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Food Industry Capacity and Skill Initiative

Facilitator Guide

Sector
Food Processing

Sub-Sector
Dairy Products

Occupation
Processing-Dairy Products

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Cottage Cheese Maker

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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

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The preparation of this participant Handbook would not have been possible without the support of the Food Processing Industries. The Industry feedback has been extremely encouraging from inception to conclusion & it is with their inputs that we have tried to bridge the skill gaps existing today in the Industry.

This participant handbook is dedicated to all the aspiring youth who desire to achieve special skills which would be a lifelong asset for their future endeavors and help them make a bright career in the Food Processing Sector.

About this Guide

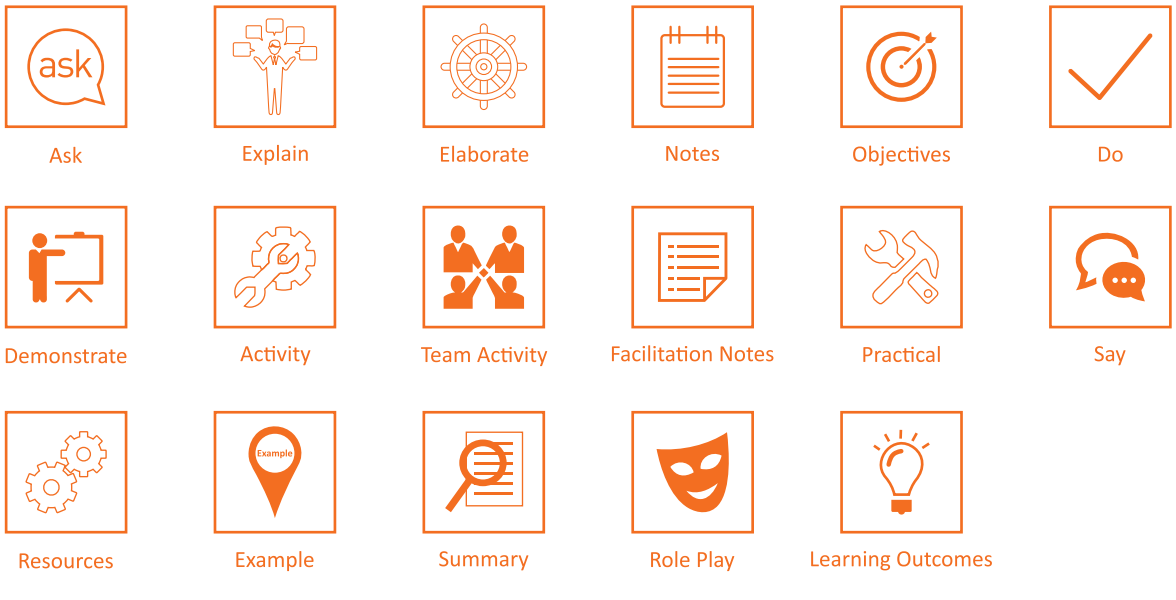
The Facilitator Guide for Cottage Cheese Maker has been developed to guide the trainees on how to impart training on industry-related skills. The Facilitator Guide is aligned to the Qualification Pack (QP) and the National Occupational Standards (NOS) drafted by the 'Food Processing' sector and ratified by National Skill Development Corporation.

It includes the following National Occupational Standards (NOS):

- FIC/N2017: Prepare and maintain work area and process machineries for production of cottage cheese
- FIC/N2018: Production of cottage cheese (paneer)
- FIC/N2019: Complete documentation and record keeping related to production of cottage cheese
- FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products
- DGT/VSQ/N0101: Employability Skills (30 Hours)

Post this training, the participant will be able to perform tasks as an Grain Mill Operator. We hope that this Facilitator guide provides sound learning support to the aspiring trainers and the trainees.

Symbols Used



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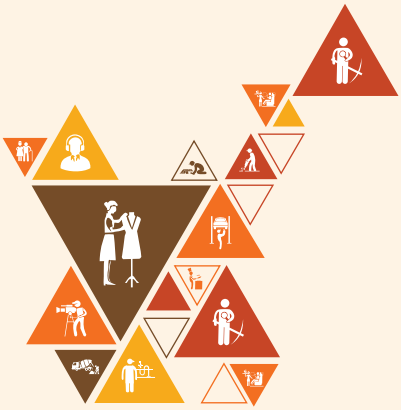
1. Introduction to the Training Program and Overview of Food Processing Industry



FIC/N2017

Key Learning Outcomes

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

1. Introduce each other and build rapport with fellow participants and trainer
2. Define food processing
3. List the various sub-sectors of the food processing industry
4. Define Dairy Processing
5. Understand milk and the methods of testing milk for accepted quality standards
6. Introduction of coagulated product
7. Introduction of Cottage Cheese (Paneer)
8. To understand various units under the dairy processing plant

Unit 1.1: Introduction to the Training Program

Unit Objectives

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

1. Know each other and about the trainer
2. Know about the purpose of training against this Job Role
3. Know about training outcomes
4. Discuss the National Occupational Standards and the Qualification Pack

Resources to be Used

Participant handbook, Whiteboard or projector, Laptop/Computer with Internet Connection, Markers or pens, Handouts (optional)

Do

- Begin the session by welcoming the participants and introducing yourself as the facilitator.
- Establish a positive and engaging learning environment.
- Clearly communicate the objectives of the session and provide an overview of the topics to be covered.

Say

- In this session, we will explore the purpose of the training program, understand the outcomes we aim to achieve, and discuss the National Occupational Standards and Qualification Pack relevant to the Cottage Cheese Maker job role.
- We will participate in an icebreaker activity before proceeding further with the session.

Team Activity

1. **Name of the activity:** Getting to Know Each Other
2. **Objective:** To help participants learn about each other.
3. **Resources:** Whiteboard or projector, markers or pens
4. **Duration:** 10 minutes
5. **Instructions:**
    - Draw a large circle on the whiteboard or projector.
    - Ask participants to write their names on a piece of paper.
    - Have participants walk around the room and introduce themselves to each other.

- Participants should write their names in the circle on the whiteboard or projector as they introduce themselves.
- After everyone has had a chance to introduce themselves, discuss the following questions:
  - What are your hobbies?
  - What are your interests?
  - What are you hoping to learn from this training?

6. **Outcome:** Participants will learn about each other and feel more comfortable in the group.

Ask

Ask the participants the following questions:

- What do you know about cottage cheese?
- Have you had any previous experience or training related to cottage cheese making?

Elaborate

- Cottage cheese is a fresh, unripened cheese that is made from curdled milk. It is a good source of protein and calcium
- The National Occupational Standards for Cottage Cheese Makers are a set of guidelines that outline the skills and knowledge required for this job role. The standards cover a variety of topics, including:
  - The production of cottage cheese
  - The operation and maintenance of cottage cheese production equipment
  - The inspection and testing of cottage cheese for quality
  - The packaging and labelling of cottage cheese
  - Communication with customers and co-workers

Notes for Facilitation

- Maintain an inclusive and respectful atmosphere throughout the session.
- Encourage active participation and ensure that all participants have an opportunity

Unit 1.2: Overview of the Food Processing Industry

Unit Objectives

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

1. Describe food processing
2. Enlist a range of sectors present in the food processing industry
3. Know the market trends of the food processing industry

Resources to be Used

Participant handbook, Whiteboard or projector, Laptop/Computer with Internet Connection, Handouts containing information on the food processing industry, market trends, and government initiatives (optional)

Do

- Start the session by welcoming the participants and introducing yourself as the facilitator.
- Establish a positive and engaging learning environment.
- Clearly communicate the objectives of the session and provide an overview of the topics to be covered.

Say

- Welcome, everyone! Today, we will explore the fascinating world of the food processing industry and gain an understanding of its various sectors, opportunities, and market trends.
- In this session, we will explore what food processing involves, examine the range of sectors within the industry, and discuss the current market trends.

Ask

- What do you know about food processing?
- What are you most looking forward to learning?
- Have you encountered any recent market trends or innovations in the food processing industry?

Elaborate

- Food processing is the transformation of raw agricultural products into food. The process can involve a variety of steps, including cleaning, sorting, grading, cooking, preserving, and packaging.
- The food processing industry is a large and diverse sector. It includes various businesses, from small family-owned farms to large multinational corporations. The industry produces a wide range of food products, from fresh fruits and vegetables to processed meats and snacks.

- The food processing industry is an important part of the Indian economy. It is a major employer and contributes significantly to the country's GDP. The industry is also a major source of exports. In recent years, the food processing industry has grown rapidly in India. This growth is due to several factors, including rising incomes, changing consumer preferences, and government support.
- The food processing industry faces several challenges, including:
  - Competition from imports
  - High cost of production
  - Lack of infrastructure
  - Inadequate skilled labour
  - Poor quality control
- The government is taking several initiatives to support the food processing industry. These initiatives include:
  - Providing financial assistance
  - Investing in infrastructure
  - Promoting research and development
  - Facilitating exports

Activity

1. **Name of the activity:** Market Trends Discussion
2. **Objective:** To engage participants in analysing current market trends in the food processing industry and discussing their implications.
3. **Resources:** Flipchart or whiteboard with markers, Handouts or access to online resources with information on current market trends in the food processing industry.
4. **Duration:** 20 minutes
5. **Instructions:**
   - Divide participants into small groups of 3-4 members each.
   - Provide each group with a flipchart or whiteboard and markers.
   - Instruct participants to research and discuss current market trends in the food processing industry.
   - Encourage them to identify key trends, such as the demand for organic and plant-based products, the rise of online food delivery services, or the increasing popularity of functional foods.
   - Each group should choose one trend to focus on and analyse its implications for businesses, consumers, and the industry as a whole.
   - After 15 minutes of discussion, ask each group to present their chosen trend and share their insights with the rest of the class.
   - Facilitate a discussion to explore the implications of the identified trends and encourage participants to share their perspectives.
6. **Outcome:** Participants will actively research and analyse market trends, fostering critical thinking and awareness of the current dynamics in the food processing industry.

Notes for Facilitation

- Encourage participants to think critically and creatively during the activity.
- Provide guidance and support as needed, ensuring that each group has enough time to research and discuss their chosen trend.
- Promote active participation and ensure that all group members have an opportunity to contribute.
- Facilitate a meaningful discussion after the group presentations to encourage reflection and the exchange of ideas.
- Connect the identified market trends with the topics covered earlier in the session, such as opportunities in the food processing industry and government initiatives.

Unit 1.3: Overview of Indian Dairy Industry

Unit Objectives

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

1. Explain the requirement of processing milk
2. List down the various sub section within a dairy processing plant

Resources to be Used

Participant handbook, Presentation slides, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Handouts containing information on the Indian dairy industry, milk processing, and dairy processing plant units, Visual aids or diagrams of a dairy processing plant

Do

- Begin the session by welcoming the participants and introducing yourself as the facilitator.
- Establish a positive and engaging learning environment.
- Clearly communicate the objectives of the session and provide an overview of the topics to be covered

Say

- Welcome, everyone! Today, we will explore the Indian dairy industry and gain an understanding of its significance, milk processing requirements, and the various sections within a dairy processing plant.
- In this session, we will discuss the different units and opportunities within a dairy processing plant and the role of infrastructure, technology, and product processing in the dairy industry.

Ask

- What do you know about the Indian dairy industry?
- Why is it necessary to process milk before it reaches consumers?
- Can you name a few products that are commonly processed in the dairy industry?

Elaborate

- The Indian dairy industry is the largest in the world in terms of milk production. In 2022, India produced 187.7 million tonnes of milk, which is more than any other country in the world. The Indian dairy industry is also a major employer, providing jobs to millions of people across the country.
- Milk is a perishable product and needs to be processed to ensure its quality and safety. The process of milk processing involves a number of steps, including:
  - Collection of milk
  - Clarification
  - Standardization
  - Pasteurization
  - Homogenization
  - Packaging
  - Storage
  - Distribution
- A dairy processing plant is a facility where milk is processed. The plant typically has a number of different units, including:
  - Receiving and storage unit
  - Processing unit
  - Packaging unit
  - Distribution unit
- The Indian government is taking several initiatives to support the dairy sector. These initiatives include:
  - Providing financial assistance
  - Investing in infrastructure
  - Promoting research and development
  - Facilitating exports
  - The Indian dairy industry is facing many challenges, including:
  - Low milk productivity
  - Poor quality of milk
  - Lack of infrastructure
  - Inadequate skilled labour
  - Poor quality control

Activity

1. **Name of the activity:** Dairy Processing Plant Tour (virtual)
2. **Objective:** To provide participants with a virtual tour of a dairy processing plant and enhance their understanding of the different units and processes involved.
3. **Resources:** Presentation slides with visuals or videos of a dairy processing plant, Handouts or access to online resources with information on dairy processing plant units and processes
4. **Duration:** 30 minutes

5. **Instructions:**
   - Introduce the activity by explaining that participants will take a virtual dairy processing plant tour.
   - Display the presentation slides or videos that showcase the different units and processes within a dairy processing plant.
   - Walk participants through each unit, explaining its purpose, equipment used, and the specific processes involved.
   - Encourage participants to ask questions and clarify any doubts throughout the virtual tour.
   - Emphasize the importance of each unit in the overall dairy processing operation and highlight any key insights or best practices.
   - After the tour, facilitate a discussion summarising the key takeaways and allowing participants to share their observations and reflections.
6. **Outcome:** Participants will gain a visual understanding of the various units and processes within a dairy processing plant, enhancing their comprehension of the topic.

Notes for Facilitation

- Ensure that the visuals or videos used for the virtual tour are clear and easily understandable.
- Prepare for potential technical issues in advance to minimize disruptions during the activity.
- Encourage participants to actively engage by asking questions and seeking clarification during the tour.
- Facilitate a discussion after the tour to encourage participants to reflect on their learnings and share their observations.
- Relate the virtual tour experience to the topics covered earlier in the session, such as opportunities in infrastructure, technology, and processing of dairy products.

Unit 1.4: Introduction to Milk and Testing Procedure

Unit Objectives

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

1. Explain milk
2. State the composition of milk
3. Describe milking practices
4. Describe milk collection and transportation practice
5. Describe the testing method for milk as per standards

Resources to be Used

Participant handbook, Presentation slides, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Presentation slides with visuals and information on milk composition, milking methods, milk collection practices, nutrients in milk, and milk testing procedures, Milk samples for practical demonstrations (optional), Milk testing equipment (e.g., lactometer, freezing point apparatus) for practical demonstrations (optional).

Say

Welcome, everyone! Today, we will delve into the fascinating world of milk and learn about its composition, milking methods, milk collection practices, and the testing procedures used to ensure its quality.

Do

- Set the expectations for the session and explain the importance of understanding milk composition and testing procedures for quality control.
- Engage participants by using interactive teaching methods, such as discussions, demonstrations, and activities.

Ask

- What do you know about milk?
- Can you name a few nutrients present in milk and their significance?
- Why is it important to test milk for quality control?

Elaborate

- Milk is a white, opaque liquid produced by the mammary glands of mammals. It is a complete food, providing all the nutrients that an infant needs for growth and development. Milk is also a good source of nutrients for adults.
- The composition of milk varies depending on the species of mammal, but it typically contains water, protein, fat, lactose, and minerals. Milk also contains a number of vitamins, including A, B12, and D.
- There are four main methods of milking:
  - The stripping method involves manually squeezing the milk out of the udder.
  - Full-hand method involves using both hands to massage the udder and release the milk.
  - The knuckle method involves using the knuckles to gently tap the udder to release the milk.
  - Machine milking: This method involves using a machine to milk the cow.
- Milk collection and transportation in India is a complex process. Milk is collected from farmers and transported to processing plants. The milk is then processed and packaged for distribution.
- Milk is a good source of nutrients, including protein, fat, lactose, and minerals. Milk is also a good source of vitamins, including A, B12, and D.
- There are a number of tests that can be used to test milk for quality control. These tests include:
  - Organoleptic tests: These tests involve using the senses of sight, smell, taste, and touch to evaluate the quality of milk.
  - Clot on Boiling (C.O.B) Test: This test determines the presence of bacteria in milk.
  - Lactometer test: This test is used to determine the fat content of milk.
  - Freezing Point Determination: This test is used to determine the purity of milk.

Demonstrate

- Demonstrate the correct usage of the lactometer to measure the density of milk samples. Discuss the interpretation of lactometer readings and their implications for milk quality.
- Demonstrate the procedure for measuring the freezing point of milk using the freezing point apparatus.

Activity

1. **Name of the activity:** Paneer Tasting
2. **Objective:** To help participants learn about different types of paneer.
3. **Resources:** Whiteboard or projector, markers or pens, milk samples (optional)
4. **Duration:** 15 minutes
5. **Instructions:**
   - Provide participants with a variety of paneer to taste.
   - Ask participants to describe each type of paneer's appearance, texture, and flavour.
   - Discuss the different types of paneer and how they are made.
6. **Outcome:** Participants will learn about different types of paneer.

Notes for Facilitation

- Ensure that the milk used for paneer preparation is fresh and of good quality to achieve desirable results.
- Emphasize the importance of maintaining hygiene and cleanliness during the paneer-making process to prevent contamination.
- Encourage participants to ask questions and clarify any doubts they may have during the session.
- Provide feedback and guidance to participants during the activity, promoting a supportive and collaborative learning environment.
- If time permits, you can discuss additional paneer recipes, regional variations, or innovative uses of paneer in the culinary world.

Unit 1.5: Introduction to Coagulated Dairy Products

Unit Objectives

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

1. Explain coagulation and their types
2. Method of coagulation
3. Effect of pasteurization and homogenization on the coagulation process

Resources to be Used

Participant handbook, Presentation slides, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Presentation slides with visuals and information on coagulation, enzymatic coagulation, acid coagulation, and the effects of processing parameters on coagulation, Samples of coagulated dairy products (optional), Demonstration materials, such as enzymes, acids, and heat sources (if applicable)

Say

Welcome, everyone! Today, we will explore the fascinating world of coagulated dairy products and learn about the processes involved in their formation.

Do

- Explain the purpose of the session and how understanding coagulation in dairy products is essential for product development and quality control.
- Engage participants through interactive teaching methods, including discussions, demonstrations, and activities.

Ask

- What do you know about coagulation?
- What are the different methods of coagulation used in dairy processing?

Elaborate

- Coagulation is the process of denaturing proteins and causing them to clump together. A number of factors, including heat, acid, enzymes, and mechanical agitation, can cause coagulation.
- In the context of dairy products, coagulation is used to produce various products, including cheese, yoghurt, and curd.

- The enzymatic coagulation of milk is a process that uses enzymes to cause the milk proteins to coagulate. The enzymes used in this process typically come from the stomach of ruminant animals, such as cows and goats.
- The effects of processing parameters on enzymic coagulation can vary depending on the type of enzyme used and the processing conditions. However, some general factors that can affect the coagulation process include temperature, pH, and incubation time.
- The acid coagulation of milk is a process that uses acid to cause the milk proteins to coagulate. The acid used in this process is typically lactic acid, which is produced by bacteria as they ferment lactose in milk.
- Heat-assisted acid coagulation is a process that combines the acid coagulation of milk with heat treatment. The heat treatment helps to denature the milk proteins and makes them more susceptible to coagulation by the acid.
- Homogenization is a process that breaks down the fat globules in milk into smaller particles. This makes the milk more uniform and prevents the fat from separating.
- The effect of homogenization on coagulation can vary depending on the type of homogenization process used. However, homogenization can generally help improve the texture and stability of coagulated dairy products.
- The effect of pasteurization and homogenization on the coagulation process can vary depending on the type of pasteurization and homogenization process used. However, in general, pasteurization and homogenization can help improve coagulated dairy products' safety and shelf life.

Practical

1. **Name of the Activity:** Enzymatic Coagulation of Milk
2. **Objective:** To demonstrate the enzymatic coagulation process using rennet.
3. **Resources:** Fresh milk, Rennet or any other milk coagulating enzyme, Thermometer, Measuring cups or beakers, Stirring utensil, Timer
4. **Duration:** 20 minutes
5. **Instructions:**
   - Explain the purpose of the demonstration and the steps involved in enzymatic coagulation.
   - Heat a small quantity of milk to a temperature of around 35-40°C (95-104°F) using a stove or microwave.
   - Add the recommended amount of rennet or milk coagulating enzyme to the heated milk, according to the instructions provided.
   - Stir the milk gently for a few seconds to ensure proper distribution of the enzyme.
   - Set a timer for the recommended coagulation time and allow the milk to rest undisturbed.
   - Observe and discuss the changes in the milk as coagulation occurs, such as the formation of a gel-like mass or curds.
   - After the designated coagulation time, examine the coagulated milk and note its texture and consistency.
   - Conclude the demonstration by highlighting the role of enzymatic coagulation in cheese-making and other dairy processes.
6. **Outcome:** Participants will observe first-hand the process of enzymatic coagulation and understand its role in transforming milk into a coagulated state.

