RWANDA POLYTECHNIC

TVET LEVEL II

AGRICULTURE

Food Safety and Sanitation

TRAINER MANUAL

RWANDA POLYTECHNIC

Approved by: Workforce Development Authority

USAID FROM THE AMERICAN PEOPLE

EDC Education Development Center

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Acknowledgements

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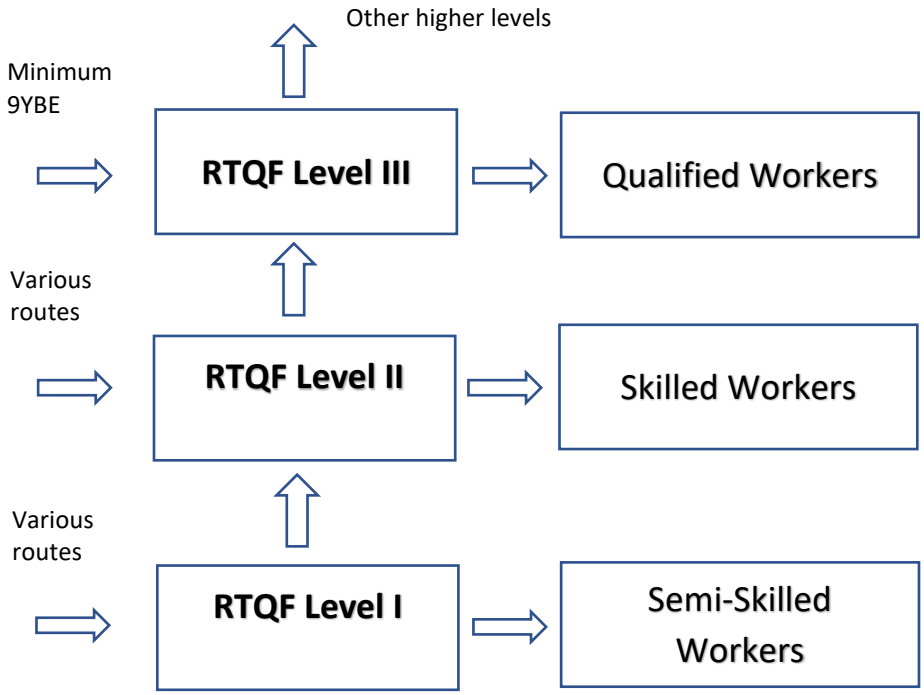
Introduction to RTQF Level II Training Modules

Background

Rwanda Polytechnic, with support of and in collaboration with USAID Huguka Dukore Akazi Kanoze, has developed RTQF TVET Level II programs that combine basic education, soft skills and vocational skills modules. Bridging the gap between Level I and Level III programmes, Level II aims to prepare learners who have a minimum education level of Primary 6 or equivalent to continue with their education or become skilled workers in the labour force.



Following the Workforce Development Authority (WDA) curriculum development process that involved experts from Rwanda Polytechnic, Rwanda Education Board, Ministry of Agriculture, technical vocational institutions, Education Development Center, Akazi Kanoze Access and other technical experts, training modules were developed in basic education, soft skills (work readiness) and, initially, agriculture. Additional vocational areas will be added over time. Trainees will be trained in all Basic Education and Soft Skills modules listed below, as well as in 6 - 8 modules that make up their chosen technical vocational programme.

Module Requirements:

Basic Education	Soft Skills	Vocational Skills
• English • Kinyarwanda • Mathematics	• Basic Entrepreneurship Skills • ICT Essentials • Communication Skills	• Vocational programmes will have a set of 6 – 8 required technical modules.

• Integrated Science (Physics, Chemistry, Biology)	• Safety, Health and Sustainable Environment • Personal Development and Career Guidance	E.g. Food Crop Production and Processing includes the following modules: 1. Food Crop Production 2. Small Scale Post-Harvest Operations 3. Growing Medium 4. Food Safety and Sanitation 5. Food Preservation and Storage 6. Flour Processing

Organization of the Training Manuals

For each module there is a Trainer Manual and a Trainee Manual. These manuals, based on the curricula for each subject, are divided into Learning Units, and each Learning Unit includes 3 – 5 Learning Outcomes. The learning outcomes make up the essential skills, knowledge and attitudes to be acquired by trainees. To make the Trainee Manual more user friendly, Unit and Topic are used respectively for Learning Unit and Learning Outcome. The number of hours per training module varies, ranging between 30 and 120 hours.

Teaching & Learning Methodology of RTQF Level II 2 TVET Materials

The teaching and learning methodology used in the materials is based in experiential and adult learning. Activities are designed to engage trainees, build upon what they know and learn and provide them with opportunities to build their skills in the classroom and in the workplace. More specifically, guiding principles in the development of the manuals include:

- Building on participants' knowledge, skills and experiences
- Facilitating a learning process through active engagement of participants rather than through lecturing
- Providing opportunities to practice – inquiry based and hands on practice, both in the classroom and workplace
- Using simple and clear language
- Connecting to the real world: use local resources and the environment for learning
- Promoting critical thinking through properly debriefing activities and asking questions that get learners to think, analyze, relate issues and topics to their own lives and come up with solutions

- Applying social inclusion principles: Finding ways to include all types of youth (and trainers) – males and females; different cultural/ethnic/religious backgrounds, people with disabilities (PWD); people with different types of health status …

- Encouraging risk taking – promote questioning and being free to explore

- Promoting habits of mind that support life-long learning: curiosity and wonder, open mindedness, creativity

These principles are reflected in the layout and flow of activities in the manuals:

1. **Key Competencies:** Table found at the beginning of each Learning Outcome that describes the main knowledge, skills and attitudes to be gained by the end of the activities.

2. **Self-Assessment:** Conducted at the beginning and end of each Learning Unit to get a sense of trainees' knowledge and skills going into it and what they have gained by the end of the Learning Unit (and steps they need to take to further their understanding and skills).

3.  **Getting Started Activity:** Typically, a quick activity or questions to 1) give the trainer a sense of trainees' existing knowledge and skills; 2) spark the interest of trainees in the topic; 3) introduce the objectives and key competencies of the topic.

4.  **Problem Solving Activity:** A challenging activity to get trainees engaged and to learn through discovery instead of memorization of facts. A variety of teaching and learning methodologies are used, including individual and group work such as reading real life work-based scenarios and answering accompanying questions to activities such as identifying proper tools and equipment from the school workshop to conduct a certain activity. Following the sharing of responses, the trainer guides trainees through the content and processes being introduced.

5.  **Guided Practice Activity:** Building on the concepts and skills gained in the Problem Solving Activity, the trainer guides trainees through practical examples.

6.  **Application Activity:** Consolidates trainees' knowledge and skills through a real-life application of the topic in the classroom, community or workplace. Trainees are given more independence in applying what they have learned.

7. **Key Facts boxes:** Throughout the Trainee Manual, one will find Key Facts boxes. These contain the main information or content for a given Learning Outcome. They are there for the trainees' reference and are used throughout the different types of activities.

8.  **Points to Remember:** List of the top key learning points or "take-aways" from the topic.

9.  **Formative Assessment:** Questions and activities to assess trainees' level of understanding of the concepts introduced.

10.  **Summative Assessment:** Based on the integrated, real life situation approach used in other TVET levels, this is done at the end of every module for agricultural modules and, with some variations, at the end of each Learning Unit for Basic Education and Soft Skills modules.

11.  **Self-Reflection:** Trainees re-take the Self-Assessment given at the beginning of the Learning Unit and identify their strengths, challenges and actions to improve their level of competence.

The Trainer and Trainee Manuals are meant to be used in conjunction with each other and are well coordinated through the headings and labelling of activities. The trainer will always be able to refer trainees to specific activities by the coordinated numbering system. For instance, a specific exercise might be labelled Topic 1.2 Task 2. The Topic is the number of the Learning Outcome and the task is the specific exercise to be done. The Key Facts are also numbered for easy reference. These nor the Self-Assessment tables are in the Trainer's Manual so the trainer should have a copy of both manuals.

