the chart papers of the ideas and the sections of business plan worked on by the teams. Ask the volunteers to organise it in the coded sequence. Keep this in the class as sets to continue the activity in the next sessions.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings of the unit.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. List of the resources that you will need to set up a dairy farm business:

- Natural resources: cattle, cattle feed and water.
- Human resources: Unskilled, semiskilled, skilled and highly skilled.
- Infrastructure: Cow shed, milk room, manure pit, feed store, water tanks, farm and office equipment.

ii. The steps of dairy production:

- Rearing
- Harvesting
- Storing
- Transportation
- Lab Testing
- Processing
- Packaging
- Selling

iii. The methods to manage fodder and water at a dairy farm:

Fodder and Water Management

- Feeding the cattle cost 70% of the total milk production cost. Fodder should be managed well to maximise the cost.
- Green fodder must be harvested and preserved to use during summer.
- The nutrient requirement of the fodder should be balanced.
- The cattle should be fed bypass protein feed or compound cattle feed to increase milk production and maintain the health of cattle.
- Fodder should be chaffed 3 to 4 times in a day. This will increase the digestibility and reduce wastage.
- Install water metres at all the points where water is being used, this will prevent wastage of water.
- Reuse, recycle and re circulate water wherever possible.

iv. Risks involved in a dairy business:

- Production and yield risks
- Market and price risks
- Social and legal risks
- Human risks associated with the labour management
- Financial risks

v. The challenges faced during post-production at the dairy farm:

- Loading and unloading process: There can be temperature variations when the vehicle door is opened multiple times. This can deteriorate the dairy products.
- Weather changes: Milk moves from one region to another and different weather zones. This can impact the quality of milk.

- Tilting during transportation: The milk tankers move on roads that may be bumpy. The milk packets can break when the truck tilts and can be spoiled.
- Improper packaging: If the milk products are not packaged properly then the contents can spill and cause damage.

vi. Livestock register

Calving register

Daily milk yield register

Growth record of young stock

Daily feeding register

Herd health register

Cattle breeding register

These records can help in better herd management, detection of diseases, analysing the income and expenditure of the farm, estimating the cost of milk production and fixing prices for the animals that are to be sold and bought.

**B. Match the Columns**

i- b

ii- a

iii- d

iv- c

v- f

vi- e

vii- h

viii- g

**C. Fill in the Blanks**

a. cattle

b. semiskilled

c. eastern

d. gunny

**D. Multiple Choice Questions**

i. a

ii. d

iii. a

**E. Mark a Tick on the Dos and a Cross on the Don'ts.**

Dos - a, c, d, f, g, i

Don'ts - b, e, h, j, k

# Unit 9.4: Marketing in Dairy Business

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Explain how to collect information related to the wholesale and retail price of dairy produce.
2. Explain how to calculate the economics of the produce viz. production cost, price of the produce, B:C Ratio etc.
3. Describe the process of selecting appropriate marketing channels for marketing dairy produce, and the applicable requirements and constraints.
4. List the relevant buyers of different types of dairy produce.
5. Explain how to undertake outreach programs to promote dairy products and services, and expand agri business
6. Explain the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness considered while preparing and executing a marketing plan.
7. Demonstrate how to calculate the costs incurred and determine the price of the product for profitability.
8. Prepare a sample marketing plan considering the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Internet connection (if possible) for audio visual clips, Chart papers and Coloured pens.

## Say

- The price of milk depends on the demand and supply of milk. The price at which the milk or milk produce is sold in bulk to distributers for reselling is called the wholesale price. When you sell your milk directly to the consumers, it is called retail price.

## Explain

- Explain how to collect information related to wholesale and retail price of dairy produce.
- Explain how to calculate economics of the produce – A. Cost of Production, B. Price of Milk.

## Do

- Define the terms for calculating cost of production – Fixed cost, Variable cost. Using an example explain the cost heads under fixed and variable cost.
- Conduct an activity in the class using an example and calculating the cost of production.
- Use the following references for the terms, definition and activity on cost of production.
  - Cost of Production:

    https://corporatefinanceinstitute.com/resources/knowledge/finance/cost-of-production/
  - Calculating cost of production: Identify opportunities:

    https://www.agproud.com/articles/38050-calculating-cost-of-production-identify-opportunities
  - Determination of Cost of Milk Production | Dairy Farming – Example on Fixed cost and Variable cost:
  - https://www.yourarticlelibrary.com/dairy-farm-management/determination-of-cost-of-milk-production-dairy-farming/35822

## Say

- Milk quality is directly related to the farmers payments. The milk price includes protein content, fat content, and/or somatic cell count. Some dairies also include the concentration of free fatty acids in the milk in their payment system. The higher the fat and protein content of the delivered milk, the higher the price paid. Fat is the most variable component while minerals and lactose are the least variable. The milk protein to milk fat ratio ranges from 0.78 to 0.85 depending on the type of breed.

## Explain

- Explain quality parameters of milk and milk products that affect the price, list some other parameters that affect the milk price.
- Explain Benefit-Cost Ratio (BCR) with example.

## Say

- Let us see how to select appropriate marketing channels for marketing the dairy produce?
- Marketing is a flow of goods and services from producer to consumer and users. To market goods and products, the companies must move them from the point of production to the point of consumption.

## Explain

- Explain the four types of marketing channels with examples.
- Describe the milk marketing channels in India using the presentation slide.
- List the buyers of different types of produce.

## Say

- As an entrepreneur and an owner of a small business it is very important to build a relationship with our clients and vendors. Networking and good customer relationship will allow you to reach out to more people and create a strong customer base for your business.

## Ask

- What are the ways to build cordial relations with clients?
- Wait for the responses from the class.

## Say

- There are different ways to build cordial relations with clients:
  - Communicate: Talk to your clients, listen to them. Train your staff to communicate with the customers.
  - Exceed expectations: Deliver the milk or the milk product on time and faster than the client expects. In case there is a delay, call the client and let them know.
  - Request for feedback: Whether the client appreciates or complains, listen to the clients carefully and respond quickly.
  - Create an Online presence: Use online tools and social media to stay connected with your clients.
  - Appreciate your clients: Give discounts to long-time clients.
- How can we reach to more customers? Yes, by outreach programmes.
- Outreach programmes are meant to create awareness amongst consumers about a product. These programmes are also organised for dairy producers and farmers where they can interact with the experts of the industry and gain knowledge on the latest in the dairy industry.
- Let us see the steps to undertake outreach programmes to promote dairy products and services.

## Do

- Using the presentation slide list, the steps to conduct an outreach program.
- Keep it interactive by taking an example, and elicit responses from the class.
- Describe some of the outreach programmes with their objectives.
- Conduct an activity, by continuing the same business plan (ideas) assignment for selecting appropriate marketing channels, buyers and the outreach programmes for the business ideas selected.

## Team Activity

**Purpose**: To acquaint the participants with the process of selecting appropriate marketing channels for marketing dairy produce, and the applicable requirements and constraints.

**Resources:** Presentation slides, Chart papers and coloured pens, Business plan sets – prepared by the teams in the previous session.

**Methodology:** Collaborative work.

**Tentative Duration:** 2 hours.

**Expected outcome**:

To identify the best marketing channel for marketing dairy produce.

- Divide the participants into five groups – mix up the groups from the previous session/ activity. Distribute the chart papers and coloured pens to the teams. Distribute the business plans (the entire set) prepared in the previous session to the teams (one business plan per team).
- The task for the teams is to:
  - Identify the appropriate marketing channels for marketing the dairy produce for the assigned business idea.
  - List the buyers of the products for the assigned business idea.
  - Identify ways of establishing network of customers and develop a cordial relation with them.
  - List some outreach programme which can be undertaken to promote dairy products and services.
- Give the teams enough team to discuss and come up with the points for the tasks assigned. The points will be related to the business idea assigned.
- Each team will select representatives for presenting each task assigned for the business idea selected.
- Post the presentation - call for volunteers and ask them to collect all the chart papers of the ideas and the sections of business plan worked on by the teams. Ask the volunteers to organise it in the coded sequence. Keep this in the class to continue the activity in the next sessions.

## Say

- Marketing in an effort to sell the products and services of a company by communicating with their customers. The management process known as marketing is what moves products and services from concept to the customers.
- To take a new product or service to the market you will need to define the marketing options in terms of – Product, Price, Place and Promotion – so that your product or service meets or satisfies a particular customer need or demand.
- These components – Product, Price, Place and Promotion – or the 4Ps are the marketing mix to sell a product or a service.

## Explain

- Explain the 4Ps of the marketing mix – with examples for each P.
- Describe the steps to use the 4 Ps for Marketing Strategy – using the Marketing Mix Strategy of Mother Dairy and how it plays an important role in the company's growth.
- The extract of the example is given below for reference. Website reference:

  https://iide.co/case-studies/marketing-mix-of-mother-dairy/

## Example

Mother dairy is a subsidiary brand of a national dairy company. It was established in the year 1974 under the initiative of operation flood. It was established in the year 1974. The company headquarter is situated in Noida, Uttar Pradesh, India. It is owned by a subsidiary of the National Dairy Development Board. It was an initiative under Operation Flood, the world's biggest dairy development program launched to make India a milk-sufficient nation.

It was established to make India a milk sufficient country. Over the decades it has worked towards it and has been providing a remarkable effort towards achieving this objective. Let us now see what exactly Marketing Mix is and how it plays an important role in the company's growth.

Marketing Mix Strategy of Mother Dairy

The marketing mix is the different types of marketing tactics used by the company to promote its brand. It consists of 4Ps which include the Price, Place, Promotion, and Product mix. It helps Mother dairy to know about its market standards and understand its overall performance. It can then see in which segment it has to improve.

**1. Product Strategy**

Mother dairy has a wide range of products to offer in the market which comes under milk-based products and other food items in India. It has 3 sub-brands which are Dairy, Dhara, and Safal. Mother Dairy mainly produces all the dairy products in its product range. Dairy products are classified as milk, milk products, and ice creams.

| | | |
|---|---|---|
| In the milk section, the product range is:<br>• Bulk vended milk,<br>• Poly packed milk,<br>• Ultra-heat treatment milk.<br>The milk products are:<br>lassi, curds, paneer, probiotic drinks, butter, cheese, ghee, cream, buttermilk, etc.<br>The ice cream section consists of: different classic flavours, kulfi, and sugar-free. | Safal mostly deals with fruits and vegetables it supplies different products like frozen vegetables, snacks, jams, juices, pickles, ketchup, and honey. | Dhara provides different variants of cooking oils like soya bean oil, groundnut oil, olive oil, mustard oils, vegetable oil, and sunflower oil. |

**2. Price/Pricing Strategy**

Initially mother dairy has been using a penetration pricing policy to bring awareness among many people and so that people buy their products. Its milk prices change with change in inflation. Its pricing policy also differs from place to place depending on geographical factors. Other milk brands also use similar pricing policies depending on the rise in prices of other input factors. The mother dairy ice cream uses competitive pricing for its regular ice cream flavours and also uses premium prices for the special flavours provided by them.