Notes for Facilitation

- Ensure the milk used for the demonstration is fresh and of good quality.
- Familiarize yourself with the specific instructions for using the selected rennet or milk-coagulating enzyme.
- Monitor the temperature of the milk closely to ensure it remains within the recommended range.
- Encourage participants to ask questions and actively observe the coagulation process.
- Relate the demonstration to the broader topic by discussing the implications of enzymatic coagulation in the production of various dairy products and the importance of controlling processing parameters for desired outcomes.

Unit 1.6: Introduction to Cottage Cheese (Paneer)

Unit Objectives

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

1. Describe Cottage Cheese (Paneer)
2. State the classification/types and composition of Cottage Cheese (Paneer)

Resources to be Used

Participant handbook, Presentation slides, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, Buffalo or Cow milk, Salt, Paneer, Cheesecloth or muslin cloth, Strainer, Weighing scale, Knife or cutting board (optional), Storage container, etc.

Say

Welcome the participants and introduce the topic of cottage cheese, commonly known as paneer.

Do

- Set up the necessary equipment and resources for the session.
- Familiarize yourself with the steps involved in preparing paneer and the different types of paneer.

Ask

- Have you ever tasted or cooked with paneer before? What are some dishes you are familiar with that use paneer?
- What do you think are the main ingredients and steps involved in making paneer?
- Why do you think different types of paneer exist?

Elaborate

- Paneer is a type of fresh cheese that is made from milk. It is a popular ingredient in Indian cuisine and is often used in curries, raitas, and snacks.
- There are four main types of paneer:
    - Buffalo milk paneer and cow milk paneer. Buffalo milk paneer is made from buffalo milk and has a slightly higher fat content than cow milk paneer.
    - Cow milk paneer is made from cow milk and has a slightly lower fat content than buffalo milk paneer.

  - Recombined milk is prepared with skim milk powder, cream/butter and good-quality water.
  - Reconstituted Milk Paneer is made from whole milk powder dissolved in good quality water at 50 degrees Celsius and held in a tank for 3-4 hours to properly hydrate milk components.
- Paneer is made by curdling milk with an acid like lemon juice or vinegar. The acid causes the milk proteins to coagulate and form a solid mass. The solid mass is then strained to remove the whey and is then pressed to remove any remaining moisture.
- Paneer is a good source of protein and calcium. It is also a good source of other nutrients, such as phosphorus, magnesium, and zinc.
- Paneer can be stored in the refrigerator for up to 1 week. It can also be frozen for up to 3 months.

Demonstrate

Demonstrate the process of making paneer using the chosen coagulant (lemon juice or vinegar). Show participants the step-by-step procedure and involve them in observing and asking questions.

Activity

1. **Name:** Paneer Tasting
2. **Objective:** To help participants learn about different types of paneer.
3. **Resources:** Whiteboard or projector, markers or pens, milk samples (optional)
4. **Duration:** 15 minutes
5. **Instructions:**
   - Provide participants with a variety of paneer to taste.
   - Ask participants to describe each type of paneer's appearance, texture, and flavour.
   - Discuss the different types of paneer and how they are made
6. **Outcome:** Participants will learn about different types of paneer.

Notes for Facilitation

- Ensure that the milk used for paneer preparation is fresh and of good quality to achieve desirable results.
- Emphasize the importance of maintaining hygiene and cleanliness during the paneer-making process to prevent contamination.
- Encourage participants to ask questions and clarify any doubts they may have during the session.
- Provide feedback and guidance to participants during the activity, promoting a supportive and collaborative learning environment.
- If time permits, you can discuss additional paneer recipes, regional variations, or innovative uses of paneer in the culinary world.

Unit 1.7: Equipment Used in a Dairy Processing Plant

Unit Objectives

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

1. Enlist the machinery required for milk and milk products processing
2. List the different types of machinery used for paneer processing

Resources to be Used

Participant handbook, Presentation slides, Laptop/Computer with Internet connection, Flipchart or whiteboard with markers, Projector, notepad, pens, etc.

Say

- Welcome to the class on "Equipment Used in a Dairy Processing Plant."
- In this class, we will learn about the different types of equipment used in a dairy processing plant.
- We will also learn about the purpose of each piece of equipment and how it is used to produce dairy products.

Do

- Begin by reviewing the power point presentation on the different types of equipment used in a dairy processing plant.
- After the presentation, lead a discussion on the different types of equipment and their purpose.

Ask

- What are the different types of equipment used in a dairy processing plant?
- What is the purpose of each piece of equipment?
- When selecting and using dairy processing equipment, can you think of any challenges or considerations?

Elaborate

- **Raw Milk Reception Dock:** This is where the raw milk is received from the dairy farm. The milk is inspected for quality and then pumped into a storage tank.
- **Milk Storage Tanks:** The raw milk is stored in these tanks until it is ready to be processed. The tanks are kept at a cool temperature to prevent the milk from spoiling.
- **Chilling Section:** This section of the plant is where the milk is chilled to a safe temperature for processing. The milk is chilled in a bulk milk cooler or a refrigeration unit.

- **Milk Pasteurizer:** This is where the milk is heated to a high temperature to kill harmful bacteria. The milk is then cooled quickly to stop the growth of bacteria.
- **Homogenizer:** This is where the milk is homogenized. Homogenization breaks down the fat globules in the milk so that they are evenly distributed throughout the milk. This makes the milk taste creamier and prevents the fat from separating.
- **Separator:** This is where the milk is separated into its different components. The milk is spun in a centrifuge, which causes the different components to separate based on their density. The cream is skimmed off the top of the milk, and the whey is drained off the bottom.
- **Standardization Equipment for Dairy Products:** This equipment is used to adjust milk fat and protein content to meet the specifications of the desired dairy product.
- **Multi-purpose Vat:** This large tank is used to hold milk or other dairy products during processing. The vat is equipped with heating and cooling coils to maintain the desired temperature of the product.
- **Packaging Machine:** This machine is used for packaging dairy products. The machine can package the products in a variety of containers, such as bottles, cartons, and bags.
- **Utility Section:** This section of the plant houses the equipment that is used to provide power, water, and heat to the plant.

Demonstrate

Demonstrate the process of making paneer using the chosen coagulant (lemon juice or vinegar). Show participants the step-by-step procedure and involve them in observing and asking questions.

Activity

1. **Name:** Equipment Matching Game
2. **Objective:** Reinforce participants' understanding of different types of dairy processing equipment and their functions.
3. **Resources:** Handout with equipment names and descriptions, images of equipment (optional)
4. **Duration:** 15-20 minutes
5. **Instructions:**
   - Distribute the handout with equipment names and descriptions to each participant.
   - Ask participants to match the equipment names with their corresponding functions or descriptions.
   - Encourage participants to work individually or in pairs to complete the matching activity.
   - Provide a designated time for participants to complete the activity.
   - Review the answers as a group and discuss any questions or uncertainties.
   - Facilitate a brief discussion on the importance of each equipment type and its role in dairy processing.
6. **Outcome:** Participants will better understand the different types of equipment used in a dairy processing plant and their functions, reinforcing their knowledge of the topic.

Notes for Facilitation

- Use visual aids or images to enhance participants' understanding of the equipment.
- Emphasize the importance of safety precautions when working with dairy processing equipment.
- Encourage active participation and questions from participants throughout the session.
- Relate the content to real-life examples and practical applications to enhance participants' engagement.
- Highlight the significance of selecting appropriate equipment based on production requirements, quality standards, and regulatory guidelines.

Field Visit

1. **Objective:** To give the trainees a hands-on experience of a dairy processing plant.
2. **Resources:** Dairy processing plant tour
3. **Duration:** 1-2 hours
4. **Instructions:**
   - Take the trainees on a tour of a dairy processing plant.
   - Show them the different types of equipment and explain how they are used in the production of dairy products.
   - Answer any questions that the trainees may have.
5. **Outcome:** The trainees will have a better understanding of the different types of equipment used in a dairy processing plant and how they are used in the production of dairy products.

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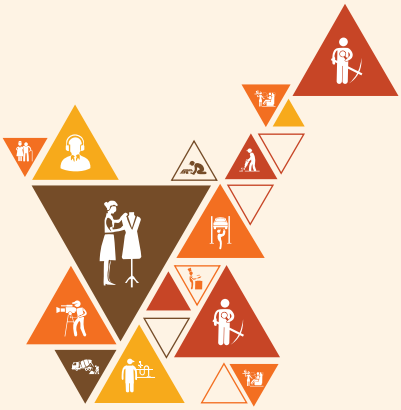
2. Organisational Standards and Norms

Unit 2.1 - Roles and Responsibilities of a Cottage Cheese Maker

Unit 2.2 - Standard Operating Procedures

Unit 2.3 - Personal Hygiene and Sanitation Guidelines

Unit 2.4 - Food Safety Hygiene Standards to Follow in a Work Environment (Schedule-4)



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Key Learning Outcomes 

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

1. Roles and responsibilities of Cottage cheese maker
2. How to conduct yourself at the workplace
3. Personal hygiene and sanitation
4. Food safety hygiene standards to follow in a work environment (Schedule-4)

Unit 2.1: Roles and Responsibilities of a Cottage Cheese Maker

Unit Objectives

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

1. Understand the roles and responsibilities of a Cottage Cheese (Paneer) maker
2. State how to conduct yourself at the workplace
3. Understand the importance of disciplined behaviour for the success in workplace
4. Explain the generic skills needed for one to become a successful production worker
5. Explain the criteria of a good listener
6. State the importance of interpersonal skills to maintain good relationships at the workplace
7. State the importance of working as a team in the workplace
8. Explain the importance of effective communication to become a successful production worker
9. Explain the benefits of teamwork
10. Understand common reasons for interpersonal conflicts in the workplace and how to tackle with them
11. How to escalate employee grievances to the management
12. Explain the procedure of handling grievances in an organization

Resources to be Used

Participant handbook, Presentation slides or handouts, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, notepad, pens, etc.

Say

- Welcome participants to the session on the roles and responsibilities of a cottage cheese maker.
- In this class, we will learn about the different roles and responsibilities of a cottage cheese maker.
- We will also learn about the importance of workplace ethics, disciplined behaviour, language skills, communication, and communication flow in an organization.

Ask

- What do you think are the key roles and responsibilities of a cottage cheese maker?
- Why are workplace ethics and effective communication important for a cottage cheese maker?
- Can you share any experiences or examples of workplace situations that require ethical behaviour or good communication skills?

Elaborate

- Roles and Responsibilities of a Cottage Cheese Maker:
  - The cottage cheese maker is responsible for the production of cottage cheese. This includes the following tasks:
    - Receiving and inspecting raw milk
    - Pasteurizing milk
    - Adding cultures and rennet
    - Curdling milk
    - Draining whey
    - Packaging cottage cheese
- The cottage cheese maker must also be responsible for the following:
  - Maintaining a clean and sanitary work environment
  - Following all food safety regulations
  - Adhering to production standards
  - Keeping accurate records
- Workplace Ethics:
  - Workplace ethics are the moral principles that guide our behaviour in the workplace. They include honesty, integrity, respect, and fairness.
  - Workplace ethics are important because they create a positive and productive work environment. They also help ensure that our products are safe and high-quality.
- Disciplined Behaviour:
  - Disciplined behaviour is the ability to follow rules and instructions. It is also the ability to control our emotions and behaviour.
  - Disciplined behaviour is important in the workplace because it helps to ensure that work is done correctly and efficiently. It also helps to create a safe and productive work environment.
- Language Skills:
  - Language skills are the ability to communicate effectively in writing and speech. They are important in the workplace because they allow us to communicate with colleagues, supervisors, and customers.
  - Good language skills can help us to get our point across clearly, build relationships, and resolve conflict.
- Communication:
  - Communication is the process of exchanging information. It is important in the workplace because it allows us to share ideas, to coordinate our work, and to solve problems.
  - Good communication skills can help us to be more effective in our work, to build relationships, and to create a positive work environment.
- Communication Flow in an Organization:
  - Communication flow in an organization is the way that information is shared throughout the organization. It is important because it allows us to stay informed about what is happening in the organization, make decisions, and solve problems.
  - Good communication flow can help us to be more efficient, to make better decisions, and to create a positive work environment.
- Criteria of a good communicator:
  - A good communicator is someone who can share information clearly and effectively. They are also able to listen actively and to build relationships with others.
  - Some of the criteria of a good communicator include:

    - Being able to clearly express your ideas
    - Being able to listen actively
    - Being able to build relationships with others
    - Being able to adapt your communication style to the audience
    - Being able to use different communication channels effectively
- Communication in the workplace:
    - Communication is essential in the workplace. It is how we share information, coordinate our work, and solve problems.
    - Good communication skills can help us to be more effective in our work, to build relationships, and to create a positive work environment.
- Barriers to effective communication:
    - There are many barriers to effective communication. Some of the most common barriers include:
        - Differences in language and culture
        - Differences in status or power
        - Personal biases and prejudices
        - Interruptions and distractions
        - Lack of trust or respect
- Inter personal skills:
    - Interpersonal skills are the skills that we use to interact with others. They include the ability to communicate effectively, to build relationships, and to resolve conflict

Do

- Facilitate discussions and encourage active participation from participants.
- Use case studies or scenarios to stimulate critical thinking and decision-making related to workplace ethics and communication.
- Conduct role-playing activities to practice effective communication skills and address workplace situations.
- Provide examples or real-life stories that highlight the importance of workplace ethics and communication in the role of a cottage cheese maker.

Activity

1. **Name of the activity:** Ethical Dilemma
2. **Objective:** To analyse ethical decision-making and discuss the importance of workplace ethics.
3. **Resources:** Case studies or scenarios related to ethical dilemmas in the workplace.
4. **Duration:** 20 minutes
5. **Instructions:**
    - Divide participants into small groups.
    - Distribute the case studies or scenarios to each group.
    - Instruct the groups to read and analyse the case study, considering the ethical dilemma presented.

- Ask the groups to discuss and come up with possible solutions or actions that address the ethical dilemma.
- Allocate a specific time for group discussions.
- After the allocated time, bring the groups back together and invite each group to share their analysis and proposed solutions.
- Facilitate a discussion on the different perspectives and ethical considerations raised by the groups.
- Summarize the key points and emphasize the importance of workplace ethics in the role of a cottage cheese maker.
- Conclude the activity by highlighting the significance of ethical decision-making in maintaining professionalism and trust within the dairy industry.

6. **Outcome:** The activity will enhance participants' understanding of workplace ethics and their ability to analyse ethical dilemmas. It will also encourage collaborative problem-solving and critical thinking.

Notes for Facilitation

- Encourage active participation and create a safe space for open discussions.
- Use real-life examples or industry-specific scenarios to make the content relatable.
- Emphasize the practical application of workplace ethics and effective communication skills in the role of a cottage cheese maker.
- Provide feedback and guidance during role-playing activities to enhance participants' communication skills.
- Use visuals, such as charts or diagrams, to aid in explaining concepts related to communication flow in an organization.

Unit 2.2: Standard Operating Procedures

Unit Objectives

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

1. State Standard Operating Procedures
2. Implications of Food Recall
3. Explain the benefits of Standard Operating Procedures

Resources to be Used

Participant handbook, Presentation slides or handouts on SOPs and HACCP, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, notepad, pens, Accessible copies of existing SOPs or SSOPs within the organization, etc.

Note

- This session requires practical demonstrations and activities to ensure active learning.

Say

- Welcome to the session on "Standard Operating Procedures."
- In this session, we will learn about the importance of standard operating procedures (SOPs) in the food industry.
- We will also learn about the different types of SOPs, how to develop and maintain SOPs, and the implications of not following SOPs

Ask

- What do you understand by the term "Standard Operating Procedures"?
- Can you provide examples of potential hazards in dairy processing?
- Have you ever encountered or heard about a food recall incident? What were the implications?

Elaborate

- Standard operating procedures (SOPs) are written instructions describing a specific task or activity. SOPs are important in the food industry because they help to ensure that food is produced safely and consistently.
- For all sanitation-related processes, jobs or activities, the term SSOP (Sanitation SOP) is held in use.
- There are many different types of SOPs, but some of the most common include:

  - Cleaning and sanitation procedures
  - Food safety procedures
  - Production procedures
  - Quality control procedures
- SOPs should be developed by a team of experts, including food safety professionals, production managers, and quality control personnel. SOPs should be reviewed and updated on a regular basis to ensure that they are accurate and up-to-date.
- It is important to follow SOPs at all times. Failure to follow SOPs can lead to food safety problems, which can result in illness or even death.
- Hazard Analysis & Critical Control Points (HACCP):
  - Definition: HACCP is a preventive approach to identify, evaluate, and control food safety hazards at critical points in the food production process.
  - Purpose of HACCP: HACCP helps minimize the risk of foodborne illnesses and ensures compliance with food safety regulations.

Do

- Discuss the potential consequences of a food recall, such as financial losses, damage to reputation, and compromised consumer trust.
- Share examples of food recall incidents to illustrate the seriousness of the issue and the need for effective SOPs.

Activity

1. **Name of the activity:** SOP Development
2. **Objective:** To give the trainees hands-on experience in developing SOPs.
3. **Resources:** Paper, Pencils, Whiteboard or flipchart
4. **Duration:** 1 hour
5. **Instructions:**
   - Divide the trainees into groups of 3-4 people.
   - Give each group a piece of paper and a pencil.
   - Ask each group to develop an SOP for a specific task or activity.
   - After 30 minutes, have each group present their SOP to the class.
   - Discuss the different SOPs and identify the strengths and weaknesses of each one.
6. **Outcome:** The trainees will have a better understanding of how to develop SOPs.

Activity

1. **Name of the activity:** SOP Review and Revision
2. **Objective:** To engage participants in reviewing and revising existing SOPs or developing new ones.

3. **Resources:** Accessible copies of existing SOPs or SSOPs within the organization, flipchart paper, and markers.
4. **Duration:** 30-45 minutes.
5. **Instructions:**
    - Divide participants into small groups and provide each group with a copy of an existing SOP or SSOP from your organization or a sample SOP related to a dairy processing task.
    - Instruct the groups to review the SOP and identify any areas for improvement or potential updates.
    - Ask each group to discuss and revise the SOP to enhance its clarity, completeness, and effectiveness.
    - Provide flipchart paper and markers for each group to write down their suggested revisions.
    - After the allocated time, invite each group to present their revised SOPs to the rest of the participants, explaining the rationale behind their changes.
    - Facilitate a discussion on the key findings and insights from the activity, highlighting the importance of continuous improvement and regular reviews of SOPs.
6. **Outcome:** The trainees will have a better understanding of how to develop SOPs.

Notes for Facilitation

- Encourage active participation and foster a supportive learning environment
- Provide guidance and clarification during the activity to ensure participants grasp the purpose and structure of SOPs
- Emphasize the significance of document control and easy accessibility of SOPs for all employees
- Use humour and enthusiasm to keep the trainees engaged
- Use visuals to help illustrate the concepts being discussed

Unit 2.3: Personal Hygiene and Sanitation Guidelines

Unit Objectives

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

1. Understand the importance of personal hygiene and sanitation guidelines require to follow in a work environment

Resources to be Used

Participant handbook, Presentation slides or handouts, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, notepad, pens, Personal protective equipment (PPE) samples or visuals, Hand hygiene demonstration materials (e.g., hand sanitiser, soap, water)

Say

- Welcome participants to the session on Personal Hygiene and Sanitation Guidelines.
- In this session, we will learn about the importance of personal hygiene and sanitation in the food industry. We will also learn about the different types of PPE, how to use them, and the importance of following proper hygiene procedures.

Ask

- Why is personal hygiene important in the food processing industry?
- Can you think of any potential risks or consequences of poor personal hygiene practices?
- What examples of personal protective equipment should be used in a dairy processing plant?

Elaborate

- Personal hygiene is the practice of keeping yourself clean and free of dirt, germs, and other contaminants. Sanitation is the practice of keeping your environment clean and free of dirt, germs, and other contaminants.
- In the food industry, practising good personal hygiene and sanitation is important to prevent the spread of foodborne illness. Foodborne illness is caused by eating food contaminated with harmful bacteria, viruses, or parasites.
- There are many ways to practice good personal hygiene and sanitation in the food industry. Some of the most important include:
    - Washing your hands thoroughly with soap and water before and after handling food.
    - Covering your mouth and nose when you sneeze or cough.
    - Wearing clean, non-porous clothing.
    - Keeping your hair tied back.

- Removing jewellery and other objects that could harbour bacteria.
- Cleaning and sanitizing all surfaces and equipment on a regular basis.

Explain

- Explain the potential sources of contamination, such as bacteria, viruses, and physical contaminants, and the need to minimize their transfer through proper personal sanitation.
- Explain the importance of PPE, including gloves, hairnets or caps, masks, and appropriate footwear, in preventing cross-contamination and protecting both the worker and the product.

Demonstrate

- Demonstrate the use of various PPEs used in the food processing industry. This will help the trainees to understand how to use the equipment and how it protects them from contamination.
- Demonstrate the proper use and disposal of different types of PPE, ensuring participants understand their purpose and correct application.