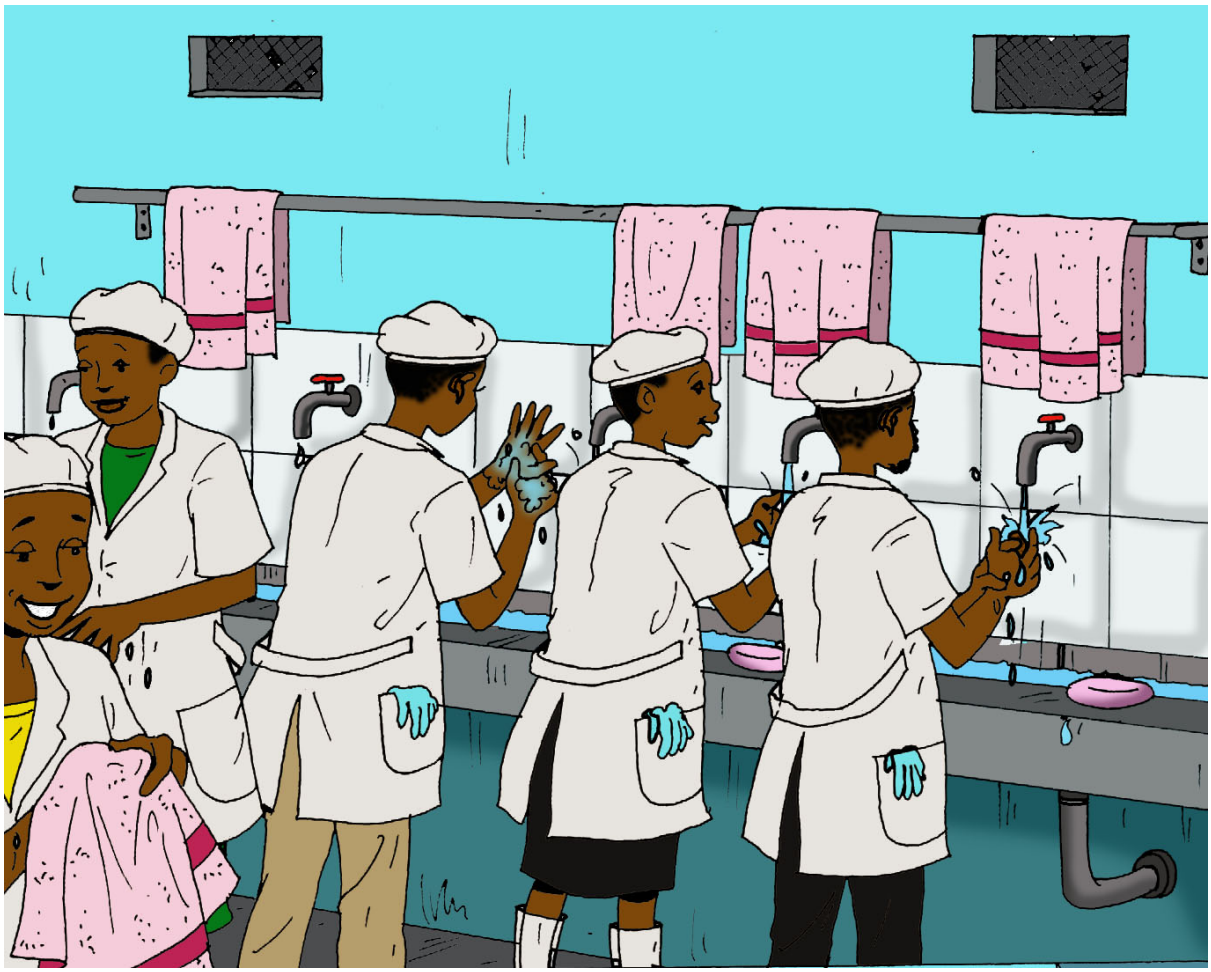
The Trainer's Manual includes answers (or guidelines to the trainer as appropriate) to Formative and Summative Assessments as well as to problems given throughout the activities. Summative Assessments are not included in the Trainee's Manual. These are meant to be used as a guide for those who will be developing a context-appropriative Summative Assessment at the end of the Module or Learning Unit. Basic Education and Soft Skills modules include Summative Assessments at the end of every Learning Unit while the technical modules include it only at the end of the module.

Lastly, there is a section in the Trainer's Manual for additional information to the trainer that includes either specific information or references to information that can help them deepen their understanding of the particular content.

FOOD SAFETY AND SANITATION

Learning Units	Learning Hours	Learning Outcomes
Learning Unit 1: Apply food safety and hygiene	20	**1.1** Identify work area for cleaning and sanitation **1.2** Conduct food hygiene and sanitation practices **1.3** Respect health and safety rules in workplace
Learning Unit 2: Comply with good manufacturing practices	30	**2.1** Establish small scale design and facilities for processing unit **2.2** Assist in production planning **2.3** Assist in implementation of standards operations procedures **2.4** Document and record information
Learning Unit 3: Conduct routine maintenance	20	**3.1** Conduct routine inspection of processing plant and equipment **3.2** Prepare to conduct routine maintenance **3.3** Carry out routine maintenance **3.4** Complete maintenance tasks

Learning Unit 1: Apply food safety and hygiene



Learning Outcomes

By the end of the Learning Unit, trainees will be able to:

1.1 Identify work area for cleaning and sanitation

1.2 Conduct food hygiene and sanitation practices

1.3 Respect health and safety rules in the workplace

Learning Unit 1 Self-Assessment

1. Ask trainees to look at the illustration above in their Trainee Manuals and discuss what they see. What might be the overall theme of the unit and what topics might be covered based on the illustration? After some brainstorming, share the main topics.

2. Ask trainees to fill out the self-assessment at the beginning of the unit in their Trainee Manuals. Explain that the purpose of the self-assessment is to become familiar with the topics in the unit and for them to see what they know or do not know at the beginning. At the end of the unit, they will do a self-reflection, which includes re-taking the self-assessment and identifying their strengths, areas that need improvement, and actions to take. The self-assessment is not a test.

Learning Outcome 1.1: Identify work area for cleaning and sanitation

Objectives: By the end of the learning outcome, trainees will be able to:

a. Make selection of tools, materials, supplies, and equipment
b. Select and use PPE in workplace according to workplace requirements
c. Observe cleanliness, sanitization, waste collection, and disposal services during cleaning process

Time Required: 7 hours

Learning Methodology: Brainstorming, group discussions, role play, field visit, problem solving, group presentations, practical exercises

Materials Needed:

- **Standard training materials:** Flip chart, marker pen, pens, notebooks, videos, internet access, reference books, and reams of papers
- **Cleaning sanitizing products**: soap or detergents, water, hypochlorite, sodium hypochlorite, chlorine, and hydrochloride, dust bins, disinfectant products, clean towels or disposable paper towels
- **PPE**: Gloves, sound protection/ear plugs, respirators, goggles, boots, coverall suit, overshoes, head nets, visitor coats, aprons, and gowns
- First aid box

Preparation:

❑ Make sure that the teaching materials are properly selected and arranged according to the tasks/activities and the number of trainees.
❑ Check the training centre equipment and accommodation to allow for every trainee or groups of trainees to perform their tasks.

Cross Cutting Issues:

✓ **Environment and sustainability**: The environment should be considered while identifying cleaning chemicals, drainage, and waste disposal procedures.
✓ **Standardisation culture**: Follow standard procedures while identifying appropriate cleaning solutions.
✓ **Financial education**: Consider financial education while identifying and purchasing PPE consumables, cleaning materials, tools, and equipment.

Prerequisites:

- Basic knowledge and skillset in the areas of food safety, personal hygiene, and food hazards
- Basic calculation skills: Addition, subtraction, multiplication, and division
- Basic health, safety, and environmental care knowledge
- Basic communication skills

Key Competencies:

Knowledge	Skills	Attitudes
1. Identify appropriate tools, materials, supplies, as well as equipment for work area cleaning and sanitation	**1.** Make selection of tools, materials, supplies, and equipment	**1.** Attentive
2. Classify personal hygiene equipment, materials for work area cleaning, and sanitation procedures	**2.** Select and use PPE in workplace according to workplace requirements	**2.** Accurate
3. List procedures needed in maintaining food safety conditions in cleaning, sanitizing, waste collection, and disposal services	**3.** Observe cleanliness, sanitization, waste collection, and disposal services during cleaning process	**3.** Methodical

Steps:

Getting Started: What do we know and where are we going?