Safal brand uses market-based pricing for its vegetable and fruits products. Whereas, the edible oil segment faces a lot of competition in the market and so it uses a competitive pricing policy where it provides them with low-cost products with good quality.

**3. Placement and Distribution Strategy**

Mother dairy has its supplies in every part of the country. Having a proper distribution channel and making its products easily available for its customers is a crucial part of the milk industry. To cater to this large market, it has over 1,400 retail outlets and more than 1,000 exclusive stores in different places. Since it deals with perishable products and has a short shelf life, it deals with only the amount of quantity required as per the region. Its suppliers are farmers and cooperatives which eliminates the middlemen and helps in saving costs.

After it is brought from the farmers in tankers or being collected at the collection centres, it is then processed in the plants, and then it is delivered to its Local Area Distributors who then send it to its exclusive Mother Dairy booth, convenience stores, supermarkets, and other smaller retailers. Since consumers can find Mother Dairy booths very close to their homes, it has built customer loyalty and preference.

**4. Promotion and Advertising Strategy**

Mother dairy used different marketing strategies in the market. It uses different modes to promote its products like newspapers, television, radios, and social media. As there are firm competitors like Amul, mother dairy has come up with a strategy in which it gains the mind share of the consumer with better communication strategies.

Its ice cream segment has gained a lot of popularity due to its television commercials. Whereas Safal uses green and environment-friendly themes to sell its products. Dhara brand has been on TV commercials for quite a long time. It also has tied up with Paytm and UPI for cashless payment at its booths and hence showing it is technologically updated.

**Conclusion**

- On the study of the marketing mix of mother dairy, the company has been using some notable strategies in the market to grow.
- It provides a wide range of products in the market for its customers under the Dairy, Safal, and Dhara.
- Mother dairy uses different pricing policies as per the different segments like geographical regions, competitors, etc.
- It has a large distribution network in the market and has been available at every place which makes it easy for its customers to buy the products. It gains more customer loyalty when its products are available easily in the market.
- It uses different marketing platforms in online and offline channels like print, television, digital, etc. to promote its products.

## Say

- USP or a unique selling proposition explains what makes your brand stand out or makes your offering different from other similar brands. Your USP must be the best choice for the consumers to buy ONLY your product.

## Do

- Show the presentation slide on the steps to develop a USP for a product/service or brand.

## Team Activity

**Purpose**: To prepare a sample marketing plan considering the 4Ps i.e., product, price, promotion, and place

**Resources:** Presentation slides, Chart papers and coloured pens, Business plan sets – prepared by the teams in the previous sessions.

**Methodology:** Collaborative work.

**Tentative Duration:** 3 hours.

**Expected outcome**:

Prepare a sample marketing plan considering the 4Ps for the business idea assigned.

- Divide the participants into five groups – mix up the groups from the previous sessions/ activities. Distribute the chart papers and coloured pens to the teams. Distribute the business plans (the entire set) prepared in the previous sessions to the teams (one business plan per team).
    - The teams will follow the steps to use the 4Ps of the marketing strategy and prepare a marketing and sales plan.
    - The teams will also brainstorm and come up with some ideas for developing a USP for their product/ service or brand.
- Show the mind map created on the slide with the questions which will help them to prepare the marketing plan.
- Give the teams enough team to discuss and come up with the marketing strategies considering the 4Ps. Each team will select a representative for presenting their marketing plan for the assigned business idea/plan.
- Post the presentation - call for volunteers and ask them to collect all the chart papers of the ideas and the sections of business plan worked on by the teams. Ask the volunteers to organise it in the coded sequence. Keep them as sets in the class to continue the activity.

## Do

- Conduct a presentation activity of the business plans created through the sessions. Divide the class in to five new groups. Distribute the business plan sets, one per team.
- Ask the teams to go through the plan and select representative/s for presenting the business plan as a whole for the business idea. Leave it to the teams to select the representatives – either one representative presents the entire plan or the items can be divided between the participants in a team for presentation.
- Ask the teams to also discuss some different inputs/ options/ alternatives which they feel can be better in the plan – and present it to the class.
- Give the teams enough time to discuss and select their representatives for the presentation.
- Post the presentations – summarise the activity and add your inputs (if any).

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings of the module.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

I. Make arrangements to show the audio visual aids given as links.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Explain how you will calculate the wholesale price of milk produce?

- Research the market: Find out your competitor`s pricing and the consumer's capacity to pay.
- Calculate the total cost of milk production.
- Calculate the average cost of milk production: This can be done by dividing the total cost of milk produced by the quantity of milk produced.
- Calculate your profit margin: This is the maximum gross profit you can make from selling every 1kg/litre of milk.
- Add all of the above to get the wholesale price of milk.

ii. Calculate the production cost.

Cost of production= Fixed cost + Variable cost

Here fixed cost = 5,09789

The variable cost = 48,734

So, production cost is 5,09789+48,734 = 558,523

iii. **Seasonal variation:** This includes calving season, availability of green fodder and climate changes. The four seasons for price fluctuation are:

**Flush season:** November to February

**Transitory to lean season:** March and April

**Lean season:** May to August

**Transitory to flush season:** September and October

**Compositional variation:** The two constituents of milk which are considered for fixing of price are fat and SNF. Equal importance is given to both fat and SNF. The per Kg (rate) price of fat and SNF are fixed in the ratio at which these occur naturally. This is around 2/3 of fat per kg price for each kilogram of SNF. This pricing discourages adulteration.

**Spatial variation:** This includes the price of agricultural commodities which varies from region to region. Milk producers near urban areas get more price than those located in rural areas.

vi. Benefit-Cost Ratio is given by the ratio of gross return to total variable costs. If the ratio is less than one, then the costs exceed the benefit. However, if the ratio is more than one then the benefits exceed the costs.

BCR = Gross Return/Total Variable Cost

v. The four types of marketing channels

1. **Direct selling:** Products are marketed and sold directly to consumers without a fixed retail location. Example: The milk producers sell the milk directly to the consumers.
2. **Selling through intermediaries:** Products are manufactured at the point of origin and sold to customers through intermediaries such as agents, brokers, wholesalers, and retail stores. Example: The milk producers sell the milk to contractors or to wholesalers who in turn sell the milk to consumers.

3. **Dual distribution:** Producers use more than one channel to sell products to the consumer. This means that the producer sells directly to consumers and also does business with wholesalers and retailers who sell to customers through their own distribution networks. Example: The milk producers sell milk directly to the consumers and they also sell milk to the wholesalers who in turn sell the milk to the consumers.

4. **Reverse marketing:** Products come from the customer to the manufacturer.

   Example: Recycling have been Make a list of the resources that you will need to set up a dairy farm business.

vi. Ways to build cordial relations with clients:

- Communicate: Talk to your clients, listen to them. Train your staff to communicate with the customers.
- Exceed expectations: Deliver the milk or the milk product on time and faster than the client expects. In case there is a delay, call the client and let them know.
- Request for feedback: Whether the client appreciates or complains, listen to the clients carefully and respond quickly.
- Create an Online presence: Use online tools and social media to stay connected with your clients.
- Appreciate your clients: Give discounts to long-time clients.

vii. Steps to Conduct an Outreach Program

- Identify a suitable outreach programme
- Identify the target audience
- Think of the objective/goal to be attained through the programme
- Plan all the activities to be undertaken in the programme
- Assure that the programme is known by all the villagers
- Set the time and venue for the programme
- Implement the programme
- Collect feedback to check if the objective of the programme is attained

viii. The four Ps of marketing are:

- **Product:** To create a marketing campaign first understand the product. Who needs it and why? How is the product different from the other competitors?
- **Price:** This is the price that a consumer will be willing to pay for the product. The price must be linked to the product's real and perceived value. The other factors to consider while pricing a product are supply costs, seasonal discounts, competitors' prices, and retail markup.
- Place: This means where the product will be available, whether it will be sold offline or online stores? How the product will be displayed? In which media will it be advertised?
- Promotion: The main objective of promotion is to communicate to consumers that they need this product and that it is priced appropriately. Promotion and placement elements are combined to reach their core audiences.

ix. The WH questions while developing a USP for your product are:

- What: What product are you offering?
- Who: Who will benefit from your product?
- Why: Why would customers pay attention to your product?
- How: How does your product differ from your competitors?

**B. Match the columns.**

i- e

ii- d

iii- c

iv- b

v- a

**C. Fill in the Blanks**

a. profit

b. consumers

c. unique selling proposition

d. supply costs, competitors' prices

e. winter, summer

f. variable

e. fixed

# Unit 9.5: Payments in Dairy Business

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Explain the use of the relevant digital services such as e-commerce, epayments, electronic recordkeeping, etc.
2. Demonstrate the process of using the relevant digital services such as e-commerce, e-payments, electronic recordkeeping, etc.

## Resources to be Used

- Presentation slides, Whiteboard, Markers, Projectors, Laptop, , Internet connection (if possible), Chart papers, Pens.

## Explain

- Set the context for this unit by speaking about the role of digital technology in financial transactions. Many participants may be using various digital modes of financial transactions / payment to pay and/receive money. Briefly speak about digital banking services that participants may be familiar with.

## Do

- With this background, move on to speak specifically about the billing cycle. Ask participants to share their experience on a retail purchase they may have made. They may recall the billing procedure they may have witnessed.

## Explain

- Using the slide, explain the importance of billing and the billing cycle. Proceed to introduce participants to the term E-commerce, what it means, its benefits. Encourage participants to speak about a few E-commerce platforms they may be familiar with. Using the slides, explain the buying and selling processes for those who wish to buy /sell through E-commerce platforms.
- Proceed to explain the different modes of digital payments. Using the slides, explain net banking services offered by banks, e-wallets and e-cards available using which money can be received/sent. Explain the various mobile based applications available for making financial transactions.

## Do

- Demonstrate an e-payment app, UPI. Show how to download and use the app.

## Activity

**Purpose:** Explain the use of digital services for buying/selling/ making/receiving payments

**Resources:** Internet access, Chart papers, Pens

**Methodology:** Collaborative work.

**Tentative Duration:** 3 hours.

**Expected outcome**

Demonstrate understanding of e-commerce platforms and various modes of digital payments

- Form two teams. Team A has to research on two popular E-commerce platforms from the point of view of buying a product and present the step by step procedure of doing so including explaining the payment gateway mechanism of the chosen E-commerce platforms. Team B has to research on the various modes of digital payments eg- UPI, E-wallets, G-Pay, NEFT explain and demonstrate how to make/receive payments through these modes, including the type of device needed, procedure to access the service.