Activity

1. **Name of the activity:** Hand Hygiene Demonstration
2. **Objective:** To reinforce the importance of proper hand hygiene in maintaining food safety.
3. **Resources:** Hand sanitiser, soap, water, hand drying materials (paper towels, hand dryers).
4. **Duration:** 15-20 minutes
5. **Instructions:**
   - Gather participants in a designated area with access to handwashing facilities.
   - Begin by demonstrating proper handwashing techniques, emphasizing the importance of thorough handwashing and the use of soap and water.
   - Ask participants to pair up and take turns practising proper handwashing techniques with a partner.
   - Provide feedback and guidance to ensure participants are following the correct handwashing steps.
   - Introduce the use of hand sanitiser as an alternative when handwashing facilities are not readily available.
   - Discuss the importance of hand drying and demonstrate proper techniques using paper towels or hand dryers.
   - Encourage participants to share their observations and reflections on the activity.
6. **Outcome:** The activity will enhance participants' understanding of proper hand hygiene practices and reinforce the importance of this critical aspect of personal hygiene in food processing.

Notes for Facilitation

- Create a supportive and non-judgmental environment to encourage active participation and open discussion.
- Ensure participants have access to handwashing facilities or provide alternatives such as hand sanitisers if necessary.
- Emphasize the importance of practising proper personal hygiene during work hours and personal lives to maintain a consistent approach.
- Reinforce the role of supervisors and management in promoting and enforcing personal hygiene and sanitation guidelines.
- Address any concerns or questions raised by participants regarding personal hygiene practices and their application in the dairy industry.

Unit 2.4: Food Safety Hygiene Standards to Follow in a Work Environment (Schedule-4)

Unit Objectives

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

1. Know the food safety hygiene standards to be followed in a work environment
2. Explain Schedule 4 of FSSAI and its importance
3. To introduce a single statute relating to food safety
4. List various general hygiene and sanitation practices by Food Business Operator
5. Need for Food Safety for Food Business Operators

Resources to be Used

Participant handbook, Presentation slides or handouts on SOPs and HACCP, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, Notepad, Pens, Copies of Schedule 4 under Food Safety and Standards (Licensing and Registration of Food Businesses) Regulation, 2011, Visual aids or posters illustrating Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP), etc.

Say

- Welcome to the session on "Food safety hygiene standards to follow in a work environment."
- In this session, we will learn about the importance of following food safety hygiene standards in the workplace. We will also learn about the different types of PPE, how to use them, and the importance of following proper hygiene procedures.

Ask

- Why is it important to maintain hygiene and sanitation in a food-related work environment?
- Can you share any experiences or examples of the consequences that can arise from poor hygiene practices in the food industry?
- Are you familiar with any specific hygiene standards or regulations that apply to your work or the food industry in general?

Elaborate

- Food safety hygiene standards are the practices that are used to prevent the contamination of food. Contamination can occur from a variety of sources, including:
  - Cross-contamination, which is the transfer of bacteria from one food to another
  - Unsafe handling of food, such as not washing hands properly before handling food

- Unsafe cooking practices, such as not cooking food to the proper temperature
- Unsafe storage of food, such as storing food at improper temperatures

- Food safety hygiene standards are important to follow in the workplace to prevent foodborne illness.
- Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP):
  - Good Manufacturing Practices (GMP) and Good Hygienic Practices (GHP) are two sets of guidelines used to ensure food safety. GMP focuses on the production of food, while GHP focuses on the hygiene of food and food contact surfaces.
  - Both GMP and GHP are important for ensuring the safety of food. By following these guidelines, food businesses can help to prevent the spread of foodborne illness and protect the health of their customers

Activity

1. **Name of the activity:** Hygiene Checklist Evaluation
2. **Objective:** To assess participants' understanding of hygiene standards and their application in a work environment.
3. **Resources: Hygiene checklist handout, pens or pencils.**
4. **Duration: 20-30 minutes.**
5. **Instructions:**
   - Distribute the hygiene checklist handout to each participant.
   - Instruct participants to review the hygiene checklist individually and evaluate their work environment based on the provided criteria.
   - Ask participants to mark areas where improvements are needed or compliance with hygiene standards may be lacking.
   - After participants have completed the checklist, facilitate a group discussion to share their findings and observations.
   - Encourage participants to suggest corrective actions or improvements for any identified deficiencies.
   - Summarize the key points from the discussion and emphasize the importance of regularly assessing and improving hygiene practices.
6. **Outcome:** The activity will reinforce participants' understanding of hygiene standards, promote critical thinking in assessing their work environment, and encourage a proactive approach to maintaining food safety.

Do

- Provide an overview of Schedule 4 and its requirements, such as the design and construction of food establishments, water supply, waste disposal, lighting, ventilation, pest control and transportation of food.
- Explain the significance of complying with Schedule 4 to ensure food safety and meet regulatory obligations.

Demonstrate

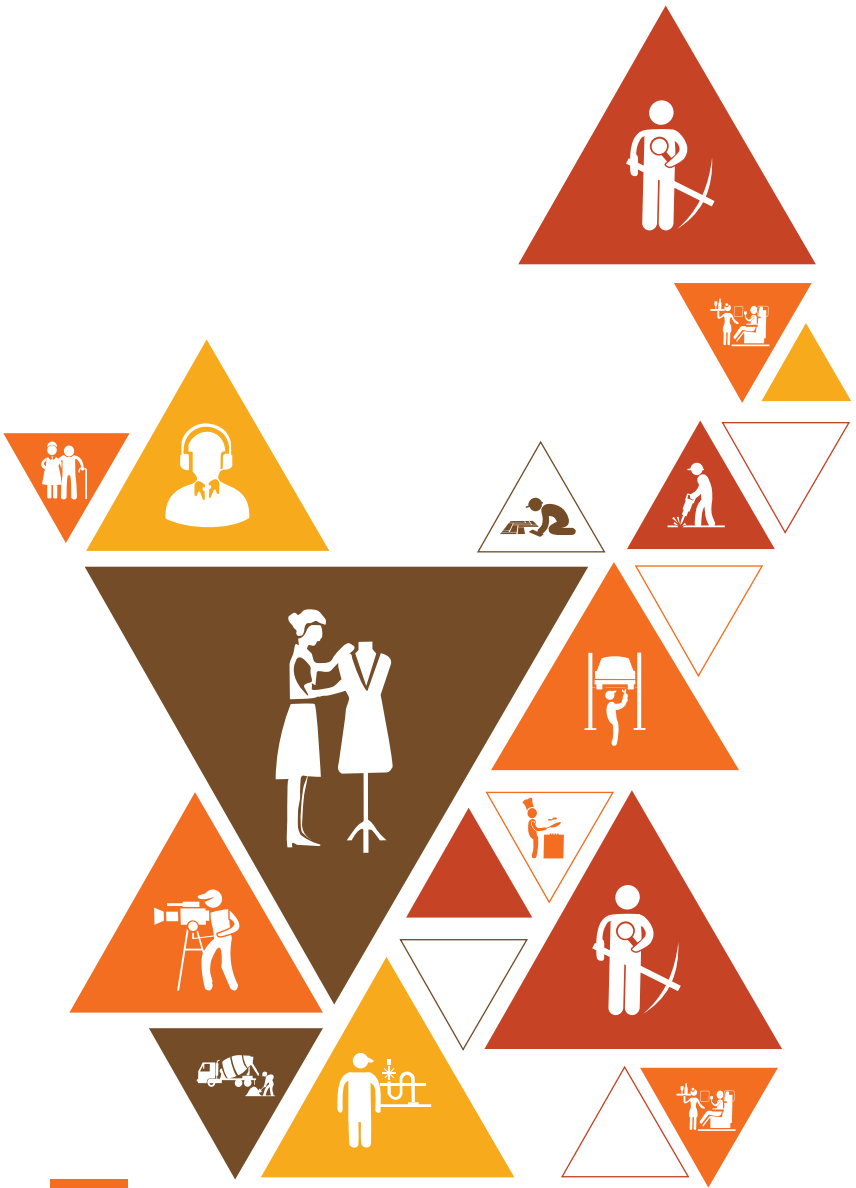
Demonstrate proper cleaning and sanitation techniques, including the use of cleaning agents, sanitisers, and equipment maintenance, to illustrate practical examples of good manufacturing practices.

Activity

1. **Name of the activity:** GMP and GHP Inspection
2. **Objective:** To reinforce the importance of GMP and GHP and enable participants to apply the principles through a workplace inspection.
3. **Resources:** Checklist for GMP and GHP inspection, pens or markers.
4. **Duration:** 30-45 minutes.
5. **Instructions:**
   - Divide participants into small groups and provide each group with a GMP and GHP inspection checklist.
   - Instruct the groups to conduct an inspection of their assigned area or workplace, assessing compliance with GMP and GHP principles.
   - Ask participants to document any observations or findings on the checklist, noting positive practices and areas needing improvement.
   - After the allocated time, gather the groups together and ask each group to share their findings and recommendations.
   - Facilitate a group discussion to identify common areas of concern or good practices and brainstorm strategies for improvement.
   - Summarize the key takeaways and emphasize the importance of ongoing monitoring and continuous improvement in maintaining food safety hygiene standards.
6. **Outcome:** The activity will enhance participants' understanding of GMP and GHP principles, encourage active engagement in assessing and improving food safety practices, and promote a culture of accountability and continuous improvement in the workplace.

Notes for Facilitation

- Start and end the class on time
- Use humour and enthusiasm to keep the trainees engaged.
- Encourage participants to actively participate and share their experiences and insights about food safety in their work environments.
- Be prepared to address any questions or concerns regarding the topics covered in the session
- Encourage the trainees to answer the questions from the exercise section of the handbook
- Summarize the main points of the class at the end.



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3. Prepare and Maintain Work Area and Process Machineries for Production of Cottage Cheese

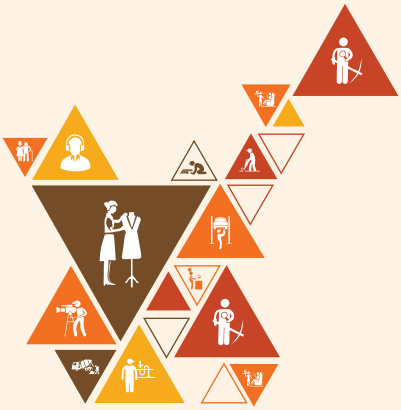
Unit 3.1 - The Materials and Equipment used in the Cleaning along with Methods of Cleaning and Maintenance of the Work Area

Unit 3.2 - Common Detergents and Sanitisers used in Cleaning Work Area and Machineries

Unit 3.3 - Preparing the Work Area before Starting Production

Unit 3.4 - Maintenance Procedures and their Types

Unit 3.5 - Process of Preparation the Work Area, Tools and Equipment Prior to the Production along with Minor Repairs



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Key Learning Outcomes 

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

1. State the material and equipment used in the cleaning and maintenance of the work area
2. State the common detergents and sanitisers used in cleaning work areas and machinery
3. State the methods of cleaning and sanitation
4. Perform the process of preparing the work area for scheduled production
5. Describe the functions to be carried out before starting production
6. State the different types of maintenance procedures
7. Conduct minor repairs and faults in process machinery
8. Prepare the machines and tools required for production
9. Waste Management in Dairy Industry

Unit 3.1: The Materials and Equipment used in the Cleaning along with Methods of Cleaning and Maintenance of the Work Area

Unit Objectives

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

1. Enlist the material and equipment used in the cleaning and maintenance of the work area
2. State the common detergents and sanitisers used in cleaning work areas and machinery
3. State the methods of cleaning and sanitation
4. Perform the process of preparing the work area for scheduled production
5. Describe the functions to be carried out prior to production
6. State the different types of maintenance procedures
7. Conduct minor repairs and faults in process machinery
8. Prepare the machines and tools required for production

Resources to be Used

Participant handbook, Presentation slides or handouts, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, Notepad, Pens, Visual aids or samples of cleaning equipment (scrubbers, polishers, steam cleaners, high-pressure cleaners), Samples or visuals of detergents and sanitisers used in cleaning processes, etc.

Say

- Welcome to the session on "Materials and equipment used in the cleaning along with methods of cleaning and maintenance of the work area."
- In this session, we will learn about the materials and equipment used in cleaning, the different methods of cleaning, and the importance of maintaining a clean and sanitary work area.
- We will also learn about the different CIP and SIP methods and the equipment used.

Ask

- Why is it important to use specific materials and equipment for cleaning and maintenance tasks in the work area?
- Can you provide examples of cleaning equipment used in the dairy industry?
- What are the objectives of cleaning a food processing facility?
- How do detergents and sanitisers differ in their functions and applications for cleaning?

Elaborate

- Cleaning is the process of removing dirt, debris, and other contaminants from surfaces. Maintenance is the process of keeping a clean and sanitary work area by performing regular cleaning and repairs.
- Cleaning and maintenance are essential for ensuring the safety of food. By cleaning and maintaining equipment and surfaces, you can help to prevent the spread of foodborne illness.
- A clean and sanitary work area is important for several reasons:
  - It helps to prevent the spread of foodborne illness.
  - It helps to improve the quality of food products.
  - It helps to create a safe and comfortable work environment for employees.
  - Many different materials and equipment can be used for cleaning and maintenance. Some of the most common include Detergents, Sanitisers, Brushes, Sponges, Rags, Brooms, Mops, Floor scrubbers, Pressure washers, Vacuum Cleaners, etc.
- There are many different methods of cleaning, including:
  - Manual cleaning: This is the most basic method of cleaning and involves using brushes, mops, and brooms to remove dirt and debris from surfaces.
  - Mechanical cleaning: This method uses machines to clean surfaces. Mechanical cleaning can be done with scrubbers, polishers, and steam cleaners.
  - Chemical cleaning: This method uses chemicals to clean surfaces. Chemical cleaning can be done with detergents and sanitisers.
- The best method of cleaning for a particular surface will depend on the type of surface, the level of soil, and the availability of equipment and chemicals.
- Clean-in-place (CIP) is a process of cleaning equipment and utensils without disassembling them. Sterilizing-in-place (SIP) is a process of sterilizing equipment and utensils by using heat or chemicals.
- There are many different methods of CIP and SIP. The method that is used will depend on the type of equipment that is being cleaned or sterilized. The equipment that is used for CIP and SIP varies depending on the method that is being used. However, some common pieces of equipment include pumps, valves, and spray nozzles.

Do

- Discuss the different types of materials and equipment required for cleaning and maintenance, such as mops, brushes, cloths, buckets, vacuum cleaners, and specialized cleaning equipment like scrubbers, polishers, steam cleaners, and high-pressure cleaners.
- Discuss different types of detergents, including alkaline, acid, and enzymatic detergents, and their applications based on specific cleaning needs and surface types.
- Discuss common sanitisers, such as chlorine-based sanitisers, quaternary ammonium compounds (quats), and peracetic acid, and their proper usage and concentration levels.

Activity

1. **Name of activity:** Cleaning and Maintenance Checklist Walkthrough
2. **Objective:** To familiarize participants with a cleaning and maintenance checklist and reinforce the importance of thorough cleaning and maintenance practices.
3. **Resources:** Cleaning and maintenance checklists specific to the dairy industry, pens or markers.

4. **Duration:** 30-45 minutes.
5. **Instructions:**
   - Divide participants into small groups and provide each group with a cleaning and maintenance checklist.
   - Instruct the groups to review the checklist and conduct a walkthrough of a designated area, identifying areas that require cleaning or maintenance based on the checklist.
   - Ask participants to document their observations and findings on the checklist, noting any corrective actions required.
   - After the allocated time, gather the groups together and ask each group to share their findings and recommendations.
   - Facilitate a discussion on the importance of regular inspections, documentation, and prompt actions to maintain cleanliness and maintenance standards.
   - Engage participants in a discussion about any challenges or barriers they may face when implementing cleaning and maintenance protocols in their work environment.
   - Summarize the key takeaways from the activity, emphasizing the significance of consistent and thorough cleaning practices, adherence to checklists or protocols, and the role of regular inspections in maintaining a clean and safe work area.
6. **Outcome:** The outcome of the activity is to enhance participants' understanding of the materials and equipment used in cleaning, as well as the methods of cleaning and maintaining the work area.

Demonstrate

Demonstrate proper cleaning techniques, including the correct use of cleaning tools, detergents, and sanitisers. Emphasize the importance of following cleaning protocols and maintaining good hygiene practices.

Activity

1. **Name of the activity:** Cleaning and Sanitization Plan Development
2. **Objective:** To engage participants in creating a cleaning and sanitization plan for a specific dairy processing area.
3. **Resources:** Flipchart paper, markers, cleaning and sanitization guidelines, sample facility layout (if available).
4. **Duration:** 30-45 minutes.
5. **Instructions:**
   - Divide participants into small groups and provide each group with flipchart paper and markers.
   - Assign each group a specific area in a dairy processing facility (e.g., milk receiving area, pasteurization room, packaging area).
   - Instruct the groups to develop a cleaning and sanitization plan for their assigned area, considering the cleaning procedures, cleaning and sanitation protocols, detergents, and sanitisers discussed.
   - Ask each group to create a checklist or flowchart that outlines the steps, responsibilities, and frequency of cleaning tasks for their assigned area.
   - After the allocated time, have each group present their plan to the rest of the participants.

- Facilitate a group discussion to compare and evaluate different approaches, highlighting strengths and identifying areas for improvement.
- Summarize the key elements of an effective cleaning and sanitization plan and encourage participants to apply the knowledge gained in their own work environments.

6. **Outcome:** The activity will reinforce participants' understanding of cleaning and sanitization principles, promote collaborative problem-solving, and enable them to develop practical cleaning and sanitization plans applicable to their work areas.

Notes for Facilitation

- Encourage active participation and discussion among participants to foster a deeper understanding of the topics.
- Provide hands-on demonstrations or samples of cleaning equipment and materials to enhance participants' comprehension and engagement.
- Address any questions or concerns participants may have about specific cleaning procedures, equipment, or materials.
- Emphasize the importance of following manufacturer instructions and industry-specific regulations when using cleaning equipment and chemicals.
- Highlight the discussed topics' relevance and applicability to participants' work environments, encouraging them to consider practical implementation strategies.
- Foster a positive and open learning environment, encouraging participants to ask questions, seek clarification, and actively participate in discussions.

Unit 3.2: Common Detergents and Sanitisers used in Cleaning Work Area and Machineries

Unit Objectives

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

1. List the common sanitisers and detergents used in cleaning work area and machineries
2. List Pre-requisites for effective cleaning and sanitization
3. Types of detergents used in cleaning
4. What should be the quality of water used for cleaning
5. State various precautionary measures to be taken while cleaning and sanitization

Resources to be Used

Participant handbook, Presentation slides or handouts, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, Notepad, Pens, Visual aids or samples of common detergents and sanitisers, etc.

Say

- Welcome to the class on "Common detergents and sanitisers used in cleaning work areas and machinery."
- In this class, we will learn about the different types of detergents and sanitisers that are used in the food industry.
- We will also learn the importance of using the correct detergents and sanitisers for the specific task.

Ask

- Why are pre-requisites such as proper cleaning procedures and surface preparation essential for effective cleaning and sanitization?
- What are some commonly used disinfectants in the industry, and what factors should be considered when selecting a disinfectant?
- How should sanitisers and disinfectants be stored to maintain their effectiveness?

Elaborate

- Detergents are used to remove dirt, grease, and other debris from surfaces.
- Sanitisers are used to kill microorganisms on surfaces.
- There are many different types of detergents and sanitisers available. The type of detergent or sanitiser that is used will depend on the specific task at hand.

- It is important to use the correct detergent or sanitiser for the specific task at hand. Using the wrong detergent or sanitiser can damage surfaces or equipment.
- It is also important to follow the detergent or sanitiser label instructions. Using too much or too little detergent or sanitiser can be ineffective or even harmful.

Do

- Explain the significance of identifying critical control points, understanding contact time requirements, and following the manufacturer's instructions for effective cleaning and sanitization.
- Discuss different types of disinfectants, such as chlorine-based disinfectants, quaternary ammonium compounds (quats), and hydrogen peroxide, and their appropriate applications.
- Discuss storage considerations: temperature, light exposure, labelling, and segregation from incompatible substances.
- Highlight key safety precautions that should be followed during cleaning and sanitization activities, such as using appropriate personal protective equipment (PPE), ensuring adequate ventilation, and avoiding cross-contamination.

Demonstrate

Demonstrate using common detergents and sanitisers correctly, emphasizing proper dilution ratios, application methods, and contact times. Highlight the importance of following the manufacturer's instructions and safety guidelines.

Activity

1. **Name of the activity:** Selecting the Right Sanitiser and Disinfectant
2. **Objective:** Selecting the Right Sanitiser and Disinfectant
3. **Resources:** Handouts comparing different sanitisers and disinfectants, scenario cards, flipchart paper, and markers.
4. **Duration:** 30-45 minutes
5. **Instructions:**
    - Divide participants into small groups and provide each group with a set of scenario cards.
    - Instruct each group to read the scenarios and discuss and determine the most suitable sanitiser or disinfectant for each situation.
    - Ask each group to present their selections and briefly explain their choices.
    - Facilitate a group discussion to compare and evaluate the different selections, considering efficacy, compatibility, safety, and cost-effectiveness factors.
    - Summarize the key considerations for selecting the right sanitiser or disinfectant based on the scenarios discussed.
6. **Outcome:** This activity will enhance participants' understanding of the factors influencing the choice of sanitisers and disinfectants and their practical application in different cleaning scenarios.