Topic 1.1 Task 1:

1. Ask trainees to describe what they observe in the illustrations from **Topic 1.1 Task 1** in their manuals. Tell them to discuss the following with a partner:
   - **a.** What are the similarities and differences between the two situations in the pictures?
   - **b.** Where could this picture have been taken?
   - **c.** Have you ever visited local food processing units and observed a similar situation?

2. Ask volunteers to share and compare their answers. Explain that the pictures were taken in a food processing centre. Then, discuss the potential problems that can affect food processed in this environment. Clarify any remaining ambiguity trainees may have.

3. Introduce the learning outcome and the Key Competencies table which includes the knowledge, skills, and attitudes they will gain from this learning outcome.

Illustration 1

Illustration 2

Possible Answers:

Illustration 1 shows staff being negligent and in violation of food safety. Both staff members are wearing their work area uniforms incorrectly. The man is wearing sandals and is not protecting his hands with gloves after potentially having collected waste. He does have some PPE on – a mask and coat. The woman has long hair but is not wearing a protective hair net and is also wearing large earrings. She is, however, wearing other appropriate PPE clothing, such as boots, a coat, and gloves.

Illustration 2 shows correctly worn PPE clothing. Both food processing staff members are wearing hairnets, gloves, boots, and clean coats.

Problem Solving Activity

Topic 1.1 Task 2:

1. Ask trainees to form two groups. Consider people with disabilities and gender balance in each group. Tell each group to discuss the following scenario found in **Topic 1.1 Task 2**:

   Kampire and Kayira are emerging entrepreneurs interested in starting a new small-scale food processing unit. They want to process juice from pineapples, wine from beetroots, as well as milk and tofu from soya beans. Kampire and Kayira want to comply with the appropriate sanitation standards by setting up two rooms that follow safety regulations.

2. With their groups, tell the trainees to give them advice by answering the following questions:
   a. How should Kampire and Kayira identify work area conditions for cleanliness and sanitation?
   b. How should they identify and select equipment, tools, and materials for cleaning and sanitation?
   c. How should they identify and select appropriate personal protective equipment (PPE) to be used in cleaning and sanitation?
   d. Provide a minimum of three indicators that rooms have been properly cleaned and sanitized.
   e. How should they dispose of waste?
   f. What can they do to prevent food safety hazards that are results of cleaning activities?

3. After discussing, ask each group to write their answers on a piece of paper. Then ask the groups to choose one person to present and share their results with the other groups.

4. Ask trainees to compare their answers. Do they have similar discoveries? Ask questions to help trainees to become familiar with cleaning and sanitation of the workplace.

5. Direct trainees to **1.1 Key Facts** and read them together.

6. Using the information from **1.1 Key Facts**, review their responses and determine the correct answers together.

Guided Practice Activity

Topic 1.1 Task 3:

1. For this activity, trainees will simulate working in a food processing plant. Prepare the tools, materials, and equipment for this activity in advance so that trainees will have access to PPE and can analyse the equipment best suited for different work tasks.

2. Ask trainees to make two separate groups. Consider people with disabilities and the gender balance in each group. At least one person in each group must have writing materials. Explain to both groups that they should pretend they are in a food processing building.
   a. **Group One** will represent the staff in the food processing plant and wear PPE.
   b. **Group Two** will also represent the staff in the food processing plant but will not use any PPE.

3. Direct groups to approach the tools, equipment, cleaning, and sanitation materials. Give each group two minutes to familiarise themselves with the equipment.

4. Then ask each group to switch, so that the group that was wearing the PPE takes it off, while the other group puts it on.

5. Then have each group make a list that describes and compares their experiences with PPE and without PPE. They should explain how prepared they were to handle materials and dispose of waste. Remind them to consider:
   a. Personal hygiene
   b. Health and safety in the workplace
   c. Neatness
   d. Work area instructions on cleaning and sanitisation

6. Once both groups have had sufficient time to create their lists, bring the groups together. Have trainees discuss their observations together and summarise what they have learned.

7. Next, take the trainees to the appropriate storehouse where different kinds of PPE are stored. Upon arrival, ask trainees to select appropriate PPE when dealing with the following scenarios:
   a. Handling chemicals
   b. Working with liquids
   c. Fall prevention and fall protection
   d. Head, eye, and face injury protection
   e. Cut protection
   f. Thermal resistance
   g. Shock protection
   h. Gas and dust protection
   i. Noise protection

8. Ask the trainees to list the appropriate PPE for each situation. Ask them to share their responses and discuss. Add or correct information using the **Possible Answers** provided.

Possible Answers:

Factor or situation	PPE
a. Handling chemicals	• Special plastic gloves/ gauntlets that are chemical resistant • Eye goggles • Respirators
b. Working with liquids	• Waterproof equipment and materials, such as - Boots - Coveralls - Apron - Visitor coats - Overshoes
c. Fall prevention and fall protection	• Slide-proof footwear
d. Head injury protection	• Head shock proof mask
e. Eye protection	• Goggles
f. Face protection	• Shock proof mask
g. Heat protection	• Heat resistant equipment
h. Cut protection	• Thick cut resistance gloves
i. Gas or dust protection	• Respirators
j. Noise protection	• Earmuffs

9. Read **1.2 Key Facts** together and tell trainees to compare the information to their own responses. They should correct their responses as needed.

10. Conclude by informing trainees of documentation procedures necessary to maintain food safety conditions, such as:

a. Good Hygiene Practices (GHP)

b. Cleaning, sanitization, and waste disposal reporting

c. Environmental sustainability awareness

Application Activity

Topic 1.1 Task 4:

1. Ask trainees to form small groups of at least four people per group and notify them that they will be doing a fieldwork assignment. For this activity, each group has a choice of which local business to visit. They may choose one of the following:

a. A local business where an entrepreneur has a small-scale fruit processing unit

b. A milk collection centre

2. Each group must accomplish the following four tasks during their field visit.
   a. Identify conditions of cleanliness based on food processing regulations.
   b. Identify types of equipment and materials used for personal hygiene and good grooming that comply with workplace requirements.
   c. Identify the workplace waste disposal program. Are the types of garbage used applicable to the workplace health and safety requirement?
   d. Identify the work tasks requirements for maintaining workplace cleanliness and food safety regulations.

3. Once all groups have concluded their field activity, ask each group to answer the following questions in order to clarify how practical work in the field is performed.
   a. What are the characteristics of cleanliness in a food processing area?
   b. What are the guiding criteria to identify the appropriate equipment and materials for personal hygiene in line with workplace requirements?
   c. What is the reporting procedure for food safety hazards, health conditions, and illness? Are these procedures at the appropriate level of responsibility in the food processing unit and/or the milk collection centre?

Points to Remember

- Work area cleanliness is the most important issue for food safety in food processing centres.
- Personal hygiene begins at home. A clean body, clean hair, and clean clothing are essential elements for good hygiene.
- Personal protective equipment (PPE) is selected according to the cleaning and sanitation tasks as well as working conditions.

Formative Assessment

Part I: Formative Evidence

Circle ONE answer that best demonstrates safety and sanitation standards in the workplace.

1. A clean and sanitary work area that complies with food safety regulations would have:
   a. A clear and easy to follow cleaning plan, no dirt, no grease, no bad smell, and no food waste.
   b. A clear and easy to follow cleaning plan, some water on the floor, no dirt, no grease, and no food waste.
   c. No dirt, no grease, some soil on surfaces, and no bad smell.
   d. Minor leaks in the ceiling, dusty areas, and clean doorknobs.

2. Personal hygiene and grooming safety standards in the workplace require:
   a. Using PPE whenever an employee feels like it.
   b. Using PPE only when the supervisor is around.
   c. Using personal hygiene materials and PPE whenever necessary in the work area.
   d. Sweeping the workplace without appropriate PPE.

3. Which of the following processes ensures that food safety regulations are maintained when cleaning?
   a. Cleaning requirements for food processing area is identified, there is regular maintenance of workplace cleanliness, there is control of movement around the workplace, as well as health conditions and/or illness are being reported.
   b. Identification and reporting of raw materials to be processed by time and date of arrival.
   c. A clearly identified dining room for employees to each lunch and having an identified street food vendor who sells avocados to staff in order to balance their nutrition.
   d. Removing health and safety signs that restrict movement during cleaning and allowing employees to wash their hands without soap when they are busy working on assigned tasks.