## Explain

- With the help of the slide, conclude the unit by explaining the importance of electronic record keeping.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings about the use of the relevant digital services such as e-commerce, epayments, electronic recordkeeping.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Notes for Facilitation

i. Make arrangements for internet access for the participants for the activities.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Generating an invoice while doing any business is important as it is a legal document for a sale that has happened. The data of bills and invoices can help us understand customer buying patterns. Billing also helps to keep a track of the inventory.

ii. A product is sold-Invoice is generated-Seller verifies invoice for product code, price, taxes-Seller gives copy of invoice to customer-Seller keeps one copy for the store-Seller records the sale in the system

iii. You can gain new customers easily

It lowers the cost of operations

You can track your customers and their needs at the click of a button

It saves time

You and the customers can compare the price of the product with other similar products

You can communicate the USP of your product to the right audience

Your product can be sold in any location as there are no geographical limitations

iv. E-payments are electronic or digital ways of transferring funds. We can use electronic payment methods to make payments instead of paying cash. We need a bank account and an internet-enabled device to make these e-payment. Smart card, e-wallet, net banking, mobile banking are examples.

**B. Fill in the Blanks**

a. Smart card

b. Net banking

c. Credit card

**C. Put the Selling Process on E-commerce Platform in Proper Sequence**

c-a-b-d

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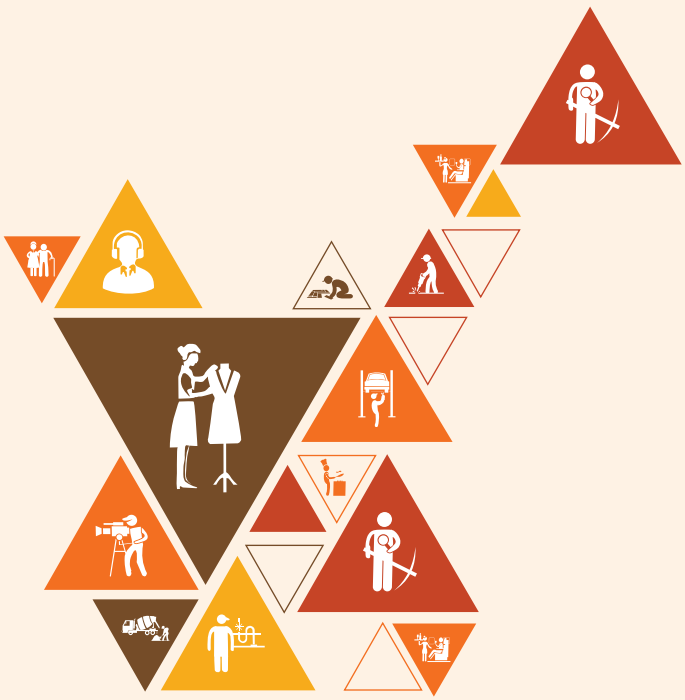
# 10. Effective Communication at the Workplace

Unit 10.1 - Effective Communication Techniques

Unit 10.2 - Mentoring Apprentices

Unit 10.3 - Gender Inclusivity at Workplace



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## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Apply techniques for effective communication with the stakeholders.
2. Explain how to mentor an apprentice.
3. Discuss ways to promote diversity and inclusion at the workplace.

## Key Learning Outcomes

**After the completion of this module, participants will be able to:**

| Theory – Key Learning Outcomes | Practical – Key Learning Outcomes |
|---|---|
| 1. Explain the importance of verbal and non-verbal communication at the workplace.<br>2. Explain the effective methods of sharing and seeking information and feedback at the workplace.<br>3. Explain the procedure for completing work-related documentation.<br>4. Describe the process of mentoring an apprentice at the workplace.<br>5. Explain the importance of inclusion of all genders and People with Disability (PwD) at the workplace.<br>6. Explain gender concepts (gender as a social construct, gender sensitivity, gender equality etc.), issues and applicable legislation.<br>7. Explain ways in which a conducive working environment can be created for all genders and PwD.<br>8. Define the need for appropriate verbal and non-verbal communication while interacting with all genders and PwD.<br>9. Explain the applicable PwD related regulations.<br>10. Explain the procedure to report inappropriate behaviour e.g., harassment. | 1. Demonstrate the requisite level of proficiency in verbal and non-verbal communication at the workplace.<br>2. Demonstrate different approaches to mentoring an apprentice at the workplace.<br>3. Prepare a sample training schedule for an apprentice.<br>4. Demonstrate appropriate verbal and non-verbal communication that is respectful of genders and disability. |

# Unit 10.1: Effective Communication Techniques

## Unit Objectives

**After the completion of this unit, the participants will be able to:**

1. Explain the importance of verbal and non-verbal communication at the workplace.
2. Explain the effective methods of sharing and seeking information and feedback at the workplace.
3. Explain the procedure for completing work-related documentation.
4. Define the need for appropriate verbal and non-verbal communication while interacting with all genders and Persons with Disability (PwD).
5. Define the need for appropriate verbal and non-verbal communication while interacting with all genders and PwD.
6. Define the need for appropriate verbal and non-verbal communication while interacting with all genders and PwD.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop, Tie, Candle, Match box, Water bottle, Cell phone, Books, Pens.

## Activity

**Purpose:** To recognise what is effective communicator.

**Resources:** PowerPoint Slides, Tie, Candle, Match box, Water bottle, Cell phone.

**Methodology:** Discussion on a case scenario.

**Tentative Duration:** 1 hour

**Expected outcome**

Participants recognise the importance of communication and what constitutes effective communication.

- Put up the PowerPoint slide and start the game. Say that this is a game on giving instructions. Divide the class into 4 teams. Make the teams sit close to one another in 4 corners of the room.
- Give the following briefing to the class:

  Assume I have no intelligence. I shall assign one activity to each team.

  You should write instructions for me so that I can conduct that activity given to you as you read out the instructions.

  Instructions cannot be oral. They have to be written and then finally one of the team members will read it out for me as I perform it.

  You will be given ten minutes to write the instructions. The entire team should contribute in deciding the instructions. However, only one person writes it.

  Remember that, since I do not have any intelligence, I will do exactly as instructed by you.

- Assign the following activities, one per team.
  a. Drinking water from a bottle placed on the table
  b. Lighting a candle with a match box both of which are placed on the table
  c. Knotting a tie
  d. Making a phone call from the cell phone placed on the table.
- At the end of ten minutes, ask all participants to stop. Collect the sheets from the teams. Ask one representative from each team to read the instructions. Misinterpret most of the instructions such that the activity never gets done. Example: If one of the instructions for drinking water from the bottle says 'Pick up the bottle', then pick up the bottle up-side down. If the instruction for making a phone call is, 'Pick up the phone', then just pick it up. Do not speak or keep it near your ears unless mentioned. Repeat this for all four teams. Take 2 minutes to perform each activity the wrong way.

## Explain

- Explain the importance of communication and why it should be effective and what happens if it is not effective. Ask participants what they learnt from the game on the importance of communication skills.

## Say

- In any communication, there is a sender who sends a message. There may be one or more receivers to whom the message is meant. The sender uses a medium to send the message. The medium could be air, paper, phone etc. Once the receiver receives the message, the receiver sends a feedback/response or an acknowledgement.

## Activity

**Purpose:** To recognise that communication is a two-way process

**Resources:** PowerPoint Slide, Books, Pens, Whiteboard

**Methodology:** Game.

**Tentative Duration:** 1 hour

- Show them the slide on the game, Walk the Talk. Choose one participant. Blindfold the participant and ask the participant to stay outside the class. Create a maze inside the class. The maze can be created in many ways.
  a. If there is enough space, you may ask the rest of the class to join hands and form a maze in a shape of their choice.
  b. You may arrange desks and benches to form the maze.
  c. You may put down books, pens etc on the floor and form the path of the maze.

- Choose one of the participants to give instructions to the blind folded participant. Once the maze is ready, bring the blindfolded participant to the entrance of the class. From that point onwards the guiding participant guides the blindfolded participant. If the blindfolded participant collides or touches any part of the maze, then the team is disqualified and the game ends. If time permits, you may give the team another chance to try.
- Applaud for the effort of the pair. Do not explicitly mention to the team that the blindfolded participant may also seek clarifications from the guiding participant. However, if questioned regarding this, agree that the blindfolded participant may ask questions.

## Explain

- Based on the above activity, elicit from the participants the advantages and disadvantages of one-way communication. Discuss the responsibility of the sender as well as the receiver of information. Explain why two way communication is important to make the communication effective. Further discuss, what prevented effective communication during the game. In other words, why does communication fail.
- Using the slide, explain the channels of communication, namely verbal and non-verbal. Irrespective of the medium of communication, one must remember the tips for effective communication. Put up the slide and get Participants to read out the tips one by one. Let others respond with examples and explain the importance of each. Make this session as interactive as possible. Discuss the points under the heads – Listening, Speaking, Reading, Writing.

## Activity

**Purpose:** To recognise the importance of listening skills.

**Resources:** PowerPoint Slides.

**Methodology:** Game.

**Tentative Duration:** 1 hour

**Expected outcome:** Participants recognise what constitutes active listening skills

- Give the following instructions to participants.

  Everybody stand up. There is a person called Simon sitting on the chair at the desk. You cannot see or hear Simon. So, Simon will communicate through me and whatever Simon asks me to tell you, I shall start the sentence with 'Simon says...' If the sentence does not have the phrase 'Simon says', then it is an instruction from me and you should not follow it. For this game, you will follow exactly what Simon asks you to do. You will do it immediately without delay. For example, if I say “Simon says stand up”, you should immediately stand up. If I say “Simon says sit down” you should immediately sit down. But if I simply say “Stand up” or “Sit down” then you should not follow it. Even if you show slight movement for my instructions, you are disqualified. Once disqualified, please move towards the wall and we shall continue the game with the rest of the participants. Also watch out for those who make mistakes. Let us see who wins the game in the end.

## Say

- What mistakes did you make during the game? Some reasons could be noise, poor concentration, stress and pressure to win, poor listening skills etc. The external barriers like noise is the same for all participants. Hence, for this game the most important reason why all of you except one lost is owing for failing was owing to your listening skills. For some, the listening skill failed them in the beginning itself. For others, it deteriorated with time.

## Explain

- Explain what one must do to improve listening skills. Go on to explaining the difference between hearing and listening and its importance.
- Proceed to speak about non-verbal communication. Put up the slide. Discuss what the series of expressions / body language communicate. Discuss the impact of negative non-verbal cues on work and work environment.
- Proceed to the next topic on communicating with people with disabilities. Conduct a brief discussion on how one must communicate with those with disabilities. Write them on the board. Post this, put up the slide.
- Put up the slide on giving constructive feedback at the workplace. Explain the importance of giving and receiving feedback.

## Activity

**Purpose:** To provide constructive feedback at workplace.

**Resources:** PowerPoint Slides

**Methodology:** Role Play.

**Tentative Duration:** 1 hour

**Expected outcome:**

Participants learn to use the right choice of words, tone of language to be used while giving and receiving feedback at workplace.