Notes for Facilitation

- Encourage active participation and collaboration among participants during discussions and activities.
- Use visual aids, samples, or case studies to reinforce the concepts and make the session more interactive.
- Emphasize the importance of proper training, including the correct use of detergents and sanitisers, to ensure effective cleaning and sanitation practices.
- Discuss the potential hazards associated with the misuse or incorrect handling of detergents and sanitisers and the importance of following safety guidelines.
- Share industry-specific examples, best practices, and success stories to demonstrate the benefits of proper cleaning and sanitization protocols in maintaining a safe and hygienic work environment.

Unit 3.3: Preparing the Work Area before Starting Production

Unit Objectives

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

1. Know the process of cleaning the Work area before starting production
2. Explain pest control measures
3. Explain the Process of preparing the work area for scheduled production
4. Explain the Process of cleaning tools and equipment

Resources to be Used

Participant handbook, Presentation slides or handouts, Laptop/Computer with an Internet connection, Flipchart or whiteboard with markers, Projector, Notepad, Pens, Visual aids or samples of cleaning tools and equipment, etc.

Say

- Welcome participants to the session on Preparing the Work Area before Starting Production
- In this session, we will learn the importance of preparing the workplace before starting production.
- We will also learn about the different steps involved in preparing the work area and the importance of following proper safety procedures.

Ask

- Why is it important to prepare the work area before starting production?
- What are some potential consequences of an unclean or disorganized work area?
- How can effectively cleaning and maintaining tools and equipment contribute to a smooth production process?

Elaborate

- Preparing the workplace area before starting production is important for a number of reasons. First, it helps to ensure that the workplace is clean and free of debris, which can help to prevent accidents. Second, it helps to ensure that the workplace is organized and efficient, which can help to improve productivity. Third, it helps to create a safe and comfortable environment for workers, which can help to improve morale and productivity.
- The different steps in preparing the workplace vary depending on the specific workplace. However, some common steps include:
    - Cleaning and sanitizing all surfaces
    - Sweeping and mopping the floor

- Removing clutter and debris
- Organizing tools and equipment
- Ensuring that all safety equipment is in place and working properly

Explain

- Significance of proper waste management, pest control measures, and establishing designated storage areas for raw materials, tools, and finished products.
- Importance of using appropriate cleaning agents, following established procedures, and ensuring thorough cleaning of surfaces and equipment.
- Proper cleaning methods for different tools and equipment, including disassembly, lubrication, and calibration when necessary.
- Importance of effective management practices, including inventory control, labelling, and documentation of cleaning and maintenance activities.

Do

Emphasize the need for clear communication, standard operating procedures (SOPs), and regular inspections to ensure compliance and continuous improvement.

Demonstrate

If feasible, demonstrate proper cleaning processes for the work area and maintenance of tools and equipment, showcasing correct techniques, use of cleaning agents, and safety precautions.

Activity

1. **Name of the activity:** Work Area Inspection
2. **Objective:** To engage participants in conducting a comprehensive inspection of a work area and identifying areas for improvement in preparation for production.
3. **Resources:** Checklist for work area inspection, pen or pencil.
4. **Duration:** 30-45 minutes
5. **Instructions:**
   - Divide participants into pairs or small groups and provide each group with a work area inspection checklist.
   - Instruct each group to thoroughly inspect a designated work area, marking areas that require cleaning, organizing, or maintenance.
   - Ask each group to discuss and prioritize the identified areas for improvement and develop action plans to address them.
   - Facilitate a group discussion to share and compare the findings, emphasizing the importance of collaboration and collective responsibility in maintaining a clean and organized work environment.

- Summarize the key takeaways from the activity and encourage participants to implement the identified improvements in their own work areas.

6. **Outcome:** This activity will enhance participants' ability to identify areas for improvement in work area preparation and promote a proactive approach to maintaining cleanliness and organization.

Notes for Facilitation

- Foster a positive and inclusive learning environment encouraging participants to share their experiences and perspectives.
- Use real-life examples and case studies to illustrate the importance and benefits of proper work area preparation.
- Encourage participants to ask questions and seek clarification throughout the session.
- Emphasize the importance of individual and collective responsibility in maintaining a clean and organized work area.
- Provide practical tips and best practices for effective cleaning, maintenance, and organization of the work area based on industry-specific guidelines and regulations.

Unit 3.4: Maintenance Procedures and their Types

Unit Objectives

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

1. Explain the various different types of maintenance procedures

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Handouts or printed materials, Visual aids or examples of equipment record cards, notepads, Pens, etc.

Say

- Welcome participants to the session on maintenance procedures and their types.
- In this session, we will learn about the different types of maintenance procedures and their advantages. We will also learn about the importance of keeping an equipment record card.

Ask

- Why is maintenance important in a work environment?
- What are some potential consequences of neglecting equipment maintenance?
- How can preventive maintenance contribute to improved productivity and cost savings?

Do

- Highlight the importance of implementing different maintenance procedures and understanding their advantages in preventing breakdowns, reducing downtime, and minimizing costly repairs.
- Introduce the topics to be covered, including preventive maintenance, advantages of preventive maintenance, types of maintenance (periodic, corrective, and breakdown), and the use of equipment record cards.

Elaborate

- There are three main types of maintenance procedures: preventive, corrective, and breakdown.
    - Preventive maintenance is the regular inspection and maintenance of equipment to prevent it from breaking down.
    - Corrective maintenance is the repair of equipment that has broken down.

- Breakdown maintenance is the repair of equipment that has broken down and cannot be repaired immediately.

- Corrective maintenance is less cost-effective than preventive maintenance because it requires the repair of equipment that has already broken down.
- Breakdown maintenance is the least cost-effective type of maintenance because it requires repairing equipment that has broken down and cannot be repaired immediately.
- An equipment record card is a document that tracks the maintenance history of a piece of equipment.
- The equipment record card should include the maintenance date, the type of maintenance performed, and the person who performed the maintenance.

Demonstrate

If feasible, demonstrate a preventive maintenance procedure or walk participants through the process using visual aids or examples of equipment record cards.

Activity

1. **Name of the activity:** Equipment Maintenance Plan
2. **Objective:** To engage participants in developing an equipment maintenance plan incorporating preventive maintenance principles.
3. **Resources:** Sample equipment list, pen or pencil, flipchart paper, markers.
4. **Duration:** 30-45 minutes
5. **Instructions:**
   - Divide participants into small groups and provide each group with a sample equipment list.
   - Instruct each group to develop an equipment maintenance plan based on preventive maintenance principles.
   - Ask each group to identify the maintenance tasks for each piece of equipment, determine the frequency of inspections and servicing, and assign responsibilities.
   - Have each group present their equipment maintenance plan to the rest of the participants, highlighting the rationale behind their decisions.
   - Facilitate a discussion to compare different approaches, share best practices, and address any questions or concerns.
6. **Outcome:** This activity will enhance participants' understanding of preventive maintenance and enable them to create practical equipment maintenance plans for their work environments.

Notes for Facilitation

- Start and end the class on time.
- Encourage active participation and collaboration among participants during discussions and group activities.
- Provide practical examples and case studies related to the industry or specific equipment types to reinforce key concepts.

- Emphasize the importance of regular inspections, documentation, and continuous improvement in maintenance practices.
- Address any specific regulations or industry standards related to maintenance procedures that apply to the participants' work environment.
- Allow time for participants to ask questions and seek clarification on any aspects of maintenance procedures and their types.

Unit 3.5: Process of Preparation the Work Area, Tools and Equipment Prior to the Production along with Minor Repairs

Unit Objectives

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

1. State the procedure to be required to conduct prior to the production
2. State the maintenance procedure to be followed for dairy processing machinery before starting production
3. Explain the lubrication system followed in the dairy industry
4. State the various types of maintenance procedures

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Handouts or printed materials, Visual aids or examples of spare parts and lubrication systems, Notepad, Pens, etc.

Do

- Begin by welcoming the trainees to the class and explaining the objectives of today's session.
- Lead a discussion on the importance of preparing the workplace area, tools, and equipment and the different steps involved.

Ask

- Why is preparing the work area, tools, and equipment important before starting production?
- What are some common spare parts used in the dairy industry?
- How does a lubrication system contribute to the performance and longevity of machinery?

Elaborate

- Preparing the workplace area, tools, and equipment before starting production is important for a number of reasons.
- First, it helps to ensure that the workplace is clean and free of debris, which can help to prevent accidents.
- Second, it helps to ensure that the workplace is organized and efficient, which can help to improve productivity.
- Third, it helps to create a safe and comfortable environment for workers, which can help to improve morale and productivity.
- The different steps in preparing the workplace area, tools, and equipment vary depending on the

workplace. However, some common steps include:

- Cleaning and sanitizing all surfaces
- Sweeping and mopping the floor
- Removing clutter and debris
- Organizing tools and equipment
- Ensuring that all safety equipment is in place and working properly

- Minor repairs can be performed on equipment to keep it in good working order. Some common minor repairs include:
  - Replacing worn or broken parts
  - Lubricating moving parts
  - Adjusting settings
  - Cleaning and disinfecting surfaces

Demonstrate

- Demonstrate a lubrication procedure or minor repair activity, showcasing proper techniques and safety precautions.
- Demonstrate the use of different cleaning and sanitizing solutions. 3

Explain

- Explain the process of preparing machinery for production, which involves cleaning, inspection, and ensuring proper calibration or adjustment.
- Explain the role of lubrication in machinery performance and the prevention of friction-related issues.
- Explain the importance of documentation, record-keeping, and adherence to quality control standards during the production start-up phase.

Activity

1. **Name of the activity:** Equipment Inspection and Minor Repairs
2. **Objective:** To engage participants in conducting equipment inspections, identifying minor repairs, and performing necessary maintenance activities.
3. **Resources:** Sample equipment, hand tools, inspection checklist, pen or pencil.
4. **Duration:** 45-60 minutes.
5. **Instructions:**
   - Divide participants into pairs or small groups and provide each group with a sample equipment item and an inspection checklist.
   - Instruct each group to thoroughly inspect the equipment, identify any minor repairs or maintenance tasks, and record them on the checklist.
   - Encourage participants to collaborate and share their findings within the group, discussing the importance of each identified repair or maintenance task.

- Instruct each group to select one or two minor repairs or maintenance tasks from their checklist and demonstrate how to perform them using the provided hand tools.
- Have each group present their inspection findings and demonstrate the repairs to the rest of the participants, explaining the process and highlighting any safety considerations.

6. **Outcome:** This activity will enhance participants' practical skills in equipment inspection, identification of minor repairs, and performing necessary maintenance activities. It will also promote collaboration and knowledge sharing among participants.

Notes for Facilitation

- Create a supportive and non-judgmental environment to encourage active participation and open discussion.
- Ensure that the visuals or videos used for the virtual tour are clear and easily understandable.
- Relate the content to real-life examples and practical applications to enhance participants' engagement.
- Prepare for potential technical issues in advance to minimize disruptions during the activity.
- Encourage the trainees to answer the questions from the exercise section of the handbook.

Unit 3.6: Waste Management in Dairy Industry

Unit Objectives

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

1. Define waste management
2. Explain the method of managing and disposing of waste material.

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, PowerPoint presentation, Handouts or printed materials, Visual aids or examples of solid waste, liquid waste, and oily waste, Samples of waste management tools or equipment (optional), etc.

Say

- Welcome participants to the session on Waste Management in the Dairy Industry.
- In this session, we will discuss about various methods of managing and disposing of waste material

Ask

- What is waste management, and why is it important in the dairy industry?
- Can you give examples of different types of waste that are generated in dairy production?
- How can the dairy industry minimize waste and reduce its environmental impact?

Do

- Introduce the topics to be covered, including waste management concepts, solid waste, liquid waste, oily waste, waste minimization, process control, avoidable losses, surface deposits, and waste reduction.
- Highlight the importance of understanding different types of waste generated in the dairy industry and the strategies for waste minimization and reduction.
- Demonstrate some of the practical techniques that are relevant to the training session. For example, demonstrate how to properly dispose of manure or how to recycle milk jugs.

Elaborate

- Waste management is the process of collecting, transporting, treating, and disposing of waste materials.
- Solid wastes are materials that are not liquids or gases. They can include manure, bedding, food waste, and packaging materials.

- Liquid wastes are wastewater that is generated from dairy operations. It can include manure wash water, milk wash water, and cleaning water.
- Oily wastes are materials that contain oil or grease. They can include used oil, grease, and solvents.
- The waste released in the air, either in a gaseous state or in the form of volatile vapours, is termed Gaseous waste. The odious fume from the chimney, which consists of various gases like CO2 and CO, pollutes the environment to a great extent. Refrigerant leakage from pipe lines of the compressors is an example of gaseous waste.
- Waste minimization is the process of reducing the amount of waste generated by a dairy operation. This can be done by a variety of methods, including:
  - Improving efficiency in production processes
  - Recycling and reusing materials
  - Composting organic waste
- Process control is using methods and procedures to ensure that dairy operations run efficiently and effectively. This can help reduce waste by preventing problems leading to waste generation, such as contamination and spoilage.
- Avoidable losses are losses that can be prevented by improving efficiency and reducing waste. These losses can include:
  - Milk that is spilled or wasted during production
  - Wastewater that is generated during production
  - Solid waste that is generated during production
- Surface deposits are accumulations of material on the surface of equipment and surfaces in dairy operations. These deposits can lead to contamination and spoilage, which can result in waste generation.
- There are many different ways to reduce waste in the production of paneer. Some of these methods include:
  - Using less water: Paneer is made by curdling milk with an acid, such as vinegar or lemon juice. This process requires a lot of water. One way to reduce water use is to use a smaller amount of milk.
  - Using less energy: The production of paneer also requires a lot of energy. One way to reduce energy use is to use a more efficient heating method.
  - Recycling waste products: Some of the waste products from the production of paneer, such as whey, can be recycled. Whey can be used to make other products, such as ricotta cheese or yoghurt.

Activity

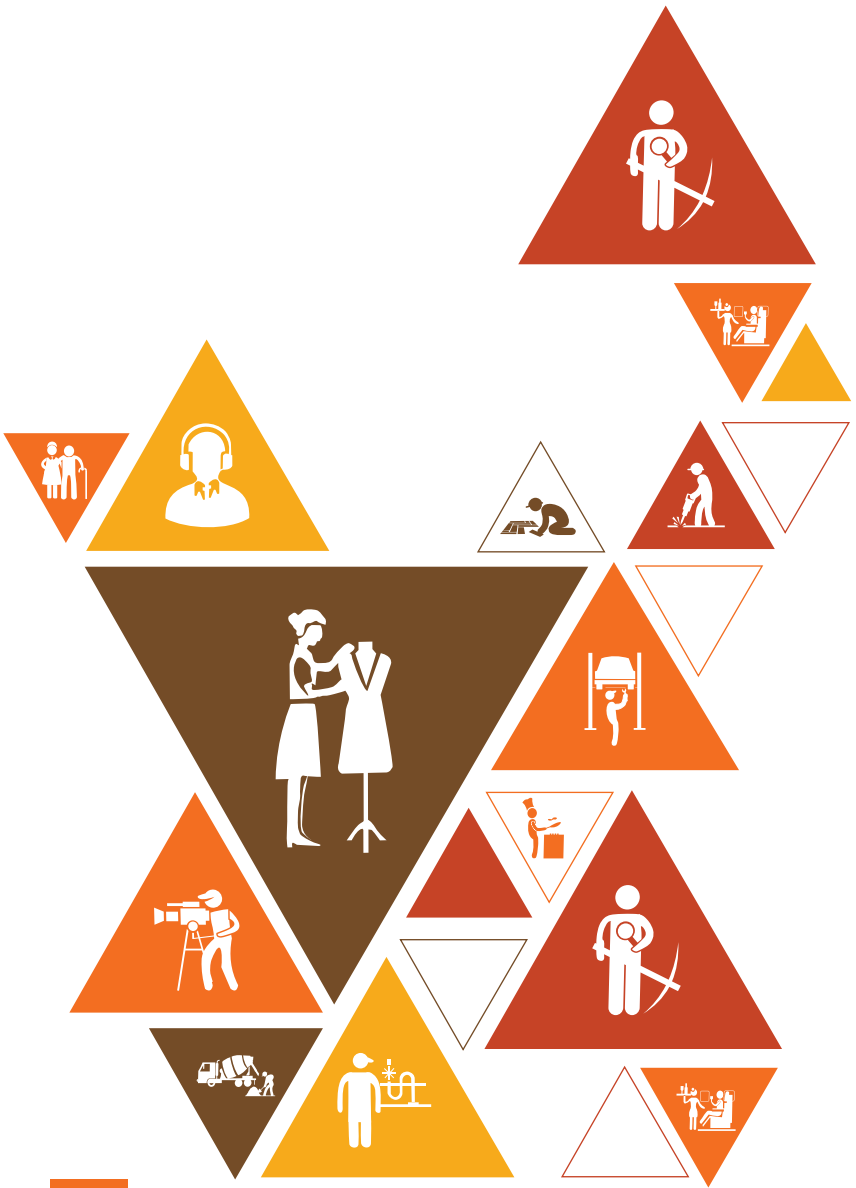
1. **Name of the activity: Waste Audit**
2. **Objective: To help participants identify the types and amounts of waste that are generated in their dairy operation.**
3. **Resources: Waste audit forms, clipboards, pens**
4. **Duration: 1 hour**
5. **Instructions:**
   - Divide the participants into groups of 2 or 3.
   - Give each group a waste audit form and a clipboard.
   - Instruct the groups to walk around the dairy operation and identify the types and amounts of waste that are generated.
   - Have the groups record their findings on the waste audit form.

- After the groups have completed their audits, have them share their findings with the class.
- Facilitate a group discussion on potential improvement opportunities based on the audit results. Encourage participants to brainstorm waste reduction ideas and develop an improvement plan.
- Instruct each group to visually represent their improvement plan on flipchart paper, including specific actions, responsibilities, and timelines.
- Have each group present their improvement plan to the rest of the participants and engage in a constructive feedback session.
- Wrap up the activity by summarizing key findings and emphasizing the importance of implementing waste reduction initiatives.

6. **Outcome:** Participants will gain practical experience conducting a waste audit, analysing waste management practices, and developing improvement plans for effective waste reduction.

Notes for Facilitation

- Be sure to keep the training session interactive. Ask questions and encourage the participants to share their ideas.
- Be patient and understanding. Some of the participants may not be familiar with waste management concepts.
- Emphasize the importance of regulatory compliance and adherence to environmental standards in waste management activities.
- Encourage the participants to share their waste reduction ideas with their colleagues.
- Conclude the session by summarizing key takeaways and providing additional resources or references for further learning on waste management.



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4. Carry Out Production of Cottage Cheese (Paneer)

Unit 4.1 - Machineries are Clean and in Good Working Conditions, and Controlling Parameters

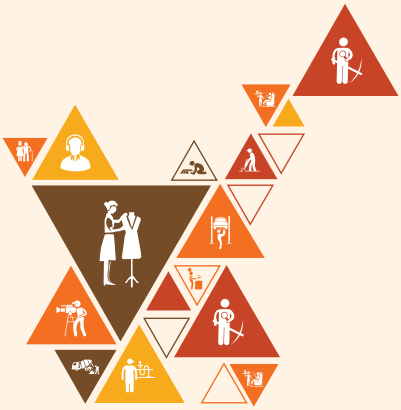
Unit 4.2 - Demonstrate Assembling of All Components of Machines, Production Sequence and Conduct a Pre-Check

Unit 4.3 - State The Working of Machineries Involved in the Production

Unit 4.4 - Demonstrate the Entire production of Paneer

Unit 4.5 - Packaging, Storage of Paneer and Analyze the Quality of The Finished Product

Unit 4.6 - Post-production Cleaning and Maintenance



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Key Learning Outcomes

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

1. List the different machineries involved in manufacturing of cottage cheese
2. State the working of machineries involved in the production
3. Demonstrate assembling of all components of machines
4. Perform a pre-check on all machineries
5. Demonstrate production of cheese
6. Analyze the quality of the finished product
7. Demonstrate cleaning of the machineries used with recommended sanitisers following the CIP (clean-in-place) procedure
8. Demonstrate cleaning of the equipment and tools used using recommended cleaning agents and sanitisers

Unit 4.1: Machineries are Clean and in Good Working Conditions, and Controlling Parameters

Unit Objectives

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

1. List various machineries used for manufacturing cottage cheese
2. Know how we can check machineries are in good working condition and clean
3. State how to check the machines are clean
4. Understand the importance of control parameters

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with Internet connection, PowerPoint presentation/handouts, Visual aids or examples of cottage cheese production machinery, Notebook, pen, etc.

Say

- Welcome participants to the session on "Machinery are Clean and in Good Working Conditions and Controlling Parameters" for cottage cheese production.
- In this session, we will learn about the different types of machinery used to produce cottage cheese.
- We will also learn about how to keep the machinery clean and in good working condition.