Answers:

1. **A**
2. **C**
3. **A**

Part II: Performance Evidence

Bugabo has a small-scale milk processing unit that is 6 m^2 in size. He wants to improve the cleanliness and sanitation of his plant. As food safety and sanitation technicians, trainees are requested to identify and select cleaning equipment, materials, supplies, and PPE for the staff to clean the 6 m^2 processing area. This activity has to be performed within 45 minutes. All necessary equipment and PPE are stored in a warehouse accessible to trainees.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Proper assessment of area to be cleaned	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper identification and selection of staff PPE	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper identification and selection of cleaning equipment, materials, and supplies	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

*The assessor should consult the **1.1** and **1.2 Key Facts** in the Trainee Manual as well as the **Points to Remember** found in both the trainer and Trainee Manuals for more details on each element listed.

ⓘ Further Information for the Trainer

1. United Nations Industrial Development Organization, P., & Fellows, P. (2004). *Small-scale root crops and tubers processing and products: Production methods, equipment and quality assurance practices* (November 2010 ed., Vol. V.10-57762, Ser. 150, pp. 1-94, Rep.). Vienna, Austria. Retrieved from https://open.unido.org/api/documents/4672285/download/Small-scale%20root%20crops%20and%20tubers%20processing%20and%20products%20-%20Production%20methods,%20equipment%20and%20quality%20assurance%20practices
2. Menon, H., & The Food Safety and Quality Authority of The Gambia. (2017). *Food Safety and Good Hygienic Practices Handbook for Gambian Youth Entrepreneurs* (pp. I-154, Rep.). Geneva, Switzerland: International Trade Centre. Retrieved from: http://www.intracen.org/uploadedFiles/intracenorg/Content/Exporters/Exporting_Better/Quality_Management/AssetPDF/FINAL%20Food%20safety%20and%20GHP%20-%20Gambia(2).pdf

Learning Outcome 1.2: Conduct food hygiene and sanitation practices

Objectives: By the end of the learning outcome, trainees will be able to:

a. Select tools, equipment, materials, and supplies in accordance with workplace standard operating procedures

b. Clean and sanitize a food processing work area

c. Collect and dispose them in accordance to workplace procedures and environmental policies

Time required: 7 hours

Learning methodology: Brainstorming, group discussions, problem solving, role play, practical exercises, field visits, and written activities

Materials Needed:

- **Standard training materials:** Flipchart, marker pen, pens and notebooks, internet access, reference book
- **Tool and equipment:** Hand brushes, scrapers, hygienic squeegees, shovels/spade, measuring and mixing equipment, forks, rakes, tube brushes, brooms, dust bins, PPE, deck scrub brushes, wheelbarrows, cleaning and sanitizing chemicals
- **Forms:** Reporting form and recording form

Preparation:

- ❑ Make sure that the teaching materials are properly selected and arranged according to the tasks, activities, and number of trainees.
- ❑ Gather all resources and store them in an orderly manner in secure conditions for easy access.
- ❑ Contact the owners of the food processing plant you will visit to book your visit.
- ❑ Check the expiration date of all chemicals you will use in teaching this topic.

Cross Cutting Issues:

- ✓ **Environment and sustainability**: The environment should be considered while identifying cleaning chemicals, drainage, and waste disposal procedures.
- ✓ **Standardisation culture**: Consider standard procedures while identifying appropriate cleaning solutions.
- ✓ **Gender:** Consider gender balance when forming small groups.

Prerequisites:

- Basic knowledge and skillset in the areas of food safety, personal hygiene, and food hazards
- Basic health, safety, and environmental care knowledge

Key Competencies:

Knowledge	Skills	Attitudes
1. Identify tools, equipment, materials, and supplies for cleaning and sanitizing food processing centres	**1.** Select and prepare tools, equipment, materials, and supplies for cleaning and sanitization	**1.** Detail-oriented
2. Know the steps required to clean and sanitize a food processing work area	**2.** Clean and sanitize a food processing work area	**2.** Diligent
3. Define waste collection and disposal in specialized facilities	**3.** Collect and dispose waste in specialized facilities	**3.** Attentive

Steps:

Getting Started: What do we know and where are we going?

Topic 1.2 Task 1:

1. Tell the trainees to open their training manuals to **Topic 1.2 Task 1** and ask them to think about a situation or a past experience that required cleaning. Instruct them to discuss the following questions with a partner:
   - **a.** What are some examples of places that need to be cleaned every day?
   - **b.** What happens to these places if no one takes care of them?
   - **c.** Can you think of a place that becomes dirty or unclean more frequently than others?
   - **d.** What tools, materials, and supplies are needed to clean these places?

2. Introduce the learning outcomes and the Key Competencies table, which includes type of knowledge, skills, and attitudes they will gain. Explain that they all have some knowledge in these areas and that we will be utilising their past experiences.

Problem Solving Activity

Topic 1.2 Task 2:

1. Ask trainees to read the following scenario in pairs:

A busy restaurant in Muhanga is having issues with cross-contamination in their food preparation area. The restaurant has appropriate food preparation equipment in well-arranged places, however, most of the equipment and tools that they have are either very old or damaged. The cleaning detergent they use is locally made liquid soap and it is used to clean utensils, food preparation equipment, and mopping the floors in all areas of the restaurant.

The staff at the restaurant clean and remove visible waste in the morning around 6 am. They collect and dispose food waste in old leaking bags near the food preparation area. Between 8 am and 11 am, the restaurant starts having a serious problem of flies coming inside the food preparation area and in the dining rooms of the restaurant. These problems have caused the restaurant to lose clients because the clients fear they will get sick after eating food from this restaurant.

2. Discuss the following questions with your partner:

- **a.** What do you think is the cause of these problems?
- **b.** What is the connection between the scenario and food safety?
- **c.** Have you ever seen a similar situation in a location that prepares and serves food?

Possible Answers:
The restaurant is most likely not conducting proper food hygiene and sanitation practices. For example, the leaking garbage bags could be a large source of contamination and attracting the flies. Similarly, the locally produced soap could be poor quality. Meanwhile, the employees are removing visible waste, which is good. However, they may not be properly trained in identifying all points of contamination or sanitizing all surfaces etc.

3. Ask a few volunteers to share the main points of their discussions with the class.

4. Divide the class into four groups. Instruct the trainees to use their knowledge from the previous learning objective to answer the following questions about food safety based on the scenario above:

a. What factors need to be considered in selecting tools, equipment, and materials for cleaning and sanitizing the food processing area?
b. List the general steps taken to clean and sanitise the production area as well as surfaces that come in contact with food products during food processing?
c. What is the best way to deal with waste?
d. How should hazards be documented and reported? Who is responsible for this reporting?

5. After they have discussed the questions for 15 minutes, ask the trainees to read **1.3 Key Facts** to supplement their initial answers.

6. Assign each group one of the questions to report back to the group. When one group is reporting back, the other groups should make additional comments and ask any questions they have.

7. Supplement the groups' contributions as needed and clarify any questions trainees may have.

Guided Practice Activity

Topic 1.2 Task 3:

The following activity requires at least 30 minutes of set up before the trainees arrive. You will need to set up three areas that serve as store zones. For the store zones, you may use either storage shelves or any other simple equipment used for storage. Note that you will also need PPE, personal hygiene materials, cleaning equipment, sanitation equipment, tools, and chemical cleaning supplies.

If you cannot access these materials, use the pictures provided to indicate the different zones.

The three appropriate zones are parallel to each other and arranged by the following categories:

Zone 1: PPE and personal hygiene materials

Zone 2: Cleaning and sanitizing equipment, tools, and materials

Zone 3: Chemical cleaning supplies such as soap, detergents, and sanitizers

1. Ask trainees to form groups of four people with an even number of females and males in each group, if possible. Once everyone has a group to work with, ask them to select the following items from the three storage shelves/zones:
   a. Appropriate PPE
   b. Appropriate cleaning equipment, tools, and materials
   c. Appropriate chemicals

2. Instruct trainees that they are to clean the training centre as if it a food processing area. It should be cleaned and sanitized with the proper equipment, tools, materials, and cleaning agent solutions to be used.