- Provide the following situations. Call for volunteers to enact the situation.

  Situation 1: You are not happy with your subordinate's quality of work. You have to communicate this to your subordinate.

  Situation 2: Your work completion deadline is dependent on your team member's contribution. You find your team member slow and taking it easy. You have to give your fellow team member this feedback.

  Situation 3: You feel that the time deadline given to you for a certain project is unreasonable. You feel the project should not have been taken up from the client under the given terms. You have to communicate this to your boss.

## Explain

- Put up the slide and summarise the key points to keep in mind while giving and receiving feedback. Speak about PNP technique, which is Positive-Negative-Positive technique. Begin with a positive note, followed by the constructive feedback and end again by citing a positive aspect.
- Post this, proceed to speak about the various documentation to be maintained related to work. Using the slides, explain the importance of maintaining records and documents, the process, the owners, the steps in creating a process document and the best practices for preparing documents.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Multiple Choice Questions**

i- a,b,c

ii- a

iii- a

**B. Tick the Correct Options**

ii

iii

iv

# Unit 10.2: Mentoring Apprentices

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Describe the process of mentoring an apprentice at the workplace
2. Demonstrate different approaches to mentoring an apprentice at the workplace
3. Prepare a sample training schedule for an apprentice

## Resources to be Used

- PowerPoint presentation slides, Whiteboard, Markers, Projectors, Laptop

## Explain

- Begin with a brief background on On Job Trainings (OJT) and apprenticeships that are an integral part of any vocational skills training programme. Introduce the terms Mentor, Mentee (Apprentice). Prepare the class for a panel discussion as mentioned below.

## Activity

**Purpose**: To recognise the importance of mentoring an apprentice

**Resources:** PowerPoint Slide

**Methodology:** Panel Discussion

**Tentative Duration:** 1 hour

**Expected outcome**:

Participants discuss what is mentoring and its benefits for mentor, mentee and the organisation.

- Call for four participants. They will play the following roles:
  1. Mentor
  2. Apprentice
  3. HR of the organisation
  4. Moderator
- Conduct a Panel Discussion. The topics for the discussion for each of the roles is as follows:

| Panelist | Moderator | Mentor | Apprentice | HR person |
|---|---|---|---|---|
| **Topic for discussion** | Opening remarks:<br>Mentoring; Need for mentoring | Benefits of mentoring from view point of a Mentor | Benefits of mentoring from view point of Mentee (Apprentice) | Benefits for the organisation |

- The Moderator must open the discussion with opening remarks on what is mentoring and its need. He/she then hands over the floor to each panelist one by one who speaks on the topics allotted to them. Post that, the floor is open for discussion where all Panelists will participate moderated by the Moderator. The Moderator must intervene at appropriate points to ensure the discussion does not digress from the topic allotted. Finally, the Moderator sums up the key takeaways from each topic allotted to each Panelist.

## Explain 

- At the end of the discussion, put up the slide and summarise the benefits of mentoring. Put up the slide on mentoring responsibilities emphasising on the importance of safety, knowledge, positive attitude and behaviour to be maintained by Mentor, Mentee and Employer during the course of mentoring.
- Proceed to explain the different mentoring models, using the slides.

## Role Play 

**Purpose**: To apply the steps in mentoring to a real life situation

**Resources:** Flowers, necessary tools and accessories for flower arrangement

**Methodology:** Role Play.

**Tentative Duration:** 3 hours

**Expected outcome**:

Demonstrate the steps in mentoring and those in being mentored, through a live scenario.

- The task in hand is to mentor an apprentice on flower arrangement. Call for two participants. One person acts as the Mentor and the other, as the Apprentice. The Mentor provides the Apprentice with the necessary tools, equipment, flowers and has to guide the Apprentice step by step. At the end of the Role Play, participants are to provide constructive feedback. Other participants are to observe and evaluate the performance of the Mentor on the following parameters:
  - Building rapport with Apprentice
  - Identifying skill needs /gaps in Apprentice
  - Demonstrating the task
  - Summarising the task
  - Asking Apprentice to perform the task
  - Giving constructive feedback

## Explain 

- Put up the slide on step by step procedure in the mentoring process. As you explain the steps, relate them to the Role Play scenario. Analyse the Role Play that was performed with respect to the steps on the slide.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

i.

| Prashant (Mentor) | Prince (Mentee) |
|---|---|
| Provides opportunity to share industry best practices<br>Builds a productive and supportive team environment | Fast tracks learning curve<br>Improves productivity<br>Develops new skills |

# Unit 10.3: Gender Inclusivity at Workplace

## Unit Objectives

**After the completion of this unit, participants will be able to:**

1. Explain gender concepts (gender as a social construct, gender sensitivity, gender equality etc.), issues and applicable legislation.
2. Explain the importance of inclusion of all genders and persons with disability at workplace.
3. Define the need for appropriate verbal and non-verbal communication while interacting with all genders and persons with disability.
4. Explain ways in which a conducive and inclusive working environment can be created for all genders and persons with disability.

## Resources to be Used

- Participant Handbook, Presentation slides, Whiteboard, Markers, Projectors, Laptop.

## Explain

- Introduce and explain the various gender concepts such as – Gender, Sex, Gender stereotyping, Gender discrimination, Gender equality, Gender awareness by giving examples.

## Activity

**Purpose**: To determine what is a “man's” work and “woman's” work

**Resources:** PowerPoint slides.

**Methodology:** Discussion.

**Tentative Duration:** 2 hours

**Expected outcome**:

Identify traditional roles and occupations assigned to men/women/other genders

- Put up the slide which lists the various occupations, jobs, tasks. Ask participants whom they associate with each of the occupations, jobs, tasks – men or women. They must give the reason.

## Explain

- Participants are made to realise that certain roles/jobs are typecasted to certain genders and the trend must change. Explain that persons of all genders are equal. Proceed to discuss about persons with disabilities and the different types of disabilities.
- Conduct a brain storming session on the various challenges faced by PwD at workplace using the cue points on the slide. Using the slide, explain the various ways in which one must communicate with PwD at workplace.

## Elaborate

- Using the slide, elaborate on inclusive behaviour and its benefits. Speak about the benefits of inclusive behaviour at workplace. Proceed to discuss the manner in which communication must be conducted with women. The choice of words to use, body language, etiquette to follow while interacting with women a workplace. Educate participants on what constitutes sexual harassment and the Sexual Harassment of Women at Workplace (Prevention, Prohibition and Redressal) Act that exists for lodging complaints, inquiry and action to be taken.
- Put up the slide on how to create an inclusive work environment and conclude.

## Summarize

i. Conclude the unit by calling for volunteers to sum up one by one the learnings.

ii. Get participants to open up their Participant Handbooks and solve the exercises given at the end of the unit. Discuss the answers.

## Exercise

**Key Solutions to PHB Exercises**

**A. Short Questions**

i. Respectful, courteous behaviour/speech with people of all genders and persons with disabilities

ii. Improves staff retention due to better culture, treats everyone with respect, dignity, fairness

iii. Unfriendly infrastructure, stigma at workplace. Conduct awareness and training programmes, practicing gender sensitive speech and behaviour

**B. Match the Columns**

I- c

ii- a

iii- d

iv- b

v- g

vi- e

vii-f

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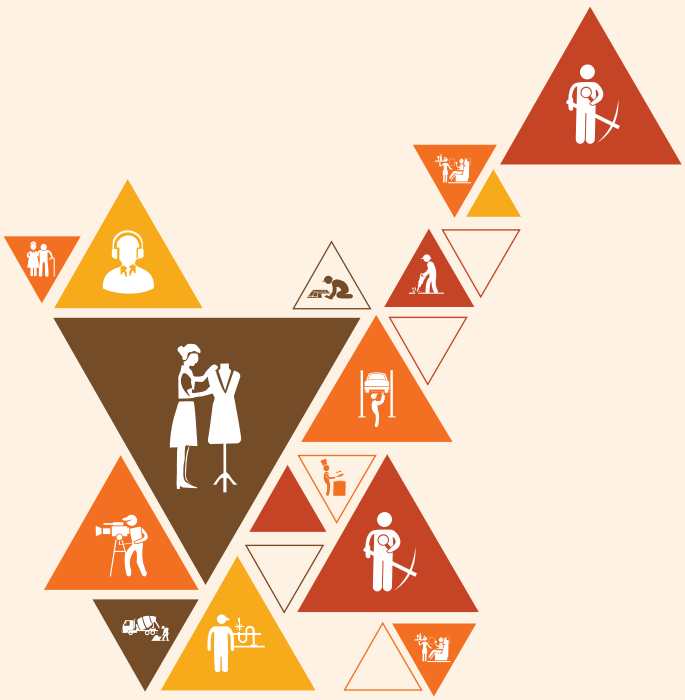
# 11. On-the-Job Training



## Terminal Outcomes

**After the completion of this module, the participants will be able to:**

1. Demonstration of correct methodology for Preparation of the milk collection center for operations.
2. Understanding on the process to carry out Milk Collection Activities efficiently.
3. Understanding to Develop, Design and implement complete Documentation, Record Keeping.
4. Implement the strategies related to Payments for Milk Collection Operations.
5. Understanding the technical details to Operate and Maintain the Automatic Milk Collection Unit
6. Understanding of best Safety, Hygiene and Sanitation techniques at Milk Collection Centre.
7. Understanding of the entrepreneurial activities and outcomes from small enterprise.
8. Understanding on the professional Communication effectively at the workplace.
9. Effective Communication at the workplace with internal and external stakeholders.
10. Pursue commercial activities such as buying and selling dairy related products using the appropriate e-commerce platforms or from authorized vendor.
11. Understanding of the Process and payments using the relevant e-payment method.
12. Understanding of the training schedule for an apprentice.
13. Explore the requirements of personal health, hygiene and fitness at work for best milk collection centre operations.
14. Understand the industry recommended practices for the safe utilization of dairy products.
15. Implementation of the practices related to gender and PwD sensitization.

# On Job Training (OJT) Readiness Practices

## Notes for Facilitation

On Job Training (OJT) is a part of this course. As a Facilitator of the batch that is due for OJT, you must prepare your participants for the industry environment. Refer to the Participant Handbook under the section –"On Job Training Readiness". Read and ensure participants understand each point mentioned under this segment.

The OJT is part of the curriculum being offered to participants. Although participants will move to the industry, it is your duty as Facilitator to anchor the OJT segment and support your Trainees throughout their OJT tenure.