Ask

- Why is it important to ensure that the machinery used in cottage cheese production is clean and in good working condition?
- What control parameters need to be monitored during the production process?

Do

- Introduce the topics to be covered, including the machinery required for cottage cheese production, control parameters, factors affecting efficiency, plant operation efficiency, corrective measures, and ingredient requirements for paneer production.
- Highlight the importance of controlling parameters and understanding the factors affecting cottage cheese production's efficiency.
- Show the participants the different types of machinery and explain how they work.

Elaborate

- There are many different types of machinery that can be used in the production of cottage cheese. Some of the most common types of machinery include:
  - Pasteurizers
  - Homogenizers
  - Heat exchangers
  - Separators
  - Centrifuges
  - Mixers
  - Molding tanks
  - Cooling tanks
  - Packaging machines
- It is important to keep the machinery clean and in good working condition in order to produce high-quality cottage cheese.
- The machinery should be cleaned after each use and inspected regularly for signs of wear and tear.
- Any repairs that are needed should be made promptly.

Demonstrate

Demonstrate cottage cheese production machinery's cleaning and maintenance process, highlighting the key steps and best practices.

Activity

1. **Name of the Activity:** Parameter Monitoring and Adjustment
2. **Objective:** To engage participants in monitoring and adjusting control parameters in cottage cheese production.
3. **Resources:** Parameter monitoring sheet, pen or pencil, flipchart paper, markers.
4. **Duration:** 60-90 minutes.
5. **Instructions:**
   - Divide participants into small groups and provide each group with a parameter monitoring sheet.
   - Instruct each group to simulate a cottage cheese production process and monitor relevant control parameters at different stages.
   - Have each group record their observations and identify any deviations from desired parameter ranges.
   - Instruct each group to propose adjustment measures to bring the parameters back within the specified range.
   - Have each group present their findings and adjustment strategies to the rest of the participants.
   - Facilitate a discussion on the effectiveness of the proposed adjustments and encourage participants to share their insights and alternative solutions.
   - Summarize the activity by highlighting the importance of parameter monitoring and adjustment in maintaining product quality and production efficiency.

6. **Outcome:** Participants will gain practical experience in monitoring and adjusting control parameters in cottage cheese production and understand the significance of maintaining machinery cleanliness and functionality.

Notes for Facilitation

- Encourage active participation and collaboration among participants throughout the session and during the activity.
- Provide real-life examples and case studies related to cottage cheese production to illustrate the importance of machinery cleanliness, control parameters, and ingredient requirements.
- Emphasize the need for documentation and record-keeping to ensure traceability and compliance with quality standards.
- Foster a learning environment where participants can freely ask questions, share their experiences, and seek clarification on complex topics.
- Conclude the session by summarizing key takeaways and encouraging participants to apply the knowledge gained in their own work environments.

Unit 4.2: Demonstrate Assembling of All Components of Machines, Production Sequence and Conduct a Pre-Check

Unit Objectives

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

1. Demonstrate assembling of all components of machines
2. Explain the process of planning production sequence to maximize resource utilization

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, PowerPoint presentation/handouts, Visual aids or diagrams of cottage cheese production equipment, Samples of cottage cheese or related ingredients (optional)

Do

- Greet the participants and introduce the topics to be covered, including assembling machine components, the production sequence, and the concept of process loss.
- Highlight the importance of understanding the assembling of machine components, production sequence, and process loss in ensuring efficient and consistent cottage cheese production.

Ask

- Have you ever participated in or observed the production of cottage cheese? What aspects do you think are important for successful production?
- What do you think might be some challenges in assembling the components of cottage cheese production machines?

Elaborate

- The main components of a cottage cheese machine are the base, hopper, curdling unit, whey separator, and cheesecloth holder.
- The base of the machine provides a stable platform for the other components.
- The hopper holds the milk that will be used to make the cottage cheese.
- The curdling unit is where the addition of rennet curdles the milk.
- The whey separator is where the whey is separated from the curdled milk.
- The cheesecloth holder is where the curdled milk is drained.
- The main steps involved in making cottage cheese are:
    - Heating the milk to a simmer
    - Adding an acid to the milk

- Stirring the milk until it curdles
- Draining the whey
- Cutting the curds into cubes
- Serving the cottage cheese

- The acid in the milk causes the milk proteins to clump together, which forms the curds.
- The whey is the liquid that is left over after the curds have been drained.
- The curds are then cut into cubes and served.
- Process loss is the losses that occur while converting raw material into a finished product. Mishandling of raw materials/machinery may be the reason for such losses.

Explain

- Explain the importance of correctly assembling these components to ensure smooth operation and optimal product quality.
- Explain the common sources of process loss in cottage cheese production, such as whey, curd, and losses during packaging.

Demonstrate

Demonstrate the assembling process of cottage cheese production machines, focusing on properly aligning, connecting, and sealing components.

Activity

1. **Name of the Activity:** Cottage Cheese Production Simulation
2. **Objective:** To engage participants in a hands-on simulation of cottage cheese production.
3. **Resources:** Flipchart paper, markers, simulated ingredients (e.g., plastic balls representing curds and whey), timers, and weighing scale (optional).
4. **Duration:** 60-90 minutes.
5. **Instructions:**
   - Divide participants into small groups and assign each group a specific stage of cottage cheese production.
   - Provide each group with flipchart paper, markers, and simulated ingredients (plastic balls).
   - Instruct each group to simulate their assigned stage of cottage cheese production using the provided materials.
   - Have each group present their simulation to the rest of the participants, explaining the key steps, parameters, and challenges associated with their stage.
   - Facilitate a discussion on the interdependence of each production stage and the importance of coordination and communication.
   - Encourage participants to share their observations and insights on process efficiency and potential areas for improvement.

6. **Outcome:** Participants will gain practical experience in understanding the production sequence of cottage cheese and the challenges associated with assembling machine components. They will also develop an awareness of process loss and strategies to minimize it.

Notes for Facilitation

- Foster a collaborative learning environment by encouraging participants to share their experiences, ideas, and questions throughout the session.
- Use visual aids, diagrams, or samples of cottage cheese to enhance understanding and engagement.
- Ensure participants understand the safety considerations associated with working with machines and simulated ingredients during the activity.
- Provide clear instructions and allocate sufficient time for group discussions and presentations during the activity.
- Conclude the session by summarizing the key concepts covered and inviting participants to reflect on how they can apply their learnings to real-world cottage cheese production scenarios.

Unit 4.3: State The Working of Machineries Involved in the Production

Unit Objectives

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

1. Define pasteurization
2. State the production procedure of pasteurization
3. State the different types of pasteurization methods
4. State the process of HTST pasteurization
5. Demonstrate the process of HTST pasteurization
6. State the importance of the standardization process
7. Explain the method for standardizing milk to desired fat and SNF levels
8. Explain the various calculations required for the standardization of cream
9. State the need for homogenization in milk
10. State the method of homogenization of milk

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, PowerPoint presentation/handouts on the working of machinery involved in the production, Visual aids or diagrams of pasteurizers, filtration systems, and homogenizers, Samples of milk products (optional)

Say

- Welcome participants to the session on the "Working of Machineries Involved in Production."
- In this session, we will learn about the process of pasteurization and its importance in dairy production.

Ask

- Why is pasteurization important in the dairy industry? What are some potential drawbacks or challenges associated with pasteurization?
- What are the different types of pasteurization?

Elaborate

- Pasteurization is a process that kills harmful bacteria in milk. The process involves heating milk to a high temperature for a short period of time. The high temperature kills the harmful bacteria but does not destroy the nutrients in the milk. Pasteurized milk is safe to drink and has a longer shelf life than raw milk.

- Pasteurization is important for several reasons. First, it helps to prevent foodborne illness. Second, it helps to extend the shelf life of milk. Third, it can improve the taste and texture of milk.
- There are a few drawbacks to pasteurization. First, it can destroy some of the nutrients in milk. Second, it can change the taste and texture of milk. Third, it can kill some of the beneficial bacteria in milk.
- Types of Pasteurization Method:
  - Low-temperature long time (LTLT) pasteurization involves heating milk to 145 degrees Fahrenheit for 30 minutes.
  - High-temperature short time (HTST) pasteurization involves heating milk to 161 degrees Fahrenheit for 15 seconds.
- A pasteurizer is a machine that is used to pasteurize milk. Pasteurizers come in a variety of sizes and types. Some pasteurizers are designed for home use, while others are designed for commercial use.
- Filtration and Clarification:
  - Before milk is pasteurized, it is often filtered and clarified. Filtration removes any dirt or debris from the milk. Clarification removes any cloudiness from the milk.
- Working of HTST Pasteurizer
  - An HTST pasteurizer works by heating milk to 161 degrees Fahrenheit for 15 seconds. The milk is then cooled immediately to stop the cooking process.
- Preparing the pasteurizer for production
  - Before using a pasteurizer, it is important to prepare it properly. This includes cleaning the pasteurizer and checking the seals.
- Steps for starting the pasteurizer
  - Fill the pasteurizer with milk.
  - Set the temperature and time.
  - Turn on the pasteurizer.
  - Steps for shutting down the plant
- To shut down a pasteurizer, you will need to:
  - Turn off the pasteurizer.
  - Drain the milk from the pasteurizer.
  - Clean the pasteurizer.
- Maintenance of Milk Pasteurizers
  - Milk pasteurizers must be maintained regularly to ensure they are working properly. This includes cleaning the pasteurizer, checking the seals, and replacing any worn parts.
- Efficiency of Pasteurization
  - The efficiency of pasteurization depends on the type of pasteurization that is used. LTL pasteurization is less efficient than HTST pasteurization.
- Standardization of Milk
  - Milk can be standardized to adjust the fat and protein content. This is done by adding or removing milkfat or milk solids.
- Pearson's Square for Milk Standardization
  - Pearson's square is a tool that can be used to calculate the amount of milkfat or milk solids that need to be added or removed to standardize milk.
- Process for separating and storing cream and skim milk
  - Cream can be separated from milk by using a centrifuge. Skim milk can be made by removing the cream from the milk.

- Homogenization of Milk
  - Homogenization is a process that breaks down the fat globules in milk. This makes the milk more uniform and prevents the fat from separating.
  - Homogenization can destroy some of the nutrients in milk. It can also make the milk taste thinner and less creamy.

Demonstrate

- Demonstrate the working of an HTST pasteurizer, highlighting the steps involved in starting, operating, and shutting down the equipment.
- Alternatively, use visual aids or videos to demonstrate the process.

Practical

1. **Name of the Activity:** Pasteurization Experiment
2. **Objective:** To demonstrate the effectiveness of pasteurization in killing harmful bacteria.
3. **Resources:** Pasteurizer, Raw milk, Pasteurized milk, Petri dish, Agar, Incubator
4. **Duration:** 1 week
5. **Instructions:**
   - Label two Petri dishes, one “raw milk” and one “pasteurized milk.”
   - In each petri dish, add 10 mL of milk.
   - Add 10 mL of agar to each petri dish.
   - Incubate the Petri dishes at 37 degrees Celsius for 1 week.
6. **Outcome:**
   - The petri dish with the raw milk will have visible bacteria growth.
   - The petri dish with pasteurized milk will not have visible bacteria growth.

Team Activity

1. **Name of the activity:** Milk Standardization Exercise
2. **Objective:** To practice milk standardization using the Pearson’s Square method.
3. **Resources:** Handouts with milk composition data, Pearson’s Square formula, calculators, and pencils.
4. **Duration:** 30 minutes
5. **Instructions:**
   - Divide participants into groups of 3-4.
   - Provide each group with the handouts and necessary resources.
   - Assign each group a different set of milk compositions to standardize.
   - Instruct participants to use the Pearson’s Square formula to calculate the required quantities of milk with different fat contents.
   - Encourage groups to discuss and collaborate to find the correct proportions and achieve the desired standardized milk composition.

- Allocate sufficient time for calculations and discussions.
- Once groups have completed the standardization exercise, ask them to present their results and explain their reasoning.
- Facilitate a discussion on the challenges encountered during the activity and the importance of accurate milk standardization in dairy product manufacturing.

6. **Outcome:** Participants will gain practical experience in milk standardization and understand the significance of accurate calculations for achieving desired product specifications.

Notes for Facilitation

- Encourage active participation and discussions among participants throughout the session.
- Use visual aids, diagrams, or samples of milk products to enhance understanding and engagement.
- Provide clear instructions and allocate sufficient time for group discussions and presentations during the activity.
- Address any questions or concerns raised by participants and offer clarifications as needed.
- Summarize the key concepts covered and encourage participants to reflect on how they can apply their learnings in their respective dairy production processes.

Unit 4.4: Demonstrate the Entire production of Paneer

Unit Objectives

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

1. Know the process flow chart of paneer
2. State the method of preparation

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, PowerPoint presentation/handouts, Visual aids or diagrams of paneer manufacturing equipment, Samples of paneer or paneer-making ingredients (optional)

Do

- Greet the participants and welcome them to the session on the "Production of Paneer."
- Explain that the objective of this session is to teach them how to produce paneer.
- Introduce the topics to be covered, including the overall procedure of paneer production and the detailed process of manufacturing, covering each step and the relevant equipment involved.
- Emphasize the importance of following the correct procedure and maintaining hygiene throughout the paneer manufacturing process.

Ask

- Have you ever made paneer before? What do you think are the key steps and factors to consider for producing high-quality paneer?
- What are some dishes that you can make with paneer?
- What are some common challenges or potential issues that can arise during the paneer manufacturing process?

Elaborate

- The procedure of Paneer Production:
  - Provide a brief overview of the entire paneer production process from start to finish, highlighting the key steps and equipment involved.
  - Explain the importance of maintaining cleanliness and hygiene at each stage to ensure the safety and quality of the final product.
- Process Detail of Paneer Manufacturing:
  - Describe each step of the paneer manufacturing process in detail, including:

- Testing of raw milk: Explain the significance of testing milk quality and the parameters typically assessed.
- Plate chiller: Discuss its role in cooling the milk and ensuring rapid temperature reduction.
- Raw Milk Silo: Explain its purpose in storing and maintaining the quality of raw milk.
- Bactofuge: Describe its function in removing bacteria and other impurities from milk.
- Cream Separator: Discuss its use in separating cream from milk, which is important for paneer production.
- Pasteurization: Explain the process of pasteurizing milk to eliminate harmful bacteria and extend shelf life.
- Receiving milk in a multipurpose vat: Describe the step of transferring the pasteurized milk to a suitable vat for further processing.
- Preparation of Acid Coagulation: Discuss the addition of acid (usually lemon juice or vinegar) to coagulate the milk proteins.
- Formation of curd: Explain how the milk coagulates and forms curds under controlled conditions.
- Sideline the curd: Describe the process of cutting and stirring the curd to facilitate whey separation.
- Straining with muslin cloth: Explain the use of muslin cloth or cheesecloth to strain the curds and remove excess whey.
- Hooping: Discuss the process of transferring the strained curds into hoops or molds for shaping.
- Pneumatic Press: Explain the use of a press to apply pressure and further remove whey from the curds.
- Cooling: Describe the step of cooling the pressed paneer to set its texture and firmness.
- Paneer Slicer: Discuss the equipment used for slicing paneer into desired shapes and sizes.
- Manual slicing: Explain the process of manually slicing paneer, if no specialized slicer is available.
- Convening and draining of extra moisture: Describe the method of draining excess moisture from the paneer blocks.

o Discuss the importance of labelling and packaging information on paneer products.

Practical

1. **Name of the Activity:** Paneer Making
2. **Objective:** To demonstrate the process of making paneer.
3. **Resources:** Raw milk, Acidifier (citric acid or lemon juice), Salt, Muslin cloth, Bowl, Cutting board, Knife, Pan, Water, Ice, Weighing scale, Thermometer, Timer
4. **Duration:** 1 hour
5. **Instructions:**
   - Start by weighing the raw milk. You will need 1 litre of milk for every 500 grams of paneer you want to make.
   - Heat the milk in a pan over medium heat until it reaches 85 degrees Celsius.
   - Remove the pan from the heat and add the acidifier. Stir until the milk curdles.
   - Let the curds sit for 5 minutes.
   - Line a bowl with a muslin cloth.
   - Pour the curds into the muslin cloth-lined bowl.

- Gather the corners of the muslin cloth and tie them together to form a bag.
- Suspend the bag in a bowl of cold water.
- Let the paneer drain for 30 minutes.
- Once the paneer has drained, remove it from the muslin cloth and cut it into cubes.

6. **Outcome:** The trainees will get a hands-on experience of making paneer (cottage cheese)

Activity

1. **Name of the Activity:** Paneer Quality Assessment
2. **Objective:** To assess the quality and characteristics of different paneer samples.
3. **Resources:** Samples of paneer from different sources, evaluation sheets, and pens/pencils.
4. **Duration:** 30 minutes.
5. **Instructions:**
   - Divide participants into small groups.
   - Provide each group with different samples of paneer obtained from various sources or manufacturers.
   - Instruct participants to evaluate the samples based on specific quality parameters such as texture, taste, aroma, and appearance.
   - Ask participants to record their observations and rate each sample on a scale of 1-5 (1 being poor and 5 being excellent) for each parameter.
   - Encourage group discussions to share opinions, compare findings, and reach a consensus on the quality of the paneer samples.
   - Allocate sufficient time for evaluation and discussion.
   - Once groups have completed their assessments, facilitate a group discussion on the findings and identify common factors contributing to good or poor-quality paneer.
   - Summarize the key quality indicators of paneer and discuss how these parameters can be controlled during the manufacturing process.
6. **Outcome:** Participants will develop an understanding of the key quality parameters in paneer and gain practical experience in assessing and evaluating paneer samples.

Notes for Facilitation

- Encourage active participation and discussion among participants throughout the session and activity.
- Use visual aids, diagrams, or samples of paneer to enhance understanding and engagement.
- Provide clear instructions and allocate sufficient time for group discussions and evaluations during the activity.
- Address any questions or concerns raised by participants and offer clarifications as needed.
- Summarize the key concepts covered and encourage participants to reflect on how they can apply their learnings to improve paneer production or quality control processes.

Unit 4.5: Packaging, Storage of Paneer and Analyze the Quality of The Finished Product

Unit Objectives

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

1. Enlist the method of packaging and storing paneer
2. Understand the quality parameter for paneer

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, PowerPoint presentation/handouts, Samples of different packaging materials used for paneer, Visual aids or diagrams of vacuum packaging equipment, Quality analysis tools (sensory evaluation sheets, pH strips, etc.)

Say

- Welcome participants to the session on "Packaging, Storage of Paneer, and Quality Analysis."
- In this session, we will learn about the process of packaging paneer.

Ask

- What are the key factors to consider when selecting packaging materials for paneer? How do different packaging materials impact the shelf life and quality of paneer?
- Have you encountered vacuum packaging before? What do you think are the advantages of vacuum packaging for paneer or other perishable food products?

Elaborate

- Packaging Materials Used for Packing Paneer:
  - Different packaging materials are commonly used for paneers, such as polyethylene bags, plastic containers, or vacuum-sealed pouches.
  - Characteristics, advantages, and limitations of each packaging material.
  - Importance of selecting packaging materials that provide a suitable barrier against moisture, oxygen, and microbial contamination.
- Vacuum Packaging:
  - The process of vacuum packaging involves removing air from the package to create a vacuum seal.
  - The benefits of vacuum packaging for paneers include extended shelf life, preservation of texture and flavour, and prevention of spoilage.

- Coding and Labelling of Packaging Material:
  - Significance of coding and labelling on packaging materials for paneer.
  - Information that should be included on the packaging, such as manufacturing date, batch number, expiry date, ingredients, and nutritional information.
  - Importance of accurate and legible coding and labelling for traceability and consumer information.
- Quality Analysis of Finished Product:
  - The following factors can assess the quality of the finished product:
    - Appearance: The paneer should be white and smooth.
    - Texture: The paneer should be firm and not crumbly.
    - Taste: The paneer should have a mild, milky flavour.
    - Smell: The paneer should have a fresh, milky smell.
  - If the paneer does not meet these standards, it may be due to one of the following factors:
    - The milk was not fresh.
    - The milk was not heated to the correct temperature.
    - The acidifier was not added at the correct time.
    - The paneer was not drained for long enough.
    - If the paneer is not of good quality, it should not be consumed.

Demonstrate

Demonstrate practical examples of packaging paneer using different materials and techniques. Alternatively, use visual aids or videos to showcase the process of vacuum packaging.

Activity

1. **Name of the Activity:** Paneer Packaging
2. **Objective:** To teach the trainees how to package paneer.
3. **Resources:** Plastic containers, Vacuum sealer, Printer, Labelling materials
4. **Duration:** 30 minutes.
5. **Instructions:**
   - Cut the paneer into cubes.
   - Place the cubes in plastic containers.
   - Vacuum seal the containers.
   - Label the containers with the date and contents.
6. **Outcome:** The trainees will be able to package paneer for storage.