3. Next, trainees will practice the practical method diluting a chemical cleaner. Have bleach, cold water, and measuring supplies ready. Demonstrate how to calculate the mixture. First pour small amounts. Then have trainees try it.

4. Instruct the trainees to clean and sanitize selected equipment. Ask them to describe how they should start and end the cleaning and sanitizing process of the food processing area in general.

5. Demonstrate how to collect and dispose waste, return the area to operational condition, and perform the required documentation. Ask the trainees to perform the processes of waste collection and disposal as well as how to return the area to operational condition.

6. Request that the trainees clean, check, and store cleaning tools, equipment, and chemicals.

7. Ask them to prepare required documentation and identify reporting procedures.

8. Ask groups to present their work to the other groups and discuss. Tell trainees to use the information in **1.4 Key Facts** to supplement their answers.

Application Activity

Topic 1.2 Task 4:

1. Ask the trainees to form groups of six trainees and get ready for fieldwork in the training centre's small-scale poultry food processing unit. They should be ready to work in a team with the experienced staff of the poultry food processing unit.

2. Ask the groups to visit the training centre's small-scale poultry food processing unit and make sure that the food processing unit is working properly.

3. Ask trainees to enter the storehouse of cleaning and sanitizing equipment, tools, materials, and supplies and select the appropriate items for cleaning and sanitizing the contact surfaces in the poultry food processing unit.

4. Ask each group to prepare the cleaning solutions, equipment, tools, and materials for cleaning and sanitizing the poultry processing area.

5. Ask trainees to clean, sanitize, and collect waste dispose them and document, and keep records and report.

6. At the end of the practical activity, ask each group to answer the following questions:
   a. What is the method of preparation for the cleaning solutions, and equipment, tools and materials to clean and sanitize the poultry processing unit?
   b. What cleaning and sanitizing and waste collection procedures were applied in the poultry processing unit?
   c. How are documentation, record keeping, and reporting procedures in the processing unit performed?

Points to Remember

- Cleaning chemicals should be handled and used carefully and stored with caution.
- Always follow manufacturer's instructions on how to dilute chemical cleaners.
- Documentation, record keeping, and reporting in food business are the most important operations to evaluate the food processing compliance with food safety regulations.

Formative Assessment

Read the following and circle the correct answer.

1. The sanitation standard operating procedure includes the following considerations:
   a. Cooperation between the factory security guard and the marketing manager for security of products.
   b. Applicable workplace cleaning plan, consideration of the type of food soil to remove during cleaning, and the consideration of products types to be processed after cleaning.
   c. Regular staff meeting to discuss personal financial problems and family planning.
   d. Good presentation of the vehicle that transports materials needed for repairing the fence at processing units.

2. Which of the following items are appropriate PPE and cleaning chemicals for a food processing area?
   a. Flipchart, marker pens, notebooks, and a first aid box
   b. Coverall suit, white boots, hypochlorite, sodium hypochlorite, and hydrochloride
   c. Gloves, earmuffs, respirators, goggles, a t-shirt, school uniform, and earrings
   d. Tube brushes, brooms, deck scrub brushes, a wheelbarrow, and dust bins

Determine if each statement is True or False. The following statements are parts of food safety practices and standards according to food safety regulations for food processing:

3. The selection of cleaning and sanitizing equipment is done depending on the will of the food processing staff.

4. SSOP refers to sanitation standard operating procedure.

5. When preparing to conduct cleaning activities in a food processing area, the selection of PPE is related to the nature of task.

6. Waste disposal conditions have no impact on the image of a food processing unit. The most important issue for the processing unit is marketing.

Answers

1. **B**
2. **B**
3. **False**
4. **True**

5. **True**
6. **False**

ⓘ Further Information for the Trainer

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Learning Outcome 1.3: Respect health and safety rules in the workplace

Objectives: By the end of the learning outcome, trainees will be able to:

a. Follow code of conduct regarding food hygiene and safety practices

b. Use the proper health and safety signs in checking them regularly in food processing, and explain their role in workplace area

c. Respect health and safety rules, record observations, and follow –up for corrective action

Time required: 6 hours

Learning methodology: Brainstorming, group discussions, field visits, problem solving exercises, group presentations, practical activities

Materials Needed:

- **Standard training materials:** Flipchart, marker pen, pens and notebooks, internet access, reference books
- **Audio/visual equipment:** Videos, DVD player, projector
- **Other:** Plates of health and safety signs

Preparation:

- ❑ Make sure that the teaching materials are properly selected and arranged according to the activities to carry out and the number of trainees.
- ❑ Check the training centre equipment and accommodation to allow every trainee or groups of trainees to perform their tasks.

Cross Cutting Issues:

- ✓ **Environment and sustainability**: Consider the environment while identifying cleaning chemicals, drainage, and waste disposal procedures.
- ✓ **Standardisation culture**: Follow standard procedures while identifying appropriate cleaning solutions.
- ✓ **Financial education**: Consider financial education while selecting and buying PPE consumables, cleaning materials, tools, and equipment.
- ✓ **Gender:** Consider gender balance when forming small groups.
- ✓ **Inclusivity**: Be inclusive of people with all abilities when allocating roles for scenarios or situations.

Prerequisites:

- Basic knowledge and skillset in the areas of food safety, personal hygiene, and food hazards
- Basic calculation skills: addition, subtraction, multiplication, division
- Basic health, safety, and environmental care knowledge
- Basic communication skills
- Learning Outcomes 1.1 and 1.2

Key Competencies:

Knowledge	Skills	Attitudes
1. Indicate factors for code of conduct regarding food hygiene and safety practices	**1.** Follow code of conduct regarding food hygiene and safety practices	**1.** Consistent
2. Select the types of health and safety signs to check regularly in food processing and their roles in the workplace	**2.** Use the proper health and safety signs in checking them regularly in food processing, and explain their role in the workplace	**2.** Observant
3. Outline health and safety rules, how to record observations, and follow–up for corrective action	**3.** Respect health and safety rules, record observations, and follow–up for corrective action	**3.** Diligent

Steps:

Getting Started: What do we know and where are we going?

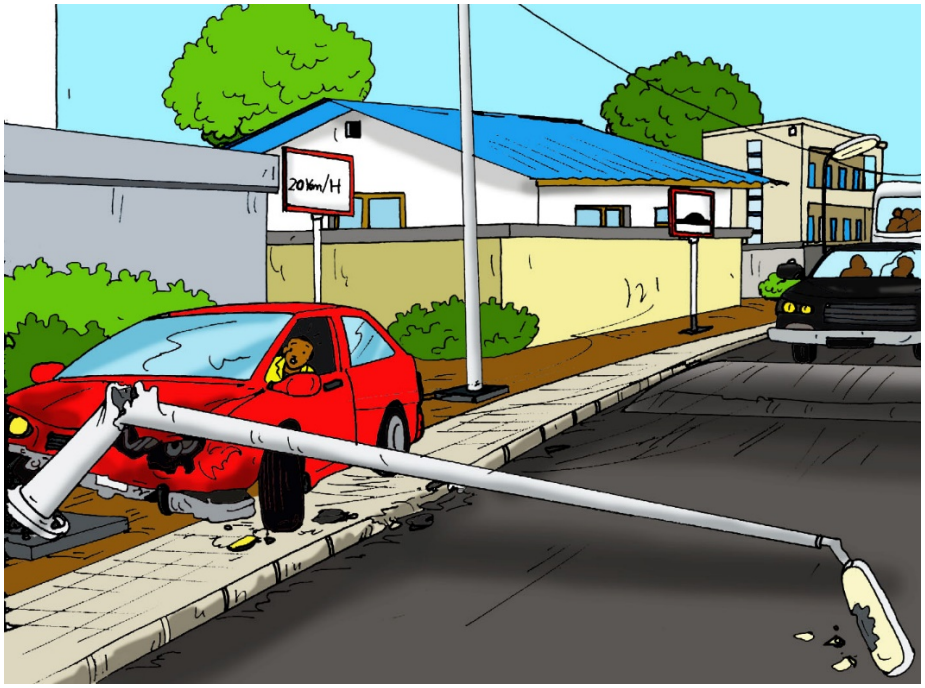
Topic 1.3 Task 1:

1. Ask the trainees to open their training manuals to **Topic 1.3 Task 1** and discuss the questions with a partner based on the picture provided.
   - **a.** What is happening in the picture?
   - **b.** Have you seen or heard of a similar situation?
   - **c.** What are the possible causes and consequences on such situations?
   - **d.** How might this relate to food processing?