The following section is for your reference:-

1. Objective of OJT: To provide experiential training to Trainees at workplace
2. Benefits of OJT:
   a. Hands on experience at the industry, exposure to real time customer/vendor handling situations, deadlines
   b. Provides a pathway into full time employment post completion of course
   c. Provides work experience certificate
3. OJT Duration: As discussed and finalised with the OJT industry partner
4. Curriculum: To be finalised in collaboration with OJT Supervisor
5. Daily OJT log – A day-wise task register is to be maintained by each Trainee to log the tasks allotted to him/her by the Supervisor.

| VLMCC centre: | | | | |
|---|---|---|---|---|
| Region: | | | | |
| State: | | | | |
| Date: | Day:. | | Shift: | |
| Sr No. | Task for the day/shift | Completion status (Completed/WIP/Not done) | Trainee's remarks | Supervisor's remarks |
| 1. | | | | |
| 2. | | | | |
| 3. | | | | |
| | | | | |

_____ _____

Trainee's signature Supervisor's signature

Date: Date:

This log is for the reference of the Trainee, the Supervisor as well as you, the Facilitator.

6. Ensure the Supervisor's periodic evaluation of Trainees on the following aspects:
   a. Knowledge displayed while on the job
   b. Skill on the job w.r.t to
      - o accuracy in performing as per best practices
      - o completeness
      - o timely completion
   c. Behaviour with Supervisor/ Peers/ other staff

   Getting periodic feedback from Supervisor will enable you to know your Trainee's learning curve and also to offer remediation if any from your end.
7. Prepare a - Trainee's Behavioural Performance Report Card to be evaluated by Supervisor at periodic intervals (monthly/fortnightly) and share it with the Supervisor.

| **VLMCC centre:** | | | | |
|---|---|---|---|---|
| **Region:** | | | | |
| **Name of Trainee:** | | | | |
| **OJT period: _dd/mm/yy to dd/mm/yy** | **Always** | **Mostly** | **Never** | **Sometimes** |
| **Positive attitude towards work** | | | | |
| Listens to instructions carefully | | | | |
| Comprehends instructions accurately, fully | | | | |
| Completes tasks on time | | | | |
| Is a team player | | | | |
| Is punctual to work (on time) | | | | |
| Is disciplined at work (reasonable breaks, does not take leave unnecessarily) | | | | |
| Informs if not reporting to work | | | | |
| Overall feedback from Supervisor | (Supervisor to write his/her remarks) | | | |

_____

Supervisor's signature

Date:

This data captured in this format is of utmost importance to you as it lets you know what the Supervisor thinks about your Trainees. This will help you provide feedback to your Trainees and chart out an improvement plan for them.

8. Trainee's feedback – As Facilitator of the Trainees, you must take feedback from your Trainees periodically to ensure their learning curve, comfort and safety. You must speak/visit them at periodic intervals which you may decide based on the convenience of Trainees and Supervisor and the workplace environment. Gather the following information from Trainees when you interact with them / speak with them.

| **Trainee Name** | | | | |
|---|---|---|---|---|
| **Supervisor's Name** | | | | |
| **Region** | | | | |
| **VLMCC Centre** | | | | |
| **Date: From ___ To_____** | **Always** | **Mostly** | **Never** | **Sometimes** |
| Supervisor is supportive | | | | |
| You receive clear instructions | | | | |
| Your peers and other staff / work environment is supportive | | | | |
| Work environment is safe, respectful for all genders | | | | |
| Work hours: (Mention shift hrs/work hrs including OT if any done) | | | | |
| Tasks allotted are w.r.t VLMCCI job | | | | |
| Remarks | <Write your remarks here> | | | |

Based on the feedback gathered, you must speak with Trainee or Supervisor in case of any adverse feedback and resolve the matter. Let the Trainee always feel that you are there for her/him to support.

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# 12. Employability Skills (60 Hours)

To access content on Employability Skills, click here:
https://eskillindia.org/NewEmployability
**Scan the QR code below to access the ebook**

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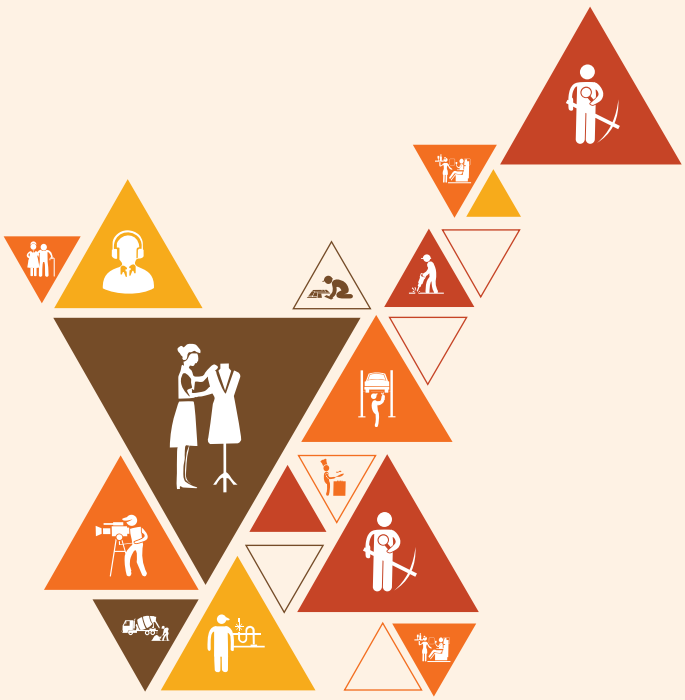
# 13. Annexures

Annexure I - Training Delivery Plan

Annexure II - Assessment Criteria

Annexure III - Annexure of QR Codes for Village Level Milk Collection Centre Incharge



# Annexure I

# Training Delivery Plan

| Training Delivery Plan | | | |
|---|---|---|---|
| **Program Name:** | Village Level Milk Collection Center | | |
| **Qualification Pack Name and Ref. ID** | AGR/Q4202 | | |
| **Version No.** | 3.0 | **Version Update Date** | 31.03.2022 |
| **Pre-requisites to Training (if any)** | 10th Class Pass with 2 years of relevant experience OR 10th Class Pass + ITI (1 year after Class 10th) with 1 year of relevant experience OR 0th Class Pass + ITI (2 years after Class 10th) OR 10th Class Pass and pursuing continuous regular schooling OR Previous relevant ualification of NSQF Level 3 with 2 years of relevant experience | | |
| **Training Outcomes** | **After completing this programme, participants will be able to:**<br>• Demonstrate the process to prepare the milk collection centre for operation viz. function of milk collection equipment, measurement of milk and quality testing at initial level, etc.<br>• Demonstrate the milk collection activities like- milk collection in the milk can, process of unloading and transfer of milk, milk testing and method of tanker loading and dispatch<br>• Describe the methods of documentation and record keeping related to milk collection operation and payment<br>• Explain basics of computer and ERP<br>• Demonstrate how to operate and maintain Automatic Milk Collection Unit<br>• Describe how to ensure safety hygiene and sanitation at milk collection centre<br>• Explain types of contamination and adulteration and their preventive and control measures | | |