Activity

1. **Name of the Activity:** Sensory Evaluation of Paneer
2. **Objective:** To assess the sensory attributes and quality of different paneer samples.
3. **Resources:** Paneer samples with varying attributes, sensory evaluation sheets, and pens/pencils.
4. **Duration:** 30 minutes.
5. **Instructions:**
   - Divide participants into small groups.
   - Provide each group with different paneer samples (varying in terms of texture, taste, or appearance).
   - Instruct participants to evaluate the sensory attributes of the paneer samples based on predetermined criteria (e.g., taste, texture, aroma, appearance).
   - Ask participants to record their observations and rate each attribute on a scale of 1-5 (1 being poor and 5 being excellent) for each sample.
   - Encourage group discussions to share opinions, compare findings, and reach a consensus on the sensory quality of the paneer samples.
   - Allocate sufficient time for evaluation and discussion.
   - Once groups have completed their assessments, facilitate a group discussion on the findings and identify common factors contributing to good or poor sensory quality in paneer.
   - Summarize the key sensory attributes and discuss how these parameters can be controlled during the manufacturing and packaging processes.
6. **Outcome:** Participants will develop an understanding of sensory evaluation and its role in assessing the quality of paneer. They will also gain practical experience in evaluating paneer samples based on sensory attributes.

Notes for Facilitation

- Encourage active participation and discussion among participants throughout the session and activity.
- Use visual aids, samples, and sensory evaluation sheets to enhance understanding and engagement.
- Provide clear instructions and allocate sufficient time for group discussions and evaluations during the activity.
- Address any questions or concerns raised by participants and offer clarifications as needed.
- Summarize the key concepts covered and encourage participants to reflect on how they can apply their learnings to improve packaging, storage, and quality analysis practices in paneer production.

Unit 4.6: Post-production Cleaning and Maintenance

Unit Objectives

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

1. Exhibit the post-production cleaning methodology for the work area and the machineries
2. Demonstrate cleaning the machineries used with recommended cleaning agents and sanitisers

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, PowerPoint presentation/handouts, cleaning supplies (cleaning agents, brushes, mops, etc.), Safety equipment (gloves, goggles, aprons, etc.), visual aids or images depicting different cleaning processes and areas

Say

- Welcome participants to the session on "Post Production Cleaning and Maintenance."
- In this session, we will learn about the post-production cleaning methodology for the work area and the machinery.

Ask

- Why is post-production cleaning important in a paneer making unit? What are the potential consequences of inadequate cleaning practices?
- What are some common challenges or areas of concern when it comes to cleaning work areas and machinery in a paneer making unit?

Elaborate

- Cleaning and maintenance is important to ensure the quality of the paneer. Paneer that is not properly cleaned and maintained can be contaminated with bacteria, which can make it unsafe to eat.
- Post-Production Cleaning Methodology for Work Area and Machineries:
  - Importance of maintaining a clean and hygienic work area to prevent cross-contamination and ensure food safety.
  - The step-by-step process for cleaning the work area, including removing debris, sanitizing surfaces, and following proper waste disposal practices.
  - Overview of the recommended cleaning methods for different types of machinery used in paneer production, emphasizing the importance of thorough cleaning to remove product residues and prevent bacterial growth.

Demonstrate

Demonstrate the proper cleaning techniques for different work areas and machinery components using visual aids or practical demonstrations. Show participants how to use appropriate cleaning agents and tools for effective cleaning.

Practical

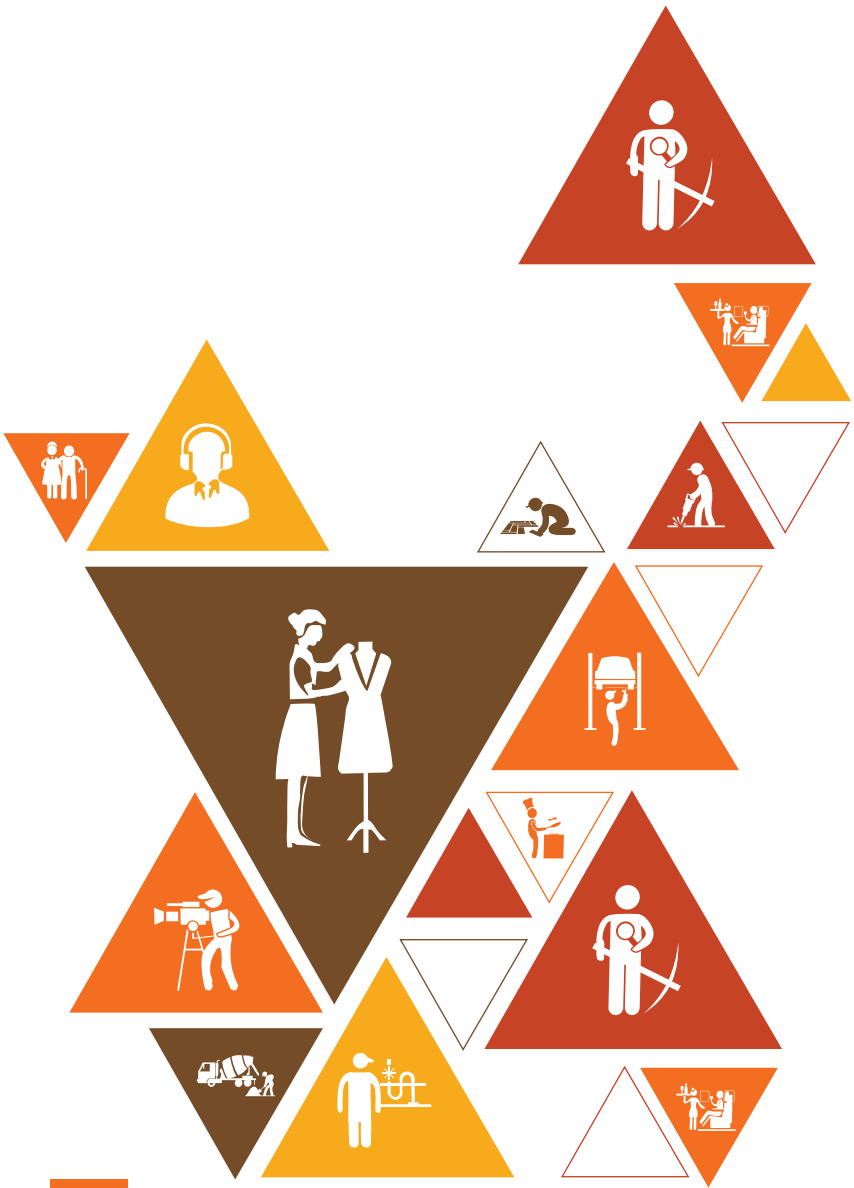
1. **Name of the activity:** Cleaning and Maintaining a Paneer Making Unit
2. **Objective:** To teach the trainees how to clean and maintain a paneer making unit.
3. **Resources:** Cleaning supplies, such as soap, water, and disinfectant; cleaning tools, such as brushes, sponges, and mops, Safety equipment, such as gloves and goggles, Equipment for cleaning and maintaining machinery, such as brushes, scrapers, and solvents
4. **Duration:** 30 minutes
5. **Instructions:**
   - Clean the work area. Sweep or mop the floor, and wipe down all surfaces.
   - Clean the machinery. Remove any food debris, and wipe down all surfaces with a damp cloth.
   - Disinfect the work area and machinery. Use a disinfectant solution to clean all surfaces.
   - Store the cleaning supplies and equipment in a safe place.
6. **Outcome:** The trainees will be able to clean and maintain a paneer making unit at home.

Team Activity

1. **Name of the activity:** Cleaning Schedule Development
2. **Objective of the activity:** To develop a cleaning schedule for a paneer making unit.
3. **Resources:** Flipchart paper, markers, cleaning supplies (visual representation).
4. **Time Duration:** 30 minutes
5. **Instructions:**
   - Divide participants into small groups.
   - Provide each group with flipchart paper and markers.
   - Instruct each group to create a cleaning schedule for a paneer making unit, considering the different work areas and machinery involved.
   - Ask participants to identify specific cleaning tasks, frequencies, and responsible personnel for each area or machine.
   - Encourage participants to consider factors such as cleaning agents, tools, and safety precautions while developing the schedule.
   - Allocate sufficient time for group discussions and schedule development.
   - Once groups have completed their cleaning schedules, ask them to present their plans to the whole class.
   - Facilitate a discussion on the different approaches taken by each group and highlight key considerations for an effective cleaning schedule.
6. **Outcome:** Participants will develop a comprehensive understanding of post-production cleaning methodologies and create a cleaning schedule suitable for a paneer making unit.

Notes for Facilitation

- Ensure participants understand the importance of proper cleaning and maintenance practices in a paneer making unit.
- Encourage active participation and discussions among participants throughout the session and activity.
- Use visual aids, images, or practical demonstrations to enhance the understanding of cleaning processes and methods.
- Emphasize the importance of safety protocols and the use of appropriate cleaning agents and tools.
- Summarize the key concepts covered and encourage participants to apply their learnings to develop or improve cleaning practices in their work environments.



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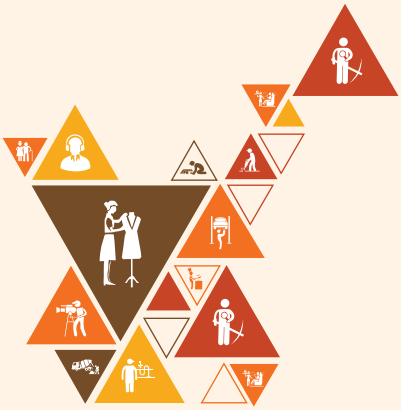
5. Complete Documentation and Record-Keeping Related to the Production of Cottage Cheese

Unit 5.1 - Documentation and Record-Keeping for Raw Material, and Finished Product

Unit 5.2 - Process of Documenting Record for Production Plan, Process Parameters, and Finished Products



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Key Learning Outcomes 

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

1. Documentation and Record-Keeping for Raw Materials and Finished Products
2. Process of Documenting Records for production plan, process parameters, and finished products

Unit 5.1: Documentation and Record-Keeping for Raw Material, and Finished Product

Unit Objectives

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

1. Explain the process of documenting and recording for the raw material, processed products, packaging material etc.
2. Exhibit the process of documenting records related to the procurement of raw materials, production plan, process parameters, and processed products

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with Internet connection, PowerPoint presentation/handouts, Visual aids or images depicting documentation processes, Notepads, Pens, etc.

Do

- Greet the trainees and welcome them to the training session.
- Explain that the objective of this session is to teach them about the importance of documentation and record-keeping for raw materials and finished products.
- Start by discussing the importance of documentation and record-keeping.
- Explain the different types of documentation and records that may be required, such as:
  - Incoming inspection reports
  - Production records
  - Quality control records
  - Shipping records
- Demonstrate how to create and maintain documentation and records.
- Answer any questions that the trainees may have.

Say

- Documentation and record-keeping is important for a number of reasons, including:
  - To ensure the quality of the product
  - To comply with regulations
  - To track the history of the product
  - To identify potential problems
  - To improve the production process

Elaborate

- Documentation and record-keeping are important for ensuring the quality of the product. By tracking the history of the product, it is possible to identify potential problems and take corrective action.
- Documentation and record-keeping are also important for complying with regulations. Many industries have regulations requiring companies to keep production processes records.
- Documentation and record-keeping can also be used to track the history of the product. This can be helpful for identifying potential problems and for improving the production process.

Explain

- Explain the reasons for maintaining documentation in a paneer production unit, including regulatory compliance, quality assurance, and traceability.
- Explain the specific records needed during the paneer preparation process, such as milk procurement details, coagulation time, curd cutting time, draining time, and packaging information.

Demonstrate

Demonstrate the process of recording essential information during paneer preparation using examples of record-keeping forms or templates. Show participants how to accurately fill out the required fields and explain the significance of each piece of information.

Activity

1. **Name of the activity:** Record-Keeping Practice
2. **Objective:** To practice documenting and record-keeping for paneer preparation.
3. **Resources:** Handouts with sample record-keeping forms, pens or pencils.
4. **Duration:** 30 minutes
5. **Instructions:**
    - Distribute handouts with sample record-keeping forms to each participant.
    - Explain the purpose and content of the record-keeping forms.
    - Instruct participants to imagine they are in a paneer production unit and have to record the relevant information during the paneer preparation process.
    - Ask participants to fill out the sample record-keeping forms based on the given scenario.
    - Allow sufficient time for participants to complete the exercise.
    - Facilitate a discussion on the completed forms, addressing any questions or concerns.
    - Highlight the importance of accuracy, completeness, and timeliness in record-keeping.
6. **Outcome:** Participants will gain practical experience in documenting and record-keeping for paneer preparation and understand the significance of accurate and organized records.

Notes for Facilitation

- Be patient and encouraging. The trainees may make mistakes, but that is part of the learning process.
- Emphasize the importance of maintaining confidentiality and security when handling sensitive information during the activity.
- Encourage participants to ask questions and seek clarification throughout the session.
- Use visual aids, images, or practical demonstrations to enhance understanding of documentation and record-keeping processes.
- Discuss real-life examples or case studies related to the documentation process.

Unit 5.2: Process of Documenting Record for Production Plan, Process Parameters, and Finished Products

Unit Objectives

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

1. Understand the term document, record and audit.
2. Understand what is meant by self-evaluation and review.
3. State process of documentation and record keeping.

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Projector or screen, PowerPoint presentation/handouts, Visual aids or images related to the different documentation categories, etc.

Do

- Greet the trainees and welcome them to the training session.
- Explain that the objective of this session is to teach them about the process of documenting records for production plans, process parameters, and finished products.
- Start by discussing the importance of documentation and record-keeping.
- Explain the different types of documentation and records that may be required, such as:
  - Production plans
  - Process parameters
  - Finished product specifications
  - Inspection reports
  - Quality control records
  - Shipping records
- Demonstrate how to create and maintain documentation and records.

Say

- Documentation and record-keeping is important for a number of reasons, including:
  - To ensure the quality of the product
  - To comply with regulations
  - To track the history of the product

- To identify potential problems
- To improve the production process

- Documentation and record-keeping can also be used to track the history of the product. This can be helpful for identifying potential problems and for improving the production process.

Elaborate

- Self-evaluation and Review:
  - Concept of self-evaluation and review as a continuous improvement practice to assess the accuracy, completeness, and effectiveness of documentation and record-keeping processes.
  - Benefits of regular self-assessment, such as identifying gaps, addressing non-compliance, and implementing corrective actions.
- Documentation and Records:
  - Legal:
    - Importance of maintaining legal documentation, such as licenses, permits, and regulatory compliance records, to ensure adherence to food safety and quality regulations.
  - Procurement/Quality:
    - Documentation and records related to raw material procurement, supplier details, quality specifications, and quality assurance processes.
  - Production/Processing:
    - Documentation requirements for production planning, process parameters, batch records, equipment maintenance logs, and standard operating procedures.
  - Cleaning, Sanitation, and Pest Control:
    - Documentation and records for cleaning schedules, sanitation procedures, pest control activities, and monitoring of hygiene practices.
  - HR/Manpower Related:
    - Documentation and records related to training records, employee qualifications, personnel hygiene practices, and staffing requirements.

Demonstrate

- Demonstrate the use of documentation forms or templates for different categories, such as batch records, cleaning checklists, or personnel training records.
- Show participants how to complete the forms accurately and explain the purpose of each section.

Activity

1. **Named of the activity:** Documentation Review and Improvement
2. **Objective of the activity:** To review existing documentation practices and identify areas for improvement.
3. **Resources:** Documentation samples or templates, pens or pencils, flipchart paper, and markers.
4. **Duration:** 45 minutes

5. **Instructions:**
   - Divide participants into small groups.
   - Distribute documentation samples or templates to each group.
   - Instruct each group to review the provided documentation and identify potential gaps, areas for improvement, or non-compliance with regulatory requirements.
   - Encourage participants to discuss and brainstorm ideas for enhancing documentation practices.
   - Ask each group to select one area for improvement and create an action plan or recommendations on how to address the identified issues.
   - Provide flipchart paper and markers for each group to record their findings and recommendations.
   - Allow sufficient time for group discussions and action plan development.
   - Ask each group to present their findings and recommendations to the rest of the participants.
   - Facilitate a discussion on common themes, best practices, and lessons learned from the activity.
6. **Outcome:** Participants will gain insights into documentation review processes, identify areas for improvement, and develop action plans to enhance documentation practices.

Notes for Facilitation

- Encourage active participation and collaboration among participants during group discussions and the activity.
- Provide guidance and support to groups as they review documentation and develop action plans.
- Use visual aids, images, or practical examples to reinforce key points and facilitate understanding of different documentation categories.
- Emphasize the importance of accuracy, completeness, and timeliness in the documentation and record-keeping processes.
- Relate the discussion and activity to real-life scenarios and challenges participants may encounter in their production environment.

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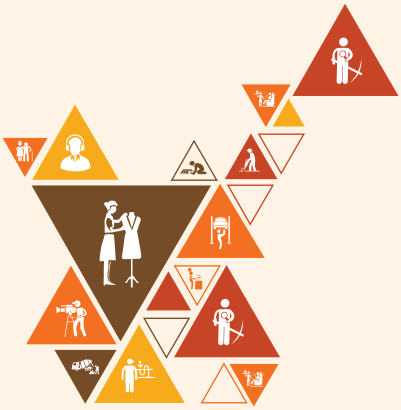
6. Food Safety, Hygiene and Sanitation for Cottage Cheese

Unit 6.1 - Importance of Food Safety (Good Manufacturing Practices)

Unit 6.2 - Risk Analysis Framework

Unit 6.3 - Hazard Analysis Critical Control Point (HACCP)

Unit 6.4 - Safety Practices



FIC/N9001

Key Learning Outcomes

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

1. Importance of Food safety (Good Manufacturing Practices (GMP))
2. HACCP Principles
3. Safety Practices

Unit 6.1: Importance of Food Safety (Good Manufacturing Practices)

Unit Objectives

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

1. Describe the significance of safety, hygiene, and sanitation in the industry
2. Follow the set standards to maintain a safe and hygienic workplace

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Projector or screen, PowerPoint presentation/handouts, Visual aids or images related to GMP principles and requirements, etc.

Ask

- Why is it important for food manufacturers to implement Good Manufacturing Practices (GMP)? What are the potential risks and consequences of neglecting GMP principles?
- Can you think of any examples of GMP requirements or practices that contribute to ensuring food safety and quality?

Do

- Greet the trainees and welcome them to the training session.
- Explain that this session aims to teach them about the importance of food safety and good manufacturing practices (GMP).
- Start by discussing the importance of food safety.
- Explain the different types of foodborne illnesses.
- Discuss the importance of GMP.
- Demonstrate how to implement GMP in a food production facility.
- Answer any questions that the trainees may have.

Elaborate

- Foodborne illness can be caused by a variety of things, including:
  - Bacteria
  - Viruses
  - Parasites
  - Chemicals

- GMP can help to prevent foodborne illness by:
  - Reducing the number of pathogens in food
  - Preventing cross-contamination
  - Maintaining proper food temperatures
- GMP is important for all food production facilities, regardless of size or type.

Demonstrate

- Demonstrate practical examples of GMP implementation, such as proper handwashing techniques, cleaning and sanitizing procedures, or equipment maintenance routines.
- Show participants the correct methods and explain the underlying principles.

Activity

1. **Name of the activity:** GMP Checklist Evaluation
2. **Objective:** To evaluate GMP compliance by using a checklist.
3. **Resources:** GMP checklist template, pens or pencils, flipchart paper, markers.
4. **Duration:** 30 minutes
5. **Instructions:**
   - Provide participants with a GMP checklist template or ask them to create one using the key GMP principles discussed.
   - Instruct participants to evaluate their manufacturing processes or hypothetical scenarios by completing the GMP checklist.
   - Encourage participants to be thorough and consider all relevant aspects of GMP compliance.
   - Allocate sufficient time for participants to complete the checklist individually or in small groups.
   - Once completed, ask participants to compare their findings and discuss any discrepancies or areas for improvement.
   - Facilitate a group discussion to share common findings, best practices, and strategies for enhancing GMP compliance.
   - Use flipchart paper to record key points and recommendations from the discussion.
6. **Outcome:** Participants will assess GMP compliance, identify potential areas for improvement, and exchange best practices for ensuring food safety through GMP.

Notes for Facilitation

- Create a supportive and open learning environment, encouraging participants to share their experiences, challenges, and insights related to GMP implementation.
- Use real-life examples or case studies to illustrate the importance of GMP and its impact on food safety and product quality.
- Provide clear explanations and practical demonstrations of GMP principles and requirements to enhance participant understanding.

- Foster active participation by inviting participants to share their perspectives, ideas, and questions throughout the session.
- Emphasize the importance of ongoing training, employee awareness, and a culture of accountability in maintaining GMP compliance.