2. Ask a few volunteers to share their answers. Discuss and clarify the possible causes and consequences of such a situation.

3. Relate the scenario to following proper safety procedures in food processing. Just like there are rules of the road and signs to follow, there are safety procedures and signs to follow in the workplace.

4. Introduce the learning outcomes and the Key Competencies for this topic.



Problem Solving Activity

Topic 1.3 Task 2:

1. Ask trainees to think back to the scenario from the **Topic 1.2** about the restaurant in Muhanga.

2. Explain that they should apply their experience with cleaning food-related workplaces to help the owners. They must draft a code of conduct or procedures that will ensure that the workers operate at a high standard and the food follows proper hygiene and safety practices. These measures should be followed not just tomorrow, but each and every day.

3. Encourage them to use their experience cleaning and sanitizing workplaces from the previous topic to answer the following questions:
   - **a.** What materials are needed?
   - **b.** What are the objectives of each task?
   - **c.** Whose responsibility is each task?
   - **d.** What is the frequency of each task?
   - **e.** What are the procedures?
   - **f.** How will the processes be recorded?
   - **g.** How should corrective actions be made and followed-up on?

4. First, see if students can apply the lessons learned from the last learning outcome individually.

5. After an adequate amount of time has passed, allow the trainees to form groups of four and tell them to do the following:
   a. Write your answers on the flipchart or board.
   b. Choose a presenter to share the results with the other groups.
   c. Listen carefully and provide comments to the other groups.
   d. Compare answers between groups.

6. To help the trainees become familiar with following the code of conduct, refer to **1.5 Key Facts** found in their manuals and review them together.

7. Then, discuss the following questions as a class. **Answers** are provided.
   a. What is the meaning of hygiene and protective clothing?
   b. What is the proper hand washing protocol in food processing?
   c. What control measures prevent staff health challenges and sickness from contaminated food?
   d. How are personal belongings and conduct controlled to protect food?

Answers:

Questions	Answers
a. What is the meaning of hygiene and protective clothing and using gloves?	• Food handlers should maintain a high degree of personal cleanliness. • Food handlers must wear suitable protective clothing, including a head covering and footwear. • If using gloves, make sure they are fresh and clean. • Change gloves as often as you wash hands because contaminated gloves can be hazardous to food.

b. What is the proper hand washing protocol in food processing?	• Personnel should always wash their hands:
	  • At the start of food handling activities
	  • Immediately after using the toilet
	  • After handling raw food
	  • After handling any contaminated material such as money or eyeglasses
	  • After touching the face or head
	  • After shaking hands with others
	  • After smoking

c. What are the control measures to prevent staff health challenges and sickness from contaminating food?	• The health of staff should be monitored through observation, medical examination, and self-monitoring for conditions to be reported. These include:
	  • Jaundice and fever
	  • Diarrhoea and vomiting
	  • Sore throat with fever
	  • Visibly infected skin lesions – boils, cuts, etc.
	  • Discharges from the ears, eyes, or nose
	• Sick people suffering from illness transmitted through food should not be allowed to enter any food handling area.

d. How are personal belongings and conduct controlled to protect food?	• Personal items should not be worn or brought into food handling areas if they pose a threat to the food safety and suitability of food. Examples:
	  • Jewellery, pins, and watches
	  • Mobile phone and or other items
	• Personnel conduct: People engaged in food handling activities should refrain from behaviour that could result in contamination of food, for example:
	  • Smoking or spitting
	  • Chewing (gum and tobacco)
	  • Eating food in production area
	  • Sneezing or coughing over unprotected food and in the premises where food is being processed

Guided Practice Activity

Topic 1.3 Task 3:

Preparation Note: The following activity requires that there are safety signs placed in some areas of the training centre. Either acquire or print images of safety signs for the trainees to use. Look for existing areas where these signs might be missing or could be helpful. Also, you will need to acquire or print images of various safety signs for the trainees to identify in the classroom.

1. Ask trainees to open their training manuals and refer back to **1.5 Key Facts** and the example of a cleaning procedure. Ask them if they noticed the images in the chart used to show which PPE should be used.

2. Divide them into groups of four. Their task is to look around the training centre for similar signs that they think might show something about safety. They should do the following:
   a. Record your observations about the colour, shape, image, and possible message these signs are trying to communicate. If you have smart phones, take pictures of these signs.
   b. Additionally, look for places in the training centre where additional safety signs might be helpful or needed. Try to think of types of situations when the sign would be used in a food processing work area.

3. After exploring the training centre, ask the trainees to look at the signs you have prepared in the classroom and facilitate a discussion about their meaning and if trainees are familiar with them.

4. Discuss the trainees' observations together and summarize the colours and shapes of the signs and their meanings. Explain that these colours and shapes are used in safety signs world-wide.

5. Finish the lesson by reviewing **1.6 Key Facts** together.

Possible Answers:

Message	Possible Answers
Prohibition	**Red colour**: A sign that prohibits use or access. Example: "No access for unauthorized persons"
Caution	**Yellow colour**: A sign that means "be careful" or "take precautions" Examples: slippery surface; hot surface
Positive action	**Green colour**: Sign indicates emergency escape, first aid, fire exit. Example: emergency exits
Mandatory actions	**Blue colour**: A sign prescribing specific behaviour. Exsmplr: "Eye protection must be worn"
Prohibitions and instructions	**Disc shape**: A sign prohibiting behaviour likely to increase or cause danger. Ex: "No access for unauthorized persons"
Warnings	**Triangle shape**: A sign giving warning of a hazard or danger. Example: "Danger: Electricity"
Emergency and information sign	**Squares and rectangles shape**: A sign giving information on emergency exits, first aid, or rescue facilities. Examples: Emergency Exit or Escape Route

Additional factors to consider in sign selection	• Safety or health sign • Signboard • Symbol or pictogram • Illuminated sign • Acoustic signal • Verbal communication • Hand signal • Fire safety sign
Documentation records and reporting following health and safety rules	• Report and record accidents and incidents • Report items requiring repair or replacement • Report hazards and their potential causes • Report incidents requiring corrective actions to relevant personnel

Application Activity

Topic 1.3 Task 4:

1. Ask trainees to form small groups and get ready for a field visit to a local business where an entrepreneur has a small-scale fish processing unit or meat processing unit. Ask them to visit the fish processing unit or meat processing unit.

2. Tell each group to perform the following four tasks:
   a. Locate the code of conduct in place for food hygiene and safety practices. Where is it and what factors might have been considered when putting in place?
   b. Classify the main tips a food processing employee should follow to prevent food poisoning by using good personal hygiene.
   c. Locate and record all of the proper health and safety signs to check for regularly in food processing. What is their role in workplace area according to health and safety regulations?
   d. Observe and record the compliance of and respect for workplace health and safety rules. How are infractions followed-up on for corrective action? How are they reported to appropriate personnel according to workplace procedure?

3. By the end of the practical activity, ask each group to share their answers to the above questions. Answer any questions trainees have and make clarifications as needed.

Points to Remember

- Respecting work area health and safety signs is mandatory.
- Regular handwashing is a mandatory practice and a critical part of any food safety system.

Formative Assessment

Part I: Formative Evidence

Read the following questions carefully and circle ONE correct answer.

1. Which of the following statements includes the main factors for following the code of conduct regarding food hygiene and safety practices?
   a. Personal cleanliness and positive behaviour in food processing area and eating food in the food processing area because of busy work.
   b. Minimizing hand contact with food, and not putting on PPE because of wearing clean expensive personal clothes in food processing area.
   c. Recording and reporting accidents, incidents, hazard and corrective actions, and allowing ill staff with diarrhoea to work in food processing area and report illness to the concerned personnel.
   d. Appropriate procedure of hand washing, proper use of PPE and restricted entrance of unauthorized persons in food processing area, personal cleanliness and positive behaviour in food processing area

2. Which of the following signs is correct, based on its message and colour?
   a. A red sign for warning of danger
   b. A blue coloured sign indicating the need to use eye equipment or gloves
   c. A green sign that says no smoking
   d. A yellow sign to show the exit

3. Which of the following includes prohibited behaviours or practices by food handlers?
   a. All cuts, wounds, or sores should be covered with a waterproof dressing.
   b. Over-clothing should be clean and present no risk of contamination to food.
   c. Hair should be tidy and covered where necessary to prevent the risk of it falling into food.
   d. Smoking in food areas, coughing, sneezing, spitting over food, wearing strong smelling perfumes worn when handling foods, wearing nail varnish when handling

food, wearing jewellery other than a plain wedding band or sleeper in food processing.