| Sl No. | Module Name | Unit Name | Unit Objectives | NOS Reference | Methodology | Training Tools/Aids | Duration (HH:MM) |
|---|---|---|---|---|---|---|---|
| 1 | Introduct-ion to the role of Village Level Milk Collection Centre In charge T: 5:00 (HH:MM) | 1. Orienta-tion | • Recognize your fellow participants and build rapport with them.<br>• State the overall training outcomes of the programme. | Bridge Module | Icebreaker activity | Chairs, Round table in U shape sitting shape | T: 0.30 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2. Size and Scope of Dairy Industry | • Describe the size and scope of the Dairy Industry and its market<br>• List the terms and definitions used in the dairy sector<br>• Explain emerging dimension for dairy business (viz. market technology and innovation) | Bridge Module | Lecture, Discussion, Team activity | Participant handbook Projector, System facilitating Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) for audio visual clips | T: 1:00 |
| | | 3. Role and Responsibilities of a VLMCCI | • Discuss the role and responsibilities of a Village Level Milk Collection Center In charge<br>• Describe various employment opportunities for a Village Level Milk Collection Center In charge | Bridge Module | Lecture, Team activity, Discussion | Participant handbook Projector, System facilitating Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) for audio visual clips | T:2:00<br>P:2:00 |
| | | 4. Milk Collection | • Discuss the concept of clean and antibiotic free milk<br>• Explain the opportunities and challenges in milk collection | Bridge Module | Lecture, Team activities, Discussion | Participant handbook Projector, System facilitating Presentation slides, White board, Marker pens of different colours, | T:2:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | Internet connection (if possible) for audio visual clips | |
| 2 | Process of Setting up the Milk Collection Centre<br>T: 15:00<br>P: 20:00<br>(HH:MM) | 1.Preparing for Milk Collection | • Describe characteristics of raw milk and its types<br>• List milk producers/supplier in the market for procurement of milk<br>• Explain the legal regulation in terms of health and hygiene to be maintained at work place | AGR/ Q4206 KU1, KU2, KU3, KU4, KU5, KU6, KU10 | Lecture, Activities, Discussion | Participant handbook Projector, System facilitating Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) for audio visual clips | T:3:00<br>P:1:00 |
| | | 2. Preparing Equipment for Milk Collection -Part 1 | • Demonstrate handling milk material like sampler, sample bottles as per standard.<br>• Demonstrate how to maintain cleanliness of the milk collection equipment.<br>• Demonstrate how to check that equipment is in good working condition and ready to work.<br>• Describe internal processes such as procurement, inventory management, quality management | AGR/ Q4206 KU7, PC1, PC2, PC3, PC4, PC5, PC6, PC7 | Lecture, Team activities, Discussion, Practical demonstrations (hands on practice) | Milk collection equipment, Participant handbook Projector, System facilitating Presentation slides, White board, Marker pens of different colours | T:4:00<br>P:4:00 |
| | | 3. Preparing Equipment for Milk Collection -Part 2 | | | Practical demonstration (hands on practice) | | P:4:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | and key contact points for query resolution in the milk centre operations.<br>• Demonstrate the management process to maintain hygiene for milk collection equipment. | | | | |
| | | 4. Preparing for Measurement and Initial Quality Testing – Part 1 | • Describe the various types of milk quality testing techniques.<br>• Demonstrate operating electronic weighing scale to determine quantity of milk.<br>• Describe the calibrations of milk testing equipment (milk analyser).<br>• Demonstrate operating milk analyser for initial quality testing.<br>• Demonstrate how to maintain the quality testing equipment and calibration.<br>• Enlist different chemicals and reagents used in quality testing. | AGR/ Q4206 KU8, PC7, PC8 | Lecture, Discussion, Activities, Practical demonstrations (hands on practice) | Milk, Ethyl alcohol, Lactometer, Cryoscope, Sediment tester, Resazurin solution, Test tubes, Distilled water, Sand cloth, Neutral cleaning fluid, Practical activity sheet, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T:4:00<br>P:4:00 |
| | | 5. Preparing for Measurement and Initial Quality Testing – Part 2 | | | Practical demonstrations (hands on practice) | | P:4:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | • Show how to label chemicals and reagents. | | | | |
| | | 6. Administration Related to Reception and Testing of Milk | • Carry out proper maintenance of the centre, ensuring availability of power, water, stationary and necessary articles for running the milk reception and testing.<br>• Demonstrate maintaining the inventory list, producer masters, and rate charts, etc.<br>• Discuss about FSSAI compliances. | AGR/ Q4206 KU9, PC6, PC9, PC10 | Lecture, Discussion, Activities, Practical demonstrations (hands on practice) | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) for audio visual links | T:4:00 P:3:00 |
| 3 | Process of Milk Collection, Milk Testing and Transportation T: 15:00 P: 20:00 (HH:MM) | 1. Milk Collection, Lid Opening, Sanitisation | • Describe the SOP for milk collection.<br>• Demonstrate milk collection supplied by farmers in buckets and cans.<br>• Demonstrate lid opening and sanitization according to SOP for milk collection. | AGR/ Q4207 KU1, KU2, KU3, KU5, PC1, PC2 | Lecture, Discussion, Team activities, Practical demonstrations (hands on practice) | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) for audio visual links | T:3:00 P:4:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2. Milk Sampling and Testing | • Explain grading and sampling of milk according to optimum standard.<br>• Explain the process to analyse the milk specification<br>• Explain various sampling techniques such as organoleptic test, clot on boiling test, adulteration test.<br>• Demonstrate conducting organoleptic test and identification of doubtful milk. | AGR/ Q4207 KU4, KU6, PC3, PC4 | Lecture, Discussion, Practical demonstrat-ions (hands on practice) | Milk, Spoon, Test tube or any other suitable container, Milk, Automatic measure, Sulphuric acid (Gerber acid), Milk butyrome-ter (range 0–10%), Amyl alcohol, Lactometer, Richmond's scale, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T: 3:00 P: 4:00 |
| | | 3. Equip-ment Used for Milk Testing | • Describe the various equipment for milk testing and their uses.<br>• Demonstrate the methods to calibrate equipment.<br>• Demonstrate various calculation methods used in dairy routine at VLMCC | AGR/ Q4207 KU7, KU8, KU9 | Lecture, Discussion, Practical demonstrat-ions (hands on practice) | Gerber centrifuge, Lactometer, Electronic milk tester, Infra -red milk analyser, Lactostar automatic milk analyser and Lactoscope, Milk, Distilled water, Milk | T:3:00 P:4:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | | Butyrometers, Milk pipettes, Lactometers, Anhydrous sodium carbonate, ethanol, AMCU (Automatic Milk Collection Unit), Adulteration Testing Kit, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | |
| | | 4. Measuring the Milk | • Explain milk weighing and sampling techniques.<br>• Demonstrate measuring the milk and recording the relevant data and generating electronic slip.<br>• Demonstrate recording total quantity of milk procured and providing acknowledgment slip to the farmers for milk supplied | AGR/ Q4207 KU6, PC5, PC6, PC7, PC8, PC9, PC13 | Lecture, Discussion, Team activity, Practical demonstrations (hands on practice) | Dead Weights, Calibrated Measuring Jars, Reagents, Electronic Weighing Scale, Analyser, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T: 3:00<br>P: 4:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 5. Transporting the Milk | • Describe the procedure of transferring milk to the vehicle.<br>• Discuss on the recording technique while milk is being transported.<br>• Show how to ensure there is no wastage of milk while transferring.<br>• Demonstrate the cleaning and disposal of equipment and material according to the SOP. | AGR/ Q4207 PC11, PC12, PC14, PC15, PC16 | Lecture, Discussion, Team activity, Practical demonstrations (hands on practice) | All the equipment and material needed for milk collection, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T:3:00 |
| | | | • Observe and apply the procedure of transferring milk to the vehicle and the SOP for cleaning and disposal of equipment after the end of the shift. | | Field Visit | | P:4:00 |
| 4 | Process of Documentation and Record Keeping of Milk Operation<br>T: 09:00<br>P: 10:00<br>(HH:MM) | 1. Documentation of Essential Records for Milk Collection – Part 1 | • Describe the documentation system of loading and unloading chart.<br>• Explain documentation related to storage and storage parameter as per the organisation requirement. | AGR/ N4208 KU3, KU5, PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8 | Lecture, Activities, Learning by doing, Discussion, Practical demonstrations (hands on practice) | Formats of inventory register, milk collection record, Participant handbook, Projector, System facilitating, Presentation slides, White | T:4:00<br>P:4:00 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | • Show how to record milk temperature, collection time and date pickup.<br>• Demonstrate maintaining records pertaining to milk collection such as Fat & SNF reading sample wise register, MCC stationery, MCC stock dispatch register.<br>• Show how to document and maintain records like weight of milk<br>• (total milk in kgs), farmers' information, average SNF and milk storage. | | | board, Marker pens of different colours | |
| | | 2. Docume-ntation of Essential Records for Milk Collection -Part 2 | • Show how to maintain records of sales data, sales proceeds, expenses, profitability.<br>• Show how to verify details and records.<br>• Explain the details to be recorded and maintained on preventive maintenance, routine checks, service, repairs, replacements. | | Lecture, Activities | | T: 4:00 |

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| | | | • Demonstrate maintaining legal records like audit reports, meeting proceedings and share records, etc. | | | | |
| | | 3. Basic Computer Skills | • Demonstrate basic computer knowledge and e-mailing skills.<br>• Discuss about entering the details in the computer system and process of email. | AGR/ N4208 KU4 | Show and Tell, Hands on Practice, Practical Demonstrat-ions (hands on practice) | Internet connection, Email software, Office suite software, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T: 1:00<br>P: 6:00 |
| 5 | Process of Making Payments to Farmers/ Suppliers<br>T: 9:00<br>P: 12:00<br>(HH:MM) | 1. Milk Pricing and Payment Cycle | • Describe the milk pricing calculation methods.<br>• Describe the detection of adulteration in milk. | AGR/ N4208 KU6, KU7 | Lecture, Discussion, Activity, Learning by doing | Milk samples, Iodine solution, Test tube, Soybean powder, Red litmus paper, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T:2:00<br>P:3:00 |

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| | | 2. Making Payments and Maintaining Ledger -Part 1 | • Explain the basic principles of accounting.<br>• Describe the payment cycle and the procedure of payments to the farmers/ suppliers.<br>• Show how to prepare producer-wise and consolidated payment cycle and maintain individual and general ledger. | AGR/ N4208 KU8, KU9, PC9, PC10, PC11, PC16 | Lecture, Discussion, Activity, Practical demonstration (hands on practice) | Ledger samples, Apps down-loaded for making digital payments, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours, Internet connection | T:4:00 P:4:00 |
| | | 3. Making Payments and Maintaining Ledger - Part 2 | • Explain the process of money withdrawal from bank and payment to farmers in cash or digitally.<br>• Demonstrate payment to farmers in cash or digitally.<br>• Show how to maintain transparency during milk collection, testing and making payments. | | Practical demonstration (hands on practice) | | P: 4:00 |

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| | | 4. Grievance Redressal and Handling | • Describe the functioning of Dairy Cooperatives/ SHGs.<br>• Describe the procedure of grievance handling.<br>• Demonstrate maintaining grievance register and record grievances from farmers/ suppliers.<br>• Demonstrate how to organise meetings | AGR/ N4208 KU10, PC12, PC13, PC14, PC15, PC17, PC18, PC19 | Lecture, Activity, Discussion, Practical demonstration (hands on practice) | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, Internet connection | T: 3:00<br>P: 3:00 |
| 6 | Operate and Maintain the Automatic Milk Collection Unit (AMCU)<br>T: 12:00<br>P: 18:00<br>(HH:MM) | 1. Operation of the Automatic Milk Collection Unit (AMCU)- Part 1 | • Describe the applicable PPE to be used while working on AMCU.<br>• Describe the SOP of operating and maintaining AMCU.<br>• Enlist different components of AMCU and their functioning.<br>• Demonstrate identifying different components of the AMCU and their functioning.<br>• Describe the operational and functional requirements for AMCU. | AGR/ N4224 KU1, KU2, KU3, KU4, KU6, PC1, PC2 | Lecture, Activity, Show and Tell, Practical demonstration (hands on practice) Practical demonstration (hands on practice) | AMCU, PPE. Milk sample, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T: 4:00<br>P: 4:00 |

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| | | 2. Operation of the Automatic Milk Collection Unit (AMCU)- Part 2 | • Describe Automatic Milk Collection Unit (AMCU) software application.<br>• Describe the FSSAI compliances related to milk collection unit.<br>• Explain the weighing and sampling techniques.<br>• Demonstrate using AMCU for instant weighing of milk, measuring fat, SNF and water content. | AGR/ N4224 KU1, KU2, KU3, KU4, KU6, PC1, PC2 | Lecture, Activity, Show and Tell, Practical demonstration (hands on practice) Practical demonstration (hands on practice) | AMCU, PPE. Milk sample, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | P: 2:00 |
| | | 3. Calculat-ing Amount Payable – Part 1 | • Show how to calculate the amount payable to the member based on fat, SNF and weight.<br>• Demonstrate printing the amount calculated thereof with member identification details.<br>• Demonstrate how to transfer payments to milk producers in their bank accounts directly following the protocol. | AGR/ N4224 PC3 | Lecture, Show and Tell, Practical demonstrat-ions (hands on practice) | AMCU, PPE, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T: 4:00 P: 4:00 |
| | | 4. Calculat-ing Amount Payable – Part 2 | | | Practical demonstrat-ions (hands on practice) | | P: 2:00 |

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| | | | • Demonstrate transfer of data online to parent organisation | | | | |
| | | 5. Trouble Shooting and Routine maintenance of the AMCU- Part 1 | • Clean the milk analyser display for clear view of the readings.<br>• Show how to carry out routine maintenance of AMCU.<br>• Describe how to troubleshoot any problem in day-to-day operation and report any problem to the concerned authority.<br>• Show how to troubleshoot any problem arising in day-to-day operation. | AGR/ N4224 KU4, KU5, PC5, PC6 | Lecture, Show and Tell, Practical demonstrat-ions (hands on practice) | AMCU, PPE, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T: 4:00<br>P: 4:00 |
| | | 6. Trouble Shooting and Routine maintena-nce of the AMCU- Part 2 | | | Practical demonstrat-ions (hands on practice) | | P: 2:00 |
| 7 | Hygiene and Sanitation and Milk Collection Centre<br>T: 10:00<br>P: 12:00<br>(HH:MM) | 1. Safety and Hygiene Standards | • Describe the safety and hygiene standards followed by the organization.<br>• Demonstrate how to follow safety and hygiene procedure as per organization standards. | AGR/ N9909 KU1, KU3, PC1, PC2 | Lecture, Team activities, Discussion, Practical demonstrat-ions (hands on practice) | PPE, Sanitizer, Labels of different milk and milk products, Milk Analyzer, Weighing scale, Internet connection (if possible) to show audio visual | T: 2:00<br>P: 1:00 |