Unit 6.2: Risk Analysis Framework

Unit Objectives

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

1. Explain the Risk Analysis Framework
2. State what is risk assessment
3. State Various terms related to Risk Assessment
4. Know the procedure of Risk Assessment
5. Define Food Safety Management System
6. State documentation

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Projector or screen, PowerPoint presentation/handouts, Visual aids or images related to risk analysis and assessment

Say

- Welcome participants to the session on the "Risk Analysis Framework." In this session, we will learn about the risk assessment framework and steps of risk assessment.
- Risk analysis is a process that is used to identify, assess, and control risks.
- The four steps of risk assessment are:
  - Hazard identification: This step involves identifying the potential hazards that could occur.
  - Risk assessment: This step involves evaluating the likelihood and severity of the hazards.
  - Risk control: This step involves implementing measures to reduce the likelihood and severity of the hazards.
  - Risk monitoring: This step involves monitoring the effectiveness of the risk control measures.

Ask

- Why is it essential for organizations to adopt a risk analysis framework? How does it contribute to proactive risk management?
- Can you provide examples of situations where risk analysis can be beneficial? What are the potential consequences of not conducting risk analysis?
- What do you think are the key steps involved in a risk assessment process? How do these steps contribute to a comprehensive risk analysis?

Elaborate

- Hazard identification is the first step in risk assessment. This step involves identifying all of the potential hazards that could occur. Hazards can be physical, chemical, biological, or ergonomic.
- Hazard Characterization is the second step in risk assessment. This step involves an assessment of the nature of the adverse health effects associated with the hazard.
- Exposure Assessment is the third step in risk assessment. It evaluates the levels of hazardous agents in food at the time of consumption. This may be actual or anticipated human exposure due to consumption.
- Risk Characterization is the forth step in risk assessment. It is the assessment of the nature of the adverse health effects associated with a hazard that may be present in foods

Explain

Explain that a typical risk analysis framework consists of multiple interconnected steps and methodologies tailored to the specific context and purpose of the analysis.

Activity

1. **Name of the activity:** Risk Assessment Scenarios
2. **Objective of the activity:** To practice the four steps of risk assessment using provided scenarios.
3. **Resources:** Risk assessment scenarios handout, pens or pencils, flipchart paper, markers.
4. **Time Duration:** 45 minutes
5. **Instructions:**
    - Distribute the risk assessment scenarios handout to participants.
    - Instruct participants to individually or in small groups perform a risk assessment for each scenario using the four steps discussed.
    - Encourage participants to thoroughly analyse the hazards, assess risks, and propose appropriate risk management strategies.
    - Allocate sufficient time for participants to complete the risk assessment for each scenario.
    - Once completed, ask participants to share their findings and recommendations with the larger group.
    - Facilitate a group discussion to compare different approaches, discuss challenges encountered, and identify key takeaways from the activity.
    - Use flipchart paper to record common findings, best practices, and lessons learned from the discussion.
6. **Outcome:** Participants will gain hands-on experience in applying the four steps of risk assessment and develop their ability to identify and manage risks effectively.

Notes for Facilitation

- Encourage active participation and collaboration among participants during the activity to promote diverse perspectives and learning from one another.
- Provide clear instructions and clarify participants' questions or concerns about the risk assessment process.
- Use real-life examples or case studies to illustrate the application of risk analysis frameworks in different industries or contexts.
- Emphasize the importance of considering both qualitative and quantitative factors in risk assessment to ensure a comprehensive analysis.
- Highlight the iterative nature of risk analysis and the need for continuous review and improvement of risk management strategies.

Unit 6.3: Hazard Analysis Critical Control Point (HACCP)

Unit Objectives

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

1. Know the obligation of HACCP
2. Follow HACCP principles in the workplace

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Projector or screen, PowerPoint presentation/handouts, Notepads, Pens, etc.

Say

- Welcome participants to the session on "Hazard Analysis Critical Control Point (HACCP)."
- HACCP is a systematic approach used to identify, assess, and control food safety hazards throughout production.

Do

- Introduce the concept of HACCP as a preventive system that focuses on critical control points to ensure the production of safe and quality food products.
- Emphasize the necessity of HACCP in the food industry, regulatory compliance, and consumer protection.

Ask

- Why is it important for food businesses to implement HACCP? What are the potential benefits of adopting a HACCP system?
- Can you provide examples of food safety hazards that can be effectively addressed through HACCP? How does HACCP contribute to risk mitigation and prevention?
- What do you think are the key steps involved in implementing HACCP? How does each step contribute to the overall effectiveness of the system?

Elaborate

- What is HACCP?
    - Definition and overview of HACCP as a systematic approach to identifying, assessing, and controlling food safety hazards.

- Key principles of HACCP, include hazard analysis, determination of critical control points, the establishment of critical limits, monitoring procedures, corrective actions, verification, and record-keeping.

- The necessity of HACCP:
  - Discuss the importance of HACCP in ensuring food safety, preventing foodborne illnesses, and complying with regulatory requirements.
  - Highlight the role of HACCP in building consumer trust, enhancing product quality, and reducing the risk of product recalls or legal liabilities.
- Application of HACCP system for milk and milk products:
  - Explain how HACCP principles are specifically applied in the production of milk and milk products.
  - Discuss common food safety hazards associated with milk processing and the critical control points for their control.
- HACCP Implementation Steps:
  - Provide a step-by-step explanation of the HACCP implementation process, including:
    - Conducting a hazard analysis
    - Determining critical control points (CCPs)
    - Establishing critical limits
    - Establishing monitoring procedures
    - Establishing corrective actions
    - Establishing verification procedures
    - Establishing record-keeping and documentation systems
- HACCP plan shall include the following information for each identified CCP:
  - Explain the information that should be included in the HACCP plan for each identified critical control point, such as the hazard description, critical limits, monitoring methods, corrective actions, and verification procedures.
- Records to include:
  - Discuss the importance of maintaining accurate and complete records in HACCP implementation.
  - Explain the types of records that should be included, such as monitoring, corrective action, verification, and training records.

Demonstrate

Demonstrate practical examples of HACCP implementation, including conducting hazard analysis, determining critical control points, and establishing monitoring and corrective action procedures.

Activity

1. **Name of the activity:** HACCP Plan Development
2. **Objective:** To develop a HACCP plan for a specific food product.
3. **Resources:** HACCP plan template, pens or pencils, flipchart paper, markers.
4. **Duration:** 60 minutes

5. **Instructions:**
   - Divide participants into small groups and provide each group with a HACCP plan template.
   - Assign a specific food product to each group (e.g., milk, cheese, yoghurt) for which they will develop a HACCP plan.
   - Instruct the groups to follow the steps of HACCP implementation to complete the HACCP plan template for their assigned food product.
   - Encourage participants to discuss and consider potential hazards, critical control points, critical limits, monitoring procedures, corrective actions, and verification methods.
   - Allocate sufficient time for groups to complete their HACCP plans.
   - Once completed, ask each group to present their HACCP plan to the larger group, highlighting the key elements and rationale behind their decisions.
   - Facilitate a group discussion to compare and evaluate different approaches, address questions or concerns, and reinforce key learnings.
6. **Outcome:** Participants will gain practical experience in developing a HACCP plan and understand the importance of considering specific hazards, control measures, and monitoring procedures for different food products.

Notes for Facilitation

- Encourage active participation and collaboration among participants during the activity to promote diverse perspectives and learning from one another.
- Provide guidance and support to groups as they develop their HACCP plans, ensuring they consider all necessary elements and align with HACCP principles.
- Emphasize the importance of applying the HACCP principles and steps in a systematic and thorough manner to ensure the effectiveness of the HACCP system.
- Discuss real-life examples of successful HACCP implementation and share case studies to illustrate the practical application of HACCP in various food industry sectors.
- Highlight the importance of regular review, updating, and verification of the HACCP plan to ensure its ongoing effectiveness and compliance with changing regulations or circumstances.

Unit 6.4: Safety Practices

Unit Objectives

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

1. Follow the safety practices while working in any industry

Resources to be Used

Participant handbook, Whiteboard, markers, Laptop/Computer with an Internet connection, Projector or screen, PowerPoint presentation/handouts, Notepads, Pens, Safety signs and posters, Images or illustrations of different types of fire, Fire extinguisher (for demonstration purposes), PASS technique video, etc.

Say

- Welcome participants to the session on "Safety Practices."
- This session will focus on essential safety practices and measures to ensure a safe work environment.

Ask

- What safety signs or symbols do you commonly encounter in your workplace or daily life? Why are these signs important?
- Have you ever witnessed or been involved in an emergency situation at work? How was it handled? What measures were taken to ensure safety?

Elaborate

- Safety Signs:
  - Purpose and significance of safety signs in the workplace.
  - Different types of safety signs include warning, mandatory, prohibition, and emergency signs.
  - Examples of commonly used safety signs and their meanings.
- Cause of Fire at Workplace:
  - Common causes of workplace fires include electrical faults, improper use of equipment, flammable materials, or human error.
  - Importance of fire prevention measures and the role of individual responsibility in maintaining a fire-safe environment.
- Types of Fire:
  - Different classes of fires (Class A, B, C, D, and electrical fires) and their characteristics.
  - Appropriate fire extinguishing agents and methods for each fire class.
- Fire Safety Practices:

- Essential fire safety practices include maintaining clear evacuation routes, properly storing flammable materials, regular inspection and maintenance of fire safety equipment, and conducting fire drills.
- Importance of early detection, timely reporting, and immediate response to fire incidents.

- Hazards Warning Signs:
  - Common hazards are warning signs, such as slippery floors, high voltage, biohazards, chemical hazards, etc.
  - Meaning of each sign and its relevance to workplace safety.
- Emergency Measures:
  - Emergency measures should be taken in various situations, such as fires, chemical spills, medical emergencies, and natural disasters.
  - Communication, evacuation procedures, and first aid knowledge in emergencies.
- Fire Safety Measures:
  - Fire safety measures, including installing and maintaining the fire, the significance of regular fire safety inspections and employee training programs.
- Fire Extinguisher:
  - Role of fire extinguishers in fire safety.
  - Different types of fire extinguishers and their appropriate uses.
  - Basic operation and handling of fire extinguishers.
- PASS Technique for Using Fire Extinguisher:
  - PASS technique (Pull, Aim, Squeeze, and Sweep) for using a fire extinguisher effectively.

Practical

1. **Name of the activity:** PASS Technique Demonstration
2. **Objective:** To practice and demonstrate the proper use of the PASS technique for using a fire extinguisher.
3. **Resources:** Fire extinguisher(s), safety signage, designated area for demonstration.
4. **Duration:** 30 minutes
5. **Instructions:**
   - Choose a designated area suitable for the practical demonstration, ensuring safety precautions are in place.
   - Gather participants around the demonstration area and explain the importance of the PASS technique for using a fire extinguisher effectively.
   - Demonstrate each step of the PASS technique (Pull, Aim, Squeeze, Sweep) using a fire extinguisher.
   - Allow participants to observe the demonstration closely and ask any clarifying questions.
   - Invite volunteers to practice the PASS technique under supervision, ensuring they follow proper safety measures.
   - Encourage participants to take turns practising the technique until they feel comfortable with the proper method.
   - Discuss key points and address any questions or concerns raised during the activity.
6. **Outcome:** Participants will gain hands-on experience using the PASS technique for a fire extinguisher, enhancing their ability to respond effectively in case of a small fire incident.

Do

- Use visual aids or presentation slides to provide an overview of the topics to be covered, including safety signs, causes and types of fires, fire safety practices, hazard warning signs, emergency measures, fire safety measures, fire extinguishers, and the PASS technique.
- Emphasize the importance of safety in the workplace, including the prevention of accidents, injuries, and property damage.
- Illustrate the fire safety practices that can be followed to prevent fires and protect workers in the event of a fire.

Team Activity

1. **Name of the activity:** Fire Safety Drill
2. **Objective:** To practice fire evacuation procedures and demonstrate proper response in a fire emergency.
3. **Resources:** Fire alarm system (if available), evacuation route maps, stopwatch or timer.
4. **Duration:** 30 minutes
5. **Instructions:**
   - Divide participants into groups and assign each group a specific area within the training venue.
   - Explain the fire safety drill procedure, emphasizing the importance of remaining calm and following evacuation routes.
   - Activate the fire alarm (or simulate the alarm) to initiate the drill.
   - Start the timer and observe how each group performs the evacuation process.
   - After the drill, gather participants for a debriefing session to discuss observations and improvements.
6. **Outcome:** Participants will practice fire evacuation procedures, enhance their understanding of emergency response, and identify areas for improvement in their organization's fire safety measures.

Notes for Facilitation

- Ensure a safe and controlled environment during the fire safety drill, and provide clear instructions to participants to avoid panic or confusion.
- Consider participants' physical abilities and any specific safety requirements when conducting the fire safety drill.
- Provide feedback and guidance during the drill debriefing session to reinforce correct practices and address any concerns or questions raised by participants.
- Emphasize the importance of regular fire safety training and drills in maintaining a safe workplace and complying with legal and regulatory requirements.
- Encourage participants to share their experiences and insights related to safety practices, fostering a culture of safety awareness and continuous improvement.
- Summarize key points at the end of each section.

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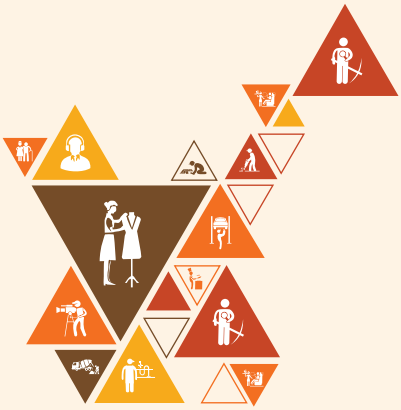
7. Employability Skills



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Employability Skills is available at the following location

https://www.skillindiadigital.gov.in/content/list

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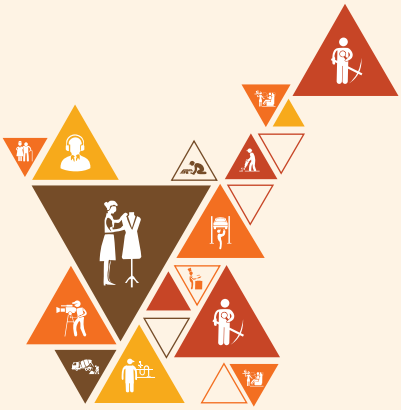
8. Annexures

Annexure I: Training Delivery Plan

Annexure II: Assessment Criteria

Annexure III: List of QR Codes Used in PHB



Annexure I

Training Delivery Plan

Training Delivery Plan			
Program Name:	Cottage Cheese Maker		
Qualification Pack Name & Ref. ID	Cottage Cheese Maker, FIC/Q2005		
Version No.	3.0	**Version Update Date**	30/09/2021
Pre-requisites to Training (if any)	NA		
Training Outcomes	**By the end of this program, the participants will be able to:** 1. Prepare and maintain work area and process machineries 2. Produce cottage cheese (Paneer) following specification and standards of the organization 3. Carry out documentation and record keeping related to production 4. Follow food safety and hygiene standards at workplace		

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
1	**Introduction to Training Program and Overview of Food Processing Industry**	**Exploring Dairy Processing and Milk Quality Standards**	• State the need for and importance of training program • Define food processing. • List the various sub sectors of food processing industry. • Define dairy processing. • List the various units within a dairy processing unit. • State the methods of testing milk for accepted quality standards • State the need for processing of milk • State the composition and nutritive value of milk	FIC/N2017	Classroom lecture/ PowerPoint Presentation/ Question & Answer and Group Discussion	White board/ Chart papers, marker.	4 Theory 04:00 Practical 00:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
2	**Prepare and maintain work area and process machineries for production of cottage cheese**	**Ensuring Clean and Safe Work Environments in Food Production**	• Describe the importance of cleanliness of the work area • Check if the work area is safe and hygienic for food production	FIC/N2017 PC1, PC2, KU1, KU2, KU3, KU7, KU11	Classroom lecture/ PowerPoint Presentation/ Question & Answer and Group Discussion	Laptop, white/black board, marker, chart papers, projector, Trainer's guide, Student manual, Homogenizer, Separator, Pasteurizer, Churner, Paneer Hooves, Paneer cutter Packaging Machines, Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual	8 Theory 02:00 Practical 06:00
		Maintaining Hygiene and Waste Management in Food Processing	• Check if the work area is cleaned using approved sanitizers • Check if the disposal of waste material is as per SOP	FIC/N2017 PC1, PC3, KU1, KU2, KU3, KU8, KU9, KU10, and KU11			8 Theory 02:00 Practical 06:00
		Ensuring Equipment Hygiene and Performance in Fruits and Vegetables Processing	• Check if the equipment are washed with approved sanitizers • Check the working and performance of all machineries and tools used for fruits and vegetables processing	FIC/N2017 PC1, PC 4, KU2, KU6, KU8, KU9, KU10			8 Theory 02:00 Practical 06:00
		Hygiene, Maintenance, and Equipment Care in Food Processing	• State the materials and equipment used in the cleaning and maintenance of the work area • Conduct minor repairs and faults in process machineries	FIC/N2017 PC1, PC5, PC7, KU8, KU9, KU10			8 Theory 02:00 Practical 06:00
		Effective Cleaning and Sanitization in Food Processing	• State the common detergents and sanitizers used in cleaning work area and machineries	FIC/N2017 PC1, PC5, KU2, KU8, KU9, KU10, KU11			8 Theory 02:00 Practical 06:00
		Machine Preparation and Tool Readiness in Food Processing	• Prepare the machines and tools required for production	FIC/N2017 PC1, PC2, PC5, PC6, KU1, KU2, KU3, KU5, KU6, KU8, KU9, KU10			8 Theory 03:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Exploring Maintenance Procedures	• State the different types of maintenance procedures	FIC/N2017 PC4, PC7, KU8, KU10			8 Theory 03:00 Practical 05:00
3.	**Organizational standards and norms**	**Workplace Conduct and Hygiene Practices for Cottage Cheese Production**	• Describe how to conduct yourself at the workplace. • State the roles and responsibilities of Cottage Cheese Maker • Describe the personal hygiene and sanitation guidelines to be followed at the workplace. • State the food safety hygiene standards followed • Demonstrate how to conduct yourself at the workplace.	FIC/N2018 PC1, PC2, PC3, PC6, PC31, PC33, KU2, KU3, KU5, KU6, KU8, KU11, KU12, KU18, KU19, KU20, KU21, KU22, KU23, KU24	Classroom lecture/ PowerPoint Presentation/ Question & Answer and Group Discussion	Laptop, white board, marker, chart papers, projector, trainer's guide and student handbook, protective gloves, head caps, aprons, safety goggles, safety boots, mouth masks, sanitizer, safety manual	8 Theory 03:00 Practical 05:00
		Standards and Practices in the Workplace	• Describe the organisation standards, process standards and procedures followed. • Describe the provision of wages and accident compensation as per organisation policy. • State the code of business conduct. • Describe the dress code to be followed. • State the types of raw materials, packaging materials used and finished products processed in the organization. • Demonstrate the procedure to be followed to implement	FIC/N2018 KU1, KU2, KU3, KU4, KU7, KU8, KU9, KU17, KU19, KU20, KU22, KU23, KU24			7 Theory 02:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			personal hygiene and sanitation guidelines at the workplace.				
4.	**Production of Cottage Cheese**	**Equipment preparation and operation**	• Explain the process of assembling fittings, valves, impeller shaft, and other parts to prepare equipment for operation. • Demonstrate the proper connection of pipes between holding tanks and process equipment. • Start and verify the working and performance of each process machinery.	FIC/N2018 PC1, PC2, PC 3, KU1, KU 5, KU 11, KU 12, KU13	Classroom lecture/ PowerPoint Presentation/ Question & Answer and Group Discussion	Laptop, white board, marker, chart papers, projector, trainer's guide and student handbook, Homogenizer, Separator, Pasteurizer, Churner, Paneer Hooves, Paneer cutter Packaging Machines, Protective Gloves, Head Caps, Lab Coat, Safety Goggles, Safety Boots, Mouth Masks, Sanitizer, Food Safety Manual	8 Theory 03:00 Practical 05:00
		Equipment sterilization and maintenance	• Describe the procedure for sterilizing process equipment by turning valves or pumping sterilizing solution and rinsing with water. • Conduct inspections to ensure cleanliness and mechanical condition of process machinery. • Explain the importance of regular equipment maintenance and conduct minor repairs or fault identification.	FIC/N2018 PC4, PC5, PC34, PC35, KU1, KU5, KU8, KU13, KU15, KU19, KU20, KU23			8 Theory 03:00 Practical 05:00
		Process parameters and quality control	• Interpret work orders and process charts to guide production activities.	FIC/N2018 PC6, PC8, PC18, PC9, KU 7, KU8, KU 9			8 Theory 03:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			• Follow quality parameters and physical checks to receive and assess the quality of raw materials like milk. • Set and control metering devices to allow the measured volume of milk for processing.				
		Paneer production steps	• Perform the steps involved in the production of paneer, including homogenization, pasteurization, coagulation, and whey separation. • Conduct cutting, shaping, and pressing operations to achieve desired paneer texture.	FIC/N2018 PC10, PC11, PC12, PC13, PC19, PC22, PC23, PC26, KU 5, KU 8, KU 9, KU 10			8 Theory 03:00 Practical 05:00
		Process monitoring and control	• Monitor dials and gauges, adjust steam valves, and follow temperature parameters to achieve desired process conditions. • Implement control measures to maintain process parameters during different production stages.	FIC/N2018 PC15, PC16, PC27, KU 11, KU 12, KU 13			8 Theory 03:00 Practical 05:00
		Packaging and labeling	• Package finished products by weighing, filling, sealing, and labeling according to specified quantities and details.	FIC/N2018 PC28, PC29, KU 18, KU 19			8 Theory 03:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			• Operate packaging machines, load materials, and set packaging parameters for efficient product packing.				
		Quality assurance and testing	• Collect samples of products from production and packaging lines and transfer them for quality analysis. • Report discrepancies and concerns to supervisors and implement suggested corrective actions.	FIC/N2018 PC30, PC31			8 Theory 03:00 Practical 05:00
		Importance of cleanliness and sanitation	• Demonstrate proper cleaning and sanitization techniques for work areas, equipment, and tools.	FIC/N2018 PC33, KU 15, KU 17			8 Theory 03:00 Practical 05:00
		Maintenance, schedules and procedures of machines	• Explain the importance of periodic maintenance and follow maintenance schedules for machines and equipment.	FIC/N2018 PC35, KU 13			8 Theory 03:00 Practical 05:00
		Workplace safety and hygiene	• Identify and follow safety protocols, including the use of personal protective equipment (PPE) and adherence to hygiene practices.	FIC/N2018 PC2, KU 8, KU 12, KU 19, KU 22			8 Theory 03:00 Practical 05:00
		Standard Operating Procedures	• Understand and adhere to standard operating procedures (SOPs) related to equipment operation,	FIC/N2018 PC1, PC5, PC7, PC10, PC14, PC33, KU1, KU5, KU8			8 Theory 03:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
			product quality, and workplace cleanliness.				
		Importance of quality control and regulatory compliance	• Describe the significance of adhering to quality standards and regulatory requirements in the food industry.	FIC/N2018 PC7, PC8, PC10, PC27, KU 23, KU 24			8 Theory 02:00 Practical 06:00
		Efficient inventory manage-ment and storage practices	• Explain the importance of proper storage conditions and stock rotation for raw materials and finished products.	FIC/N2018 PC14, PC16, PC32, KU18			8 Theory 02:00 Practical 06:00
		Improve-ment and prob-lem-solving	• Encourage employees to report discrepancies, concerns, and suggest corrective actions for process improvement.	FIC/N2018 PC31, KU5			8 Theory 02:00 Practical 06:00
		Product handling and pack-aging	• Acquire proficiency in handling and packaging finished products, ensuring proper weight, shape, and quality.	FIC/N2018 PC26, PC28, PC29			8 Theory 02:00 Practical 06:00
		Quality parameters and sensory evaluation	• Educate on the importance of sensory evaluation in determining product quality and meeting specifications.	FIC/N2018 PC21, PC27			8 Theory 02:00 Practical 06:00
		Good man-ufacturing practices (GMP) and quality con-trol systems	• Understand and follow GMP principles, quality control systems, and standard operating procedures for manufacturing food products.	FIC/N2018 PC8, PC12, PC33, KU 23			7 Theory 02:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
5.	**Complete Documentation and Record Keeping Related to Production of Cottage Cheese**	**Documentation and Record-Keeping Essentials**	• State the need for documenting and maintaining records of raw materials, processes and finished products.	FIC/N2019 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, KU1, KU3, KU5, KU7, KU8, KU9, KU10	Classroom lecture/ PowerPoint Presentation/ Question & Answer and Group Discussion	Laptop, white/black board, marker, chart papers, projector, Trainer's guide, Student manual, Food Safety Manual, Log Books	8 Theory 03:00 Practical 05:00
		Effective Documentation and Recording in Food Production	• State the method of documenting and recording the details of raw material to final finished product.	FIC/N2019 PC1, PC2, PC3, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, KU1, KU5, KU6, KU7, KU8, KU9, KU10			8 Theory 03:00 Practical 05:00
		Recording Production Plans, Process Parameters, and Finished Products (Part 1)	• Demonstrate the process of documenting records of production plan, process parameters, and finished products.	FIC/N2019 PC1, PC2, PC3, PC5, PC6, PC7, PC8, PC11, PC12, PC13, PC14, KU1, KU3, KU5, KU6, KU7, KU8, KU9, KU10			8 Theory 03:00 Practical 05:00
		Recording Production Plans, Process Parameters, and Finished Products (Part 2)	• Demonstrate the process of documenting records of production plan, process parameters, and finished products.	FIC/N2019 PC1, PC2, PC3, PC5, PC6, PC7, PC8, PC11, PC12, PC13, PC14, KU1, KU3, KU5, KU6, KU7, KU8, KU9, KU10			6 Theory 01:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
6.	**Food Safety, Hygiene and Sanitation**	**Safety First: Essential Work Area Practices**	• Demonstrate the safety practices to be followed in the work area.	FIC/N9001 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16 KU1, KU2, KU3, KU4, KU5, KU8, KU9, KU10, KU11, KU12, KU13, KU14, KU15, KU16, KU17, KU18, KU19, KU20, KU21, KU22	Classroom lecture/ PowerPoint Presentation/ Question & Answer and Group Discussion	Laptop, white/black board, marker, chart papers, projector, Trainer's guide, Student manual, Food Safety Manual, Log Books	8 Theory 03:00 Practical 05:00
		Maintaining Personal Hygiene in the Work Area	• Demonstrate the personal hygiene to be followed in the work area.	FIC/N9001 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16, KU1, KU8, KU10, KU11, KU12, KU13, KU14, KU15, KU16			8 Theory 03:00 Practical 05:00
		HACCP Principles for Food Safety Excellence	• Apply HACCP principles to eliminate food safety hazards in the process and products.	FIC/N9001 PC4, PC5, PC6, PC7, PC8, PC9, PC10, KU14, KU15, KU16, KU18, KU20			8 Theory 03:00 Practical 05:00