Answers:

1. **D**
2. **B**
3. **D**

Part II: Performance Evidence

Bwiza has a small-scale tea processing unit and wants to follow the code of conduct regarding food hygiene and safety practices. As a food safety and sanitation technician, you are requested to post the health and safety signs in the workplace area of 49 m^2 and check that the code of conduct is being followed regularly. This activity must be performed within 60 minutes. The health and safety signs are provided. The equipment, PPE, and personal hygiene materials are all in the warehouse. Clean, hot water is also available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Elements to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Following code of conduct regularly regarding food hygiene according to food safety practices	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper respect of health and safety signs for handwashing	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper respect of health and safety signs for personal behaviour	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper respect of health and safety signs for safe food handling	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper documentation recording and reporting of all accidents or hazards and corrective actions to concerned personnel	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

Self-Reflection

1. Ask trainees to re-take the self-assessment from the beginning of the unit. They should then fill in the table in the trainee's manual to identify their areas of strength, areas for improvement, and the actions they will take to make those improvements.

2. Discuss trainees' results with them. Identify any areas that are giving many trainees difficulties and plan to give additional support as needed (ex. Use class time before you begin the next learning outcome to go through commonly identified difficult concepts).

Further Information for the Trainer

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Learning Unit 2: Comply with good manufacturing practices

Learning Outcomes

By the end of the Learning Unit, trainees will be able to:

2.1 Establish small scale design and facilities for processing unit

2.2 Assist in production planning

2.3 Assist in implementation standards operations procedures

2.4 Document and record information

Learning Unit 2 Self-Assessment

1. Ask trainees to look at the illustration above (in their Trainee Manuals) and discuss what they see. What topics do they think this unit will include based on the picture? After some brainstorming, share the main topics.

2. Ask trainees to fill out the self-assessment at the beginning of the unit in their Trainee Manuals. Explain that the purpose of the self-assessment is to become familiar with the topics in the unit and for them to see what they know or do not know at the beginning. At the end of the unit, they will do a self-reflection, which includes re-taking the self-assessment and identifying their strengths, areas that need improvement and actions to take. The self-assessment is not a test!

Learning Outcome 2.1 Establish small-scale design and facilities for processing unit

Objectives: By the end of the learning outcome, trainees will be able to:

a. Identify the requirements relating to the design and layout of food processing premises

b. Describe the participation in ordering construction equipment and materials according to environmental and food processing buildings quality standards

c. Use of tools, utensils, equipment, and documentation records required according to food processing program

Time Required: 9 hours

Learning Methodology: Brainstorming, group discussions, problem solving, practical exercise, field visit, presentation, watching video clip

Materials Needed:

- **Standard training materials:** Flipchart and marker pen, pen and internet, reference books and drawing papers, other basic designing tools, eraser and pencils
- **Visual/audio equipment:** Videos player and DVD, processing unit chart, premise layout chart
- **Other:** First aid box

Preparation:

- ❑ Make sure that the teaching materials are properly selected and arranged according to the activities and the number of trainees.
- ❑ Make arrangements with the training centre's administration to plan the field visit.

Cross Cutting Issues:

- ✓ **Environment and sustainability**: The environment should be considered while identifying cleaning chemicals, drainage, and waste disposal procedures.
- ✓ **Standardisation**: Follow standard procedures while identifying appropriate cleaning solutions.
- ✓ **Financial education**: Consider financial education while purchasing PPE consumables, cleaning materials, tools, and equipment.

Prerequisites:

- Basic communication skills
- Learning Unit 1

Key Competencies:

Knowledge	Skills	Attitudes
1. List the requirements relating to the design and layout of food processing premises	**1.** Apply all necessary requirements relating to the design and layout of food processing premises	**1.** Attentive to detail
2. Describe participation in ordering construction equipment and materials according to environmental and food processing buildings quality standards	**2.** Participate in ordering construction equipment and materials according to environmental and food processing buildings quality standards	**2.** Cooperative
3. Define steps in monitoring design and building activities	**3.** Contribute in monitoring design and building activities	**3.** Meticulous

Steps:

Getting Started: What do we know and where are we going?

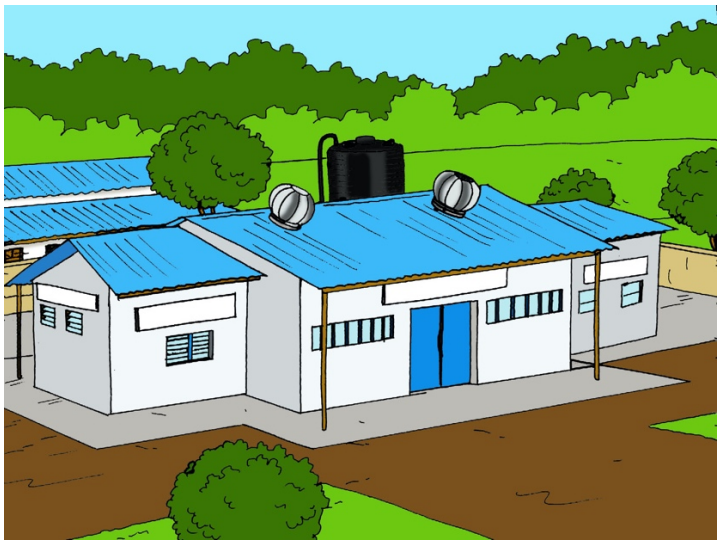
Topic 2.1 Task 1:

1. Ask trainees to open their manuals to **Topic 2.1 Task 1** and look at the illustrations.

2. Instruct them to discuss the following questions with a partner:
- **a.** What is the same and what is different in each illustration?
- **b.** Based on what you have learned already about safety and hygiene standards, which one do you think might be better for upholding such standards? Why?
- **c.** Do you notice anything missing from these facilities?

Facility 1

Facility 2



Facility 3

Problem Solving Activity

Topic 2.1 Task 2:

1. Tell trainees to form three groups. Tell each group to read and discuss the following scenario:

   Mwiza, Muyango, and Kaneza are starter entrepreneurs interested in starting a new small-scale fruit and vegetable processing unit. They want to process juice from stinging nettle leaves, moringa leaves, alfalfa leaves, as well as wine from beetroots, bananas ripe strawberries, and ginger roots. Mwiza, Muyango, and Kaneza want to do the right thing by setting up their processing unit in compliance with manufacturing standards and regulations. Give them advice on how to do this.

2. With your group, answer the following questions:
   a. How should Mwiza, Muyango, and Kaneza identify the requirements related to the site location design, and layout? Where can they go to get information?
   b. What general advice can you give them regarding the location of their processing unit?
   c. Explain to Mwiza, Muyango, and Kaneza possible sources of contamination that they should be aware of as they start their facility.

Possible Answers: See 2.1 Key Facts

3. Tell the groups to write their answers on a flip chart or white/blackboard if available. They should choose one trainee to present and share their results with the other groups.

4. Facilitate a sharing round between the three groups. Instruct each trainee to carefully follow comments and contributions presented by each group.

5. As a class, review all the answers together as well as the **2.1 Key Facts**. After reading **2.1 Key Facts**, ask groups to improve their responses. Answer any questions trainees may have.

Guided Practice Activity

Topic 2.1 Task 3:

Preparation Note: This activity requires that the class visits some sites outside the classroom. The quality of these buildings can range, but the idea is to get some diversity among the sites so that trainees can practice observing well-suited facilities compared to ones that present challenges and hazards to food processing sanitation and safety. You will need to contact these buildings ahead of time to ensure that a visit is possible. Aim to visit 3-6 facilities in the community.

1. Inform the trainees that their class will be divided into four groups and visit several buildings in your community. This will help them to evaluate the places as potential food processing facilities. The buildings may or may not be existing food processing facilities, but the goal is to collect observations on what would be needed to bring the buildings up to safety and hygiene standards.