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| | | | • Describe possible physical, chemical, and biological hazards and their methods to prevention.<br>• Describe the safe food practices for milk and milk products.<br>• Demonstrate safe food practices by labelling milk and finished products. | | | links, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | |
| | | 2. Handling Accidents and Emergencies at Workplace | • Describe the commonly reported hazards at the workplace<br>• Demonstrate how to deal with accidents and emergency situations at the workplace.<br>• Describe labelling requirements for chemicals, sanitisers and refrigerant gases.<br>• Demonstrate use of safety equipment. | AGR/ N9909 KU3, KU5 | Game, Quiz, Team activities, Brain storming, Discussion | First aid kit, Fire Extinguisher, Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) to show links | T: 3:00 P: 2:00 |
| | | 3. Cleaning and Sanitation of Equipment and Work area | • List different types of sanitisers and procedure to use them. | AGR/ N9909 KU4, KU6, KU7, PC3 | Lecture, Discussion, Practical demonstrations (hands on practice), Activities | Participant handbook, Projector, System facilitating, Presentation slides, | T: 3:00 P: 2:00 |

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| | | | • Describe the process of cleaning and sanitisation of equipment and work area.<br>• Demonstrate how to maintain cleanliness of milk hauling vehicles and equipment and at the collection centre.<br>• Describe the safety checklist for all equipment. | | | White board, Marker pens of different colours, | |
| | | 4. Cleaning and Sanitation of Equipment and Work area – Part 2 | • Explain the maintenance and cleanliness of milk hauling vehicles and equipment and at a milk collection centre. | | Field visit | Observation sheets | P: 6:00 |
| | | 5. House keeping Practices | • Describe the housekeeping practices to be followed.<br>• Demonstrate how to identify, report and find solution of problems like pests and rodents.<br>• Demonstrate practicing safety and sanitation related functions for collection of milk and storage. | AGR/ N9909 KU8, PC1, PC2, PC3, PC4, PC5, PC6 | Lecture, Team activities, Practical demonstrat-ions (hands on practice), Activities | Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours, | T: 2:00<br>P: 1:00 |

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| 8 | Maintaining Personal Hygiene and Cleanliness<br>T: 5:00<br>P: 8:00<br>(HH:MM) | 1. Personal hygiene and Hygiene Guidelines | • Describe the SOP related to personal hygiene.<br>• Demonstrate use of gloves, hairnets, appropriate shoes to maintain personal hygiene.<br>• Describe the various personal gears/equipment used for personal hygiene.<br>• Demonstrate following personal hygiene and sanitation according to the SOP.<br>• Explain the government guidelines pertaining to endemics.<br>• Demonstrate following government guidelines pertaining to endemics. | AGR/ N9909 KU2, PC10 | Lecture, Activities, Practical demonstrations (hands on practice) | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, | T: 3:00<br>P: 4:00 |
| | | 2. Hygiene at milk collection centre | • Describe the correct handling of equipment.<br>• Describe the methods of communicating instructions regarding hygiene practices. | AGR/ N9909 KU5, KU6, PC8, PC9, PC11, PC12, PC13, PC14, PC15, PC16 | Lecture, Activity, Discussion | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, | T: 2:00<br>P: 4:00 |

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| | | | • Show how to display various signs related to personal hygiene at the collection center.<br>• Describe on the process for cleaning and sanitation at collection center.<br>• Demonstrate the implementation of SOP regarding milk collection.<br>• Describe on the process for creation policy document to be followed as standard document for all collection centre. | | | | |
| 9 | Process of Planning, Budgeting and Marketing<br>T: 16:00<br>P: 20:00<br>(HH:MM) | 1. Dairy Farm Business | • Describe the main activities of a dairy farm.<br>• Explain how to identify various types of dairy entrepreneurship/ business opportunities.<br>• Explain how to analyse the demand and supply of the relevant dairy produce in the market. | AGR/ N4107 KU1, KU2, KU3, KU4, KU5, KU6, PC1, PC2, PC3, PC4, PC5 | Lecture, Team activities Discussion | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T:3:00<br>P:2:00 |

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| | | | • Describe the process of identifying the target customers and assess their needs and expectations with respect to the quality and price of the produce.<br>• Demonstrate how to analyse the demand and supply of the relevant dairy produce in the market. | | | | |
| | | 2. Planning and Budgeting of Dairy Business | • Describe the steps of dairy farming planning and budgeting<br>• State the appropriate sources of funding for the dairy entrepreneurship/ businesses<br>• State the relevant government schemes and programs<br>• Explain the importance of ensuring compliance with the government structural reforms and framework, along with the applicable rules and regulations. | AGR/ N4107 KU7, KU8, KU9, PC6, PC7, PC8, PC9, PC10, PC12, PC19 | Lecture, Team activities, Discussion | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) to show links | T: 4:00<br>P: 2:00 |

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| | | | • Explain the relevant government schemes with the provision of subsidies/funds for the promotion of dairy produce.<br>• Prepare a sample basic business plan for dairy entrepreneurship/ business activities. | | | | |
| | | 3. Planning and Budgeting of Dairy Business – Part 2 | • Observe and state the various activities at the dairy farm and the facilities available including technology/ automation used. | | Field visit | Observation sheets | P: 6:00 |
| | | 4. Dairy Business Operations | • List various resources required for dairy production.<br>• Describe the process of planning dairy production and the use of relevant technologies to enhance production. | AGR/ N4107 KU18, PC13, PC14, PC15, PC16 | Lecture, Team activities, Brain storming | Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T: 4:00<br>P: 2:00 |

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| | | | • State the recommended practices to be followed for efficient input resource management.<br>• Describe the process of optimising the production processes and output through the amalgamation of existing practices with smart technologies.<br>• Explain how to identify and manage various risks to production and postproduction processes.<br>• Explain the importance of using efficient post-production logistics.<br>• Explain the importance of maintaining various records accurately.<br>• Explain the importance of ensuring no cause adverse impact on the environment and produce during production. | | | | |

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| | | | • Explain the recommended sustainability practices to be followed during dairy production to prevent and deal with deforestation, loss of biodiversity, soil degradation, etc. | | | | |
| | | 5. Marketing in Dairy Business – Part 1 | • Explain how to collect information related to the wholesale and retail price of dairy produce.<br>• Explain how to calculate the economics of the produce viz. production cost, price of the produce, B:C Ratio etc.<br>• Describe the process of selecting appropriate marketing channels for marketing dairy produce, and the applicable requirements and constraints.<br>• List the relevant buyers of different types of dairy produce. | AGR/ N4107 KU10, KU15, PC20, PC21, PC22, PC23, PC24, PC25, | Lecture, Team activities, Practical demonstration (hands on practice) | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours, Internet connection (if possible) to show links | T: 4:00<br>P: 4:00 |
| | | 6. Marketing in Dairy Business – Part 2 | | | Practical demonstration (hands on practice) | | P: 1:00 |

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| | | | • Explain how to undertake outreach programs to promote dairy products and services, and expand agri business<br>• Explain the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness considered while preparing and executing a marketing plan.<br>• Demonstrate how to calculate the costs incurred and determine the price of the product for profitability.<br>• Prepare a sample marketing plan considering the 4Ps i.e., product, price, promotion, and place and 4As i.e., acceptability, affordability, accessibility, and awareness. | | | | |

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| | | 7. Payments in Dairy Business | • Explain the use of the relevant digital services such as e-commerce, epayments, electronic recordkeeping, etc.<br>• Demonstrate the process of using the relevant digital services such as e-commerce, e-payments, electronic recordkeeping, etc. | AGR/ N4107 KU16 | Show and Tell, Demonstration | Internet connection, Payment apps down-loaded, Participant handbook, Projector, System facilitating, Presenta-tion slides, White board, Marker pens of different colours | T: 1:00<br>P: 3:00 |
| 10 | Effective Commun-ication at Workplace<br>T: 4:00<br>P: 10:00<br>(HH:MM) | 1. Effective Communic-ation Techniques | • Explain the importance of verbal and non-verbal communication at the workplace.<br>• Explain the effective methods of sharing and seeking information and feedback at the workplace.<br>• Explain the procedure for completing work-related documentation.<br>• Define the need for appropriate verbal and non-verbal communication while interacting with all genders and Persons with Disability (PwD). | AGR/9918 PC1, PC2, PC3, PC4, PC5, PC6, PC7, KU1, KU2, KU3, KU4, KU6, KU7, KU8 | Team Activities, Game, Role Play | Tie, Candle, Match box, Water bottle, Cell phone, Participant handbook, Projector, System facilitating, Presentat-ion slides, White board, Marker pens of different colours | T: 1:00<br>P: 4:00 |

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| | | | • Define the need for appropriate verbal and non-verbal communication while interacting with all genders and PwD.<br>• Define the need for appropriate verbal and non-verbal communication while interacting with all genders and PwD. | | | | |
| | | 2. Mentoring Apprentices | • Describe the process of mentoring an apprentice at the workplace<br>• Demonstrate different approaches to mentoring an apprentice at the workplace<br>• Prepare a sample training schedule for an apprentice | AGR/9918 PC8,PC9, PC10, PC11, PC12, PC13, KU9 | Lecture, Role Play | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T: 1:00<br>P: 4:00 |
| | | 3. Gender Inclusivity at Workplace | • Explain gender concepts (gender as a social construct, gender sensitivity, gender equality etc.), issues and applicable legislation. | AGR/9918 PC14, PC15, PC16, PC17, K10, KU11, KU12, KU13, KU14 KU15, KU16, KU17 | Lecture, Activity | Participant handbook, Projector, System facilitating, Presentation slides, White board, Marker pens of different colours | T: 2:00<br>P: 2:00 |

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| | | | • Explain the importance of inclusion of all genders and persons with disability at workplace.<br>• Define the need for appropriate verbal and non-verbal communication while interacting with all genders and persons with disability.<br>• Explain ways in which a conducive and inclusive working environment can be created for all genders and persons with disability. | | | | |