SL	Module Name	Session Name	Session Objectives	NOS	Methodology	Training Tools/Aids	Duration (hours)
		Safety, Hygiene, and Sanitation in the Food Industry	• State the importance of safety, hygiene and sanitation in the food industry. • Discuss about the industry standards to maintain a safe and hygiene workplace.	FIC/N9001 PC1, PC2, PC3, PC4, PC5, PC6, PC7, PC8, PC9, PC10, PC11, PC12, PC13, PC14, PC15, PC16, KU1, KU2, KU8, KU9, KU10, KU12, KU13, KU14, KU15, KU16			6 Theory 01:00 Practical 05:00
Total							**Theory 102:00** **Practical 198:00**
Employability Skill							**30:00**
OJT							**0:00**
Total Duration							**Theory + Practical + OJT + ES = 330:00**

Annexure II

Assessment Criteria

CRITERIA FOR ASSESSMENT OF TRAINEES

Assessment Criteria for Cottage Cheese Maker	
Job Role	**Cottage Cheese Maker**
Qualification Pack	**FIC/Q2005, V3.0**
Sector Skill Council	**Food Industry Capacity & Skill Initiative**

S. No.	Guidelines for Assessment
1	Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Element/ Performance Criteria (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 Element/ PC.
2	The assessment for the theory part will be based on knowledge bank of questions created by the SSC.
3	Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/ option NOS/set of NOS.
4	Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5	Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/ training center based on these criteria.
6	To pass the Qualification Pack assessment, every trainee should score the Recommended Pass % aggregate for the QP.
7	In case of unsuccessful completion, the trainee may seek reassessment on the Qualification Pack.

Assessable Outcomes	Assessment Criteria for Outcomes	Marks Allocation	
		Theory	Practical
FIC/N2017: Prepare and maintain work area and process machineries for production of cottage cheese	PC1. clean and maintain the cleanliness of the work area using approved sanitizers and keep it free from dust, waste, flies and pests	5	10
	PC2. ensure that the work area is safe and hygienic for food processing	8	12
	PC3. dispose waste materials as per defined SOPs and industry requirements	6	9
	PC4. check the working and performance of all machineries and tools used for production of cottage cheese such as filter, homogenizer, pasteurizer, cheese vat, paneer press, paneer cutter, packaging machines etc.	8	12
	PC5. clean machineries and tools used with recommended sanitizers following the SOP	4	6
	PC6. place the necessary tools required for process	1	4
	PC7. attend to the minor repairs/ faults of all machines, if required	3	12
	NOS Total	**35**	**65**
FIC/N2018: Production of cottage cheese (paneer)	PC1. assemble fittings, valves, impeller shaft and other parts to equipment to prepare for operation	0.5	1.5
	PC2. connect pipes between holding tanks and process equipment	0.5	1.5
	PC3. start each process machineries and ensure its working and performance	0.5	1.5

	PC4. turn valves or pump sterilizing solution and rinse by passing water through pipes to sterilize process equipment	0.5	1.5
	PC5. check and ensure all process machineries are clean and in good mechanical condition	0.5	1.5
	PC6. refer work order from the supervisor and refer process chart for product produced	1	1
	PC7. receive milk from the raw material storage area/warehouse/holding tanks	0.5	1.5
	PC8. check and conform the quality through physical parameters (like impurities, colour, appearance, temperature etc) and by verifying the quality report	1.5	2.5
	PC9. set and control metering devices to allow measured volume of milk for processing	1.5	2.5
	PC10. open valves to pass measured quantity of milk through filter to remove impurities	1.5	2.5
	PC11. set control parameters and open valves to allow milk into homogenizer to homogenize milk to achieve required fat content	2	3
	PC12. set steam pressure and temperature of the pasteurizer, turn valves to allow steam, observe pressure and temperature, and open valves to allow milk into pasteurizer for pasteurization of milk to kill microbes	2	3
	PC13. open valves to transfer pasteurized milk into cheese vat and start agitator to stir milk in vat	0.5	1.5
	PC14. turn valves to allow steam through cheese vat to heat milk to specified temperature following sop	0.5	1.5
	PC15. monitor dials and gauge, adjust steam valve to obtain and maintain process parameters, close steam valves on achieving required temperature	1.5	2.5
	PC16. open valves to pass water through vat to cool milk to required temperature	1	2
	PC17. measure milk coagulant (like citric acid) and prepare coagulant solution required for production of paneer, following SOP	1	2
	PC18. check temperature of milk to ensure it has reached the process temperature	1	2
	PC19. stop agitator, add measured quantity of coagulant solution into milk, and allow to stand until milk coagulate and separate into whey and cheese	1	2
	PC20. using ladle push cheese away from the drain valve of the vat	1	3
	PC21. open drain valves to drain whey from cheese (paneer), using ladle push and pile solid mass of cheese in vat, and check the quality through feel to ensure it has achieved desired firmness and texture	1.5	2.5
	PC22. transfer solid mass of cheese into hooves and turn wheel to apply pressure on cheese in hooves to remove whey (or)	1.5	2.5
	PC23. set controls of pneumatic paneer press and start machine to mechanically apply pressure to compress and remove whey from cheese	1.5	2.5
	PC24. using knife cut big blocks of cheese into smaller blocks and transfer into vat containing cold water and keep immersed for specified time following SOP	1.5	2.5
	PC25. open drain valves to drain cold water from vat (or) remove cheese from cold water and transfer to cutting table or paneer cutting machine	1	1
	PC26. cut cheese to required size and weight using knife (or) set controls of cheese cutting machine, load cheese (paneer) blocks on machine and start machine to cut paneer to desired shape and weight	1	2
	PC27. check the quality of finished products to ensure its specification to organisation and regulatory standards	1.5	1.5

	PC28. manually weigh the finished product, fill in the labelled packaging material and seal (or) start conveyor or manually transfer product(s) into packaging machine	0.5	1.5
	PC29. load packaging materials and labels in packaging machine, set packing quantity and labeling details, start machine to pack finished products	0.5	1.5
	PC30. sample products produced from production line and packed product from packaging line, and transfer to quality lab for analysis	1	1
	PC31. report discrepancies/concerns to department supervisor for immediate action and implement the suggested corrective action	1.5	1.5
	PC32. place packed and labelled products in cartons and transfer to storage area and store maintaining storage conditons following SOP	0.5	0.5
	PC33. clean the work area, equipments and tools using recommended cleaning agents and sanitizers	0.5	1.5
	PC34. attend minor repairs/faults (if any) of all components and machines	0.5	1.5
	PC35. ensure periodic (daily/weekly/monthly/quarterly/half yearly/annual) maintenance of all machines and equipment following the sop or following suppliers instructions/manuals	0.5	1.5
	NOS Total	**35**	**65**
FIC/N2019: Complete documentation and record keeping related to production of cottage cheese	PC1. document and maintain record of details of raw materials and packaging materials such as raw material type (milk form cow, buffalo etc), name of ingredients/chemicals used, vendor/supplier details, receiving date, supplier details, receiving date/ date of manufacture, expiry date, quality parameters of raw materials and ingredients/chemicals, supplier quality document, internal quality analysis report, etc. as per organisation standards	6	4
	PC2. document and maintain record on observations (if any) related to raw materials and packaging materials	3	2
	PC3. load the raw materials details in erp for future reference	3	2
	PC4. verify the documents and track from finished product to raw materials, in case of quality concerns and during quality management system audits	3	2
	PC5. document and maintain records of production plan with details such as product details, equipments and machinery details, efficiency and capacity utilization of equipment	6	4
	PC6. document and maintain records of process details such as type of raw material used, process parameters (temperature, time etc. as applicable) for entire production and packaging in process chart or production log for product produced	9	6
	PC7. document and maintain records of batch size, production yield, wastage of raw materials, energy utilization and final products produced	6	4
	PC8. document and maintain record of observations (if any) or deviations related to process and production	3	2
	PC9. load the production plan and process details in ERP for future reference	3	2
	PC10. verify documents and track from finished product to process details and raw materials, in case of quality concerns and for quality management system audits	3	2
	PC11. document and maintain records of the cottage cheese produced	3	2
	PC12. document and maintain records of the finished products details such as batch number, time of packing, date of manufacture, date of expiry, other label details, primary, secondary and tertiary packaging materials for all finished products, storage conditions, etc. as per organisation standards	3	2
	PC13. document and maintain record of observations or deviations (if any) related to finished products	3	2

	PC14. load the finished product details in ERP for future reference	3	2
	PC15. verify the documents and track from finished product to ingredients, in case of quality concerns and for quality management system audits	3	2
	NOS Total	**60**	**40**
FIC/N9001: Ensure food safety, hygiene and sanitation for processing food products	PC1. comply with food safety and hygiene procedures followed in the organization	2	3
	PC2. ensure personal hygiene by use of gloves, hairnets, masks, ear plugs, goggles, shoes, etc.	1	5
	PC3. ensure hygienic production of food by inspecting raw materials, ingredients, finished products etc. for compliance to physical, chemical and microbiological parameters	2	3
	PC4. pack products in appropriate packaging materials, label and store them in designated area, free from pests, flies and infestations	4	6
	PC5. clean, maintain and monitor food processing equipment periodically, using it only for the specified purpose	2	3
	PC6. use safety equipment such as fire extinguisher, eye wash unit, first aid kit when required	4	6
	PC7. follow housekeeping practices by having designated area for machines/ tools	2	3
	PC8. follow industry standards like GMP, HACCP and product recall process	4	6
	PC9. attend training on hazard management to understand types of hazards such as physical, chemical and biological hazards and measures to control andprevent them	1	4
	PC10. Identify, document and report problems such as rodents and pests to management	1	4
	PC11. conduct workplace checklist audit before and after work to ensure safety and hygiene	1	4
	PC12. document and maintain raw material, packaging material, process and finished products for the credibility and effectiveness of the food safety control system	1	3
	PC13. determine the quality of food using criteria such as odour, appearance, taste and best before date, and take immediate measures to prevent spoilage	2	3
	PC14. store raw materials, finished products and allergens separately to prevent cross contamination	2	3
	PC15. label raw materials and finished products and store them in different storage areas according to safe food practices	2	3
	PC16. follow stock rotation based on FEFO/FIFO	4	6
	NOS Total	**35**	**65**
DGT/VSQ/N0101: Employability Skills (30 Hours)	Introduction to Employability Skills	1	1
	PC1. understand the significance of employability skills in meeting the job requirements	-	-
	Constitutional values – Citizenship	1	1
	PC2. identify constitutional values, civic rights, duties, personal values and ethics and environmentally sustainable practices	-	-
	Becoming a Professional in the 21st Century	1	3
	PC3. explain 21st Century Skills such as Self- Awareness, Behavior Skills, Positive attitude, self-motivation, problem-solving, creative thinking, time management, social and cultural awareness, emotional awareness, continuous learning mindset etc.	-	-

	Basic English Skills	2	3
	PC4. speak with others using some basic English phrases or sentences	-	-
	Communication Skills	1	1
	PC5. follow good manners while communicating with others	-	-
	PC6. work with others in a team	-	-
	Diversity & Inclusion	1	1
	PC7. communicate and behave appropriately with all genders and PwD	-	-
	PC8. report any issues related to sexual harassment	-	-
	Financial and Legal Literacy	3	4
	PC9. use various financial products and services safely and securely	-	-
	PC10. calculate income, expenses, savings etc.	-	-
	PC11. approach the concerned authorities for any exploitation as per legal rights and laws	-	-
	Essential Digital Skills	4	6
	PC12. operate digital devices and use its features and applications securely and safely	-	-
	PC13. use internet and social media platforms securely and safely	-	-
	Entrepreneurship	3	5
	PC14. identify and assess opportunities for potential business	-	-
	PC15. identify sources for arranging money and associated financial and legal challenges	-	-
	Customer Service	2	2
	PC16. identify different types of customers	-	-
	PC17. identify customer needs and address them appropriately	-	-
	PC18. follow appropriate hygiene and grooming standards	-	-
	Getting ready for apprenticeship & Jobs	1	3
	PC19. create a basic biodata	-	-
	PC20. search for suitable jobs and apply	-	-
	PC21. identify and register apprenticeship opportunities as per requirement	-	-
	NOS Total	**20**	**30**

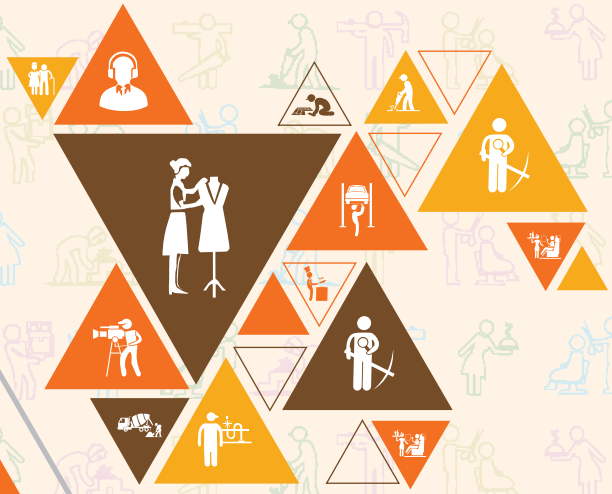
Annexure III

List of QR Codes Used in PHB

Sl.	Module No.	Page No. in PHB	URL	QR Code (s)
1	Introdioction to the Training Program and Overview of Food Processing Industry (FIC/N2017)	28	https://www.youtube.com/watch?v=Ta18d6JI03o	Packaging and storage of food
		28	h .youtube.com/watch?v =4Xu-vGYvKGnE&list=PL_ mT5DU_sm-K29UU-KvwC9W5NvCDivat-BA&index=5	Overview of Dairy Industry
		28	h .youtube.com/watch?v=sb-jL4ppSj9w&list=PL_ mT5DU_sm-K29UU-KvwC9W5NvCDivat-BA&index=11	Cottage Cheese Maker - Orienta-tion
2	Organizational standards and Norms (FIC/N2018)	52	https://www.youtube.com/watch?v=daNjRoP_I0c&t=87s	Personnel Hygiene and Em-ployee Facilities
		52	https://www.youtube.com/watch?v=v1ME8wBSXyk&list=PL_mT5DU_smK29UU-KvwC9W5N-vCDivatBA&index=14	Milk Nutritional Value

Sl.	Module No.	Page No. in PHB	URL	QR Code (s)
3	Carry out production of cottage cheese (Paneer) (FIC/N2018)	106	https://www.youtube.com/watch?v=Ta18d6JI03o	Packaging and storage of food
		106	https://www.youtube.com/watch ?v=Hcl3vld22CM	Storage of finished products
		106	https://www.youtube.com/watch?v=ra7rPlxvWHO&list=PL_mTSDU_smK29UU-KvwC9WSN-vCDivatBA&index=15	Packaging and storage of Milk Product
4	Complete documentation and record keeping related to production of cottage cheese (FIC/ N2019)	116	https://www.youtube.com/watch ?v=HesWbN FSQS4	Documentation and Record keeping
5	Food Safety, Hygiene and Sanitation for Cottage Cheese (FIC/N9001)	136	https://www.youtube.com/watch ?v=RS4A-uczS6E&t=554s	HP, GMP & HACCP

Sl.	Module No.	Page No. in PHB	URL	QR Code (s)
		136	https://www.youtube.com/watch?v=daNjRoP _I0c&t=87s	Personal Hygiene and employee facilities
6	Employability Skills (30 Hrs)		https://www.skillindiadigital.gov.in/content/list	



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