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| 11. | Employability Skills (60hrs) | Introduction to Employability Skills | • Describe importance of Employability Skills<br>• Prepare a note on different industries, trends, required skills | DGT/VSQ/ N0102 | Classroom lecture, Team Activity | White-Boardand, Markers, Chart Paper and Sketch pens, LCD Projector | 1:30 |
| | | Constitutional Values:<br>Citizenship | • Detail the principles of constitution of India<br>• Identify thevariousenvironmentallysustainable practices | | Classroom lecture, Team Activity | Laptop, PPT, White board Markers, note pad, pen etc. | 1:30 |
| | | Becominga Professional inthe21st Century | • Discuss relevant 21stcentury skillsrequired foremployment<br>• Practice criticalthinking anddecision makingskills | | Classroom lecture, Team Activity | Laptop, PPT, White board Marers, note pad, pen etc. | 2:30 |
| | | BasicSkills-I | • Read English textwith appropriateartic ulation<br>• Practice basic English words, sentences, punctuation<br>• Demonstrate active listening and reading skills | | Classroom lecture, Team Activity, Role play, video session | Laptop, PPT, White board Markers, note pad, pen etc. | 5:00 |
| | | BasicSkills-II | | | Practical, demonstration, role play | | 5:00 |
| | | Career Development and Goal Setting | • Identify well-defined short- and long-term goals<br>• Explain how to build a career pathway<br>• Conduct job market | DGT/VSQ /N0102 | Class room lecture, discussion, demonstration, practical | Laptop, PPT, White board Markers, note pad, pen etc. | 2:00 |

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| | | | research<br>• Discuss how to set career goals. | | | | |
| | | Communication Skills | • Explain the importance of communication at workplace<br>• Demonstrate effective communication strategies<br>• Demonstrate how to communicate effectively using verbal and nonverbal communication | DGT/VSQ/N0102 | Class room lecture, discussion, demonstration, practical | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 5:00 |
| | | Diversity and Inclusion | • Explain the need of diversity at workplace<br>• Identify the various PwD policies applicable at workplace<br>• Discuss the significance of the POSH Act | DGT/VSQ/N0102 | Class room lecture, Inter-active discussion | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 2:30 |
| | | Financial and Legal Literacy | • Discuss various financial institutions, products, and services<br>• Explain the common components of salary such as Basic, PF, Allowances (HRA, TA, DA, etc.), tax deductions | DGT/VSQ/N0102 | Class room lecture, demonstrations, group discussion, practical | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 5:00 |
| | | Essential Digital Skills-I | • Detail the use and features of various MS Office tools, like MS Word, MS Excel, MS PowerPoint, etc.<br>• Demonstrate how to operate digital devices<br>• Create an e-mail id and follow e- mail etiquette to exchange e -mails<br>• Describe the role of digital technology in day-to-day life and the workplace | DGT/VSQ/N0102 | Class room lecture, discussion, Demonstration, practical, learning by doing | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 6:00 |
| | | Essential Digital Skills-II | • Practice Digital skills | | Demonstration, practical, learning | | 4:00 |

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| | | | | | by doing | | |
| | | Entrepreneurship | • Describe the types of entrepreneurship and enterprises<br>• Describe the4Ps Of Marketing-Product,Price, Place and Promotion and Apply the mas Per requirement<br>• Create a sample Business plan, For the selected business | DGT/VSQ /N0102 | Class room lecture, discussion, Demonstration, practical | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 7:00 |
| | | Customer Service | • Identify types of customers and how to deal with them<br>• Identify methods to get customer feedback and how to implement them<br>• Explain various tools used to collect customer feedback<br>• Discuss the significance of maintaining hygiene and dressing appropriately | DGT/ VSQ/N 0102 | Class room lecture, activity, role play, video session | Laptop, PPT, White board Markers, note pad, pen, audio visual aids etc. | 5:00 |
| | | Apprenticeships and Jobs | • Practice personal grooming strategies<br>• Illustrate the use of online platforms for job hunting<br>• Detail the concept of Apprenticeship<br>• Demonstrate how to enroll for Apprenticeship programs.<br>• Draft a professional Curriculum Vitae (CV)<br>• Role play a mock interview | DGT/ VSQ/N 0102 | | | 8:00 |

# Annexure - II

# Assessment Criteria

**CRITERIA FOR ASSESSMENT OF TRAINEES**

(For Updated 'Assessment Criteria', please refer to Qualification Pack of this Job role available at https://www.nqr.gov.in/)

| Assessment Criteria for ASCI - Village Level Milk Collection Center Incharge | |
|---|---|
| **Job Role** | **Village Level Milk Collection Center Incharge** |
| **Qualification Pack** | **AGR/Q4202** |
| **Sector Skill Council** | **Agriculture Skill Council of India** |

| S.No. | Guidelines for Assessment |
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| 1. | Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC. |
| 2. | The assessment for the theory part will be based on knowledge bank of questions created by the SSC. |
| 3. | Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below). |
| 4. | Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria. |
| 5. | To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment. |
| 6. | In case of successfully passing only certain number of NOSs, the trainee is eligible to take subsequent assessment on the balance NOS's to pass the Qualification Pack. |
| 7. | In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack . |

| Compulsory NOS -National Occupational Standards | Theory Marks | Practical Marks | Viva Marks | Total Marks | Weightage |
|---|---|---|---|---|---|
| AGR/Q4206: Prepare the milk collection centre for operations | 40 | 39 | 21 | 100 | 25 |
| AGR/N4207: Carry out milk collection activities | 40 | 40 | 20 | 100 | 25 |
| AGR/N4208: Complete documentation, record keeping, payments related to milk collection operations | 39 | 38 | 23 | 100 | 10 |
| AGR/N4224: Operate and maintain AMCU | 40 | 34 | 26 | 100 | 10 |
| AGR/N4209: Ensure safety, hygiene, sanitation at milk center | 42 | 36 | 22 | 100 | 10 |
| AGR/N4107: Carry out basic entrepreneurial activities for small enterprise | 40 | 41 | 19 | 100 | 10 |
| AGR/N9918: Communicate effectively at the workplace | 60 | 46 | 44 | 150 | 10 |
| **Total** | **301** | **274** | **175** | **750** | **100** |

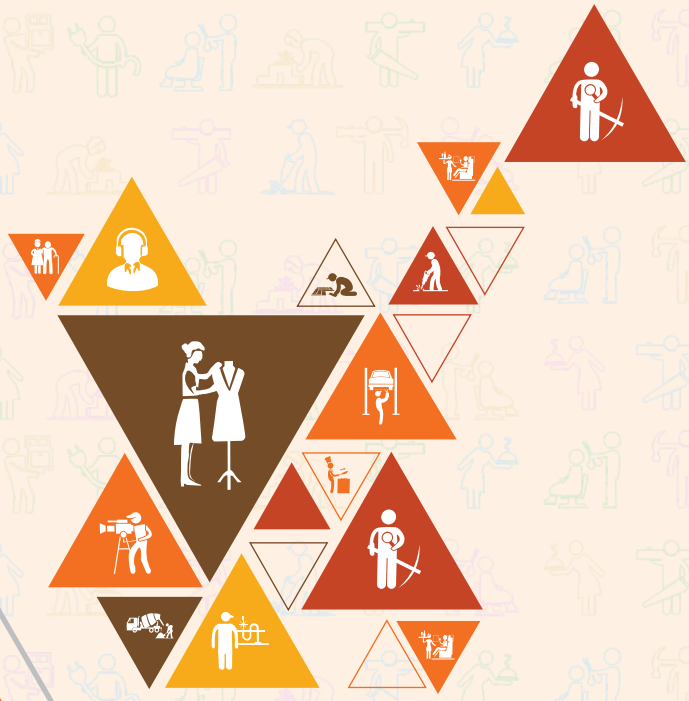
# Annexure - III

**Annexure of QR Codes for Village Level Milk Collection Centre Incharge**

| Module No. | Unit No. | Topic | QR Code Links | QR Code |
|---|---|---|---|---|
| 1. Introduction to the Role of Village Level Milk Collection Centre Incharge | Unit 1.2: Roles and Responsibilities of a Village Level Milk Collection Centre Incharge | Business Opportunity in Dairy Sector | https://www.youtube.com/watch?v=sYXDqx0en5M | Business Opportunity in Dairy Sector |
| | Unit 1.3: Milk Collection | Milk Collection Centers (Hindi) | https://www.youtube.com/watch?v=mJYmYexJwKA | Milk Collection Centers (Hindi) |
| | | Milk Collection Centers (English) | https://www.youtube.com/watch?v=Yjfyr_75OWs | Milk Collection Centers (English) |
| 3. Process of Milk Collection, Milk Testing and Transportation | Unit 3.5: Transporting the Milk | Raw milk delivery at India's Mulukanoor Women's Cooperative Dairy | https://www.youtube.com/watch?v=FcCVw91YQQw | Raw milk delivery at India's Mulukanoor Women's Cooperative Dairy |
| 6. Operate and Maintain the Automatic Milk Collection Unit | Unit 6.3: Trouble Shooting and Routine Maintenance of AMCU | Live Milk Collection with Prompt Automatic Milk Collection System | https://www.youtube.com/watch?v=ZrxkVdlEg6c | Live Milk Collection with Prompt Automatic Milk Collection System |

| Module No. | Unit No. | Topic | QR Code Links | QR Code |
|---|---|---|---|---|
| 7. Maintaining Safety, Hygiene and Sanitation at Milk Collection Centre | Unit 7.1 - Safety and Hygiene Standards | Food Safety Standards (Food Products Standards and Food Additives) Regulations, 2011 | https://www.fssai.gov.in/upload/uploadfiles/files/Food_Additives_Regulations.pdf | Food Safety Standards (Food Products Standards and Food Additives) Regulations, 2011 |
| | Unit 7.2: Handling Accidents and Emergencies at Workplace | What is HIRA (Hazard Identification and Risk Assessment?) | https://www.youtube.com/watch?v=spgAeV9wPFo | What is HIRA (Hazard Identification and Risk Assessment?) |
| | | First aid for burns | https://www.youtube.com/watch?v=yfoLgUxh474 | First aid for burns |
| | | How to use the fire extinguisher | https://www.youtube.com/watch?v=6mX07wNJuYE | How to use the fire extinguisher |
| | | Fire extinguisher location and placement | https://www.nfpa.org/~/media/02F81976E4484A0BB8F8D129EC403ECA.ashx | Fire extinguisher location and placement |
| | | Chemical Segregation and Storage Table | https://docslib.org/doc/7827383/chemical-segregation-and-storage-table | Chemical Segregation and Storage Table |

| Module No. | Unit No. | Topic | QR Code Links | QR Code |
|---|---|---|---|---|
| 8. Maintaining Personal Hygiene and Cleanliness | Unit 8.1 – Personal hygiene | Personal Protective Equipment (importance, types & good practices) | https://www.youtube.com/watch?v=T5x30FY63GE | Personal Protective Equipment (importance, types & good practices) |
| 9. Process of Planning, Budgeting and Marketing | Unit 9.5- Payments in Dairy Business | ICAR-NATIONAL DAIRY RESEARCH INSTITUTE - Milk Collecting Centre 500 to 5000 LPD | https://www.youtube.com/watch?v=cwL6R9LRH7o | ICAR-NATIONAL DAIRY RESEARCH INSTITUTE - Milk Collecting Centre 500 to 5000 LPD |
| | | How to Create a software for your shop in Microsoft Access | https://www.youtube.com/watch?v=0Xlm6jHkfs8 | How to Create a software for your shop in Microsoft Access |



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