2. Assign each group an observation list located in their manuals.

3. Visit the planned building premises and have trainees evaluate the strengths and weaknesses of the buildings from inside and out. Direct trainees to **2.2 Key Facts** for ideas on what to look for.

4. Once the field visit is over, have trainees compile their observations for the building and move onto the next site.

5. Tell the groups to write a summary of their observations for each worksite.

6. After the visits, facilitate a sharing session for the trainees.

7. Finally, conclude by having the entire class choose one of the facilities that was the most promising and work together to make a list of construction steps and installations which would bring this building up to safety and hygiene standards. Compile this list since it will be used in the application activity.

8. Below are some considerations to supplement the trainees' lists.

Element or Task	Layout
Internal design and layout of food establishments	Internal design and layout - Should permit good food hygiene practices - Protect against cross-contamination between and during operations by foodstuffs - The flow should restrict the pathway of each type of product: o Raw materials should never meet finished products o No cross-through should be allowed
Windows	Windows should be: - Easy to clean - Constructed to minimize the build-up of dirt - Fitted with removable and cleanable insect-proof screens
Equipment	Clean and nontoxic materials: - Equipment and containers that come into contact with food should allow for adequate cleaning, disinfection, and maintenance to avoid contamination of food, have no toxic effect on products prepared in them. Movable and detachable: - Equipment and containers that come into contact with food should be movable and allow disassembly for maintenance and cleaning or disinfection, and monitoring.
Facilities for monitoring food operations	Depending on the nature of the food operations, adequate facilities should be available for equipment used for heating or cooling or cooking: - Refrigerating and freezing food - Storing refrigerate monitoring humidity - Air flow for frozen foods
Waste and dangerous substances	Containers for waste of by-products and inedible or dangerous substances should be specifically identifiable and lockable

Cleaning facilities and water	- Adequate facilities should suitably be designed and be provided for cleaning food utensils and equipment. - Rusted water containers and metal drums are not suited to washing materials that come in contact with food. - Water supply should be adequate of potable (drinking) quality. - Non-potable water (for use in fire control or steam production or refrigeration and other similar purposes where it would not contaminate food) should have a separate system from potable water.
Personnel changing and washing facilities	Personnel hygiene facilities should be available to avoid the possibility of contaminating food. Facilities should include: - Wash basins - Supply of hot and cold (or suitably temperature controlled) water - Lavatories of appropriate hygienic design and adequate changing facilities for personnel
Lighting and ventilation	- Adequate means of natural or mechanical ventilation should be provided in particular to minimize air-borne contamination of food. - Ventilation systems should be designed and constructed so that air does not flow from contaminated areas to clean areas and so that they can be adequately maintained and cleaned.
Storage	Provide adequate and separate facilities for the storage of food ingredients and non-food chemicals, such as cleaning materials and lubricants or fuels. Food storage facilities should be designed and constructed to permit adequate maintenance and cleaning and avoid pest access and harbourage.

Application Activity

Topic 2.1 Task 4:

Preparation Note: You will need to organize a field visit to RSB or a local construction authority. If this is not possible, request that a representative visits your training centre.

1. Using the list from the previous activity, inform the trainees that they will need to participate by asking the representative/worker questions about the following aspects of the construction process:
   a. Prices of materials
   b. Specifications
   c. Suppliers
   d. Transporters
   e. Taxation

2. Put the trainees in groups and have them brainstorm a list of questions before the RSB or construction company representative arrives as to maximise their time.

3. Instruct the trainees to record the information provided by the representative, so that they can estimate the price and which suppliers to use.

4. Encourage the trainees to use this opportunity to ask any other questions they may have about building regulations and codes for food processing facilities.

5. By the end of the activity, the class should know what kinds of construction equipment and materials are needed to place an order according to environmental and food processing buildings quality standards.

Points to Remember

- Never forget the impact of appropriate location of food processing building.
- Rwanda Standard Bureau (RSB) is a national regulating body providing building standards for food processing and agriculture.
- Rwanda Food and Drug Administration (RFDA) is responsible for registration of food processing premise suitability, licensing, and product registration.

Formative Assessment

Part I: Formative Evidence

Read the following carefully and choose the best answer.

1. Which of these is a correct consideration for choosing a land site?
   a. The most important is the land, products, clients, and the potential to get rich in a short period of time, even if it surrounded with pollution there is no problem.
   b. The distance between the processing cite and the source of raw materials is not big deal.
   c. Appropriate site should be that prevents the entry of pests, Should be located away from sources of Pollution, be near reliable electricity, on short distance down an access road, near the good quality of the road, have access to other facilities.
   d. The cheaper site located in the countryside even if no water, no electricity, or road can be available there, that advantage is the highest requirement to consider.

2. When ordering construction equipment and materials according to environmental and food processing buildings quality standards it is important to consider which of the following:
   a. The cheapest materials should be the first priority over quality and safety.
   b. The size of space and the size and number of building needed, the start-up capital as investment conditions, collecting and considering information regarding equipment and materials
   c. Consideration of reserving enough money for buying and expensive beautiful car for the CEO to avoid being overlooked by the people and defend his respect in the society.
   d. Consideration of cheaper contractors who will not go into details in analysing the effects of environment to the buildings and their purpose of use, to avoid extra cost.

Determine if the following are True **or** False**.**

The following government regulatory bodies have a close relationship with food processing sector in Rwanda:

3. Rwanda Standard Board (RSB)
4. Rwanda Social Security Board (RSSB)
5. Rwanda Investigation Bureau (RIB)
6. Rwanda Food and Drug Administration (RFDA)

Answers:

3. **C**
4. **B**
5. **True**
6. **False**
7. **False**
8. **True**

Part II: Performance Evidence

Bugabo has a project to establish small-scale food premises facilities and wants to implement the layout phase of the project. As a food safety and GMP technician, you are requested to contribute to his monitoring design and building activities. He also asks you to participate in setting and installing heavy and light equipment in the workplace. The space has 625 m^2 (square metres 25 m x 25 m). This task must be performed within 4 months. The experts and staff are present, the materials are in the warehouse, and the other facilities you will need are available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Proper participation in facilities building design review	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper contribution to monitoring design and building activities	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper participation in setting and installing heavy and light equipment	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

*The assessor should consult the **Key Facts** in the Trainee Manual as well as the Points to Remember found in both the Trainer and Trainee Manuals for more details on each element listed.

Further Information for the Trainer

1. Fellows, P. (1997). Establishing Production Facilities. Retrieved from http://www.fao.org/3/W6864E/w6864e0b.htm
2. Food and Agriculture Organization of the United Nations FAO Regional Office for Latin America and the Caribbean, Izquierdo, J., Rodriguez Fazzone, M., & Duran, M. *Guidelines "Good Agricultural Practices for Family Agriculture" . Guidelines "Good Agricultural Practices for Family Agriculture"* (pp. 1–56). Santiago, Chile. Retrieved from: http://www.fao.org/3/a-a1193e.pdf
3. Food and Agriculture Organization of the United Nations (FAO), & The Asia and Pacific Plant Protection Commission (APPPC). (2005). *Regional Standards for Phytosanitary Measures: Requirements for the Establishment and Maintenance of Pest Free Areas for Tephritid Fruit Flies*. (pp. i-23). Bangkok, Thailand. Retrieved from http://www.fao.org/3/a-ae941e.pdf
4. Rwanda Standards Board. (2016). *Standards Published 2015-2016: Zamukana Ubuziranenge Program*. (pp. 1–32). Kigali, Rwanda: Rwanda Standards Board. Retrieved from: http://www.rsb.gov.rw/fileadmin/user_upload/files/pdf/new_stds/2015-2016_Standards_Published.pdf
5. Specifico & Co. (2019). Layout Design and Review of Food Premises. Retrieved from https://specificoco.com/training/layout-design-and-review-of-food-premises/
6. Menon, H., & The Food Safety and Quality Authority of The Gambia. (2017). Food Safety and Good Hygienic Practices Handbook for Gambian Youth Entrepreneurs(pp. I-154, Rep.). Geneva, Switzerland: International Trade Centre. Retrieved from: http://www.intracen.org/uploadedFiles/intracenorg/Content/Exporters/Exporting_Better/Quality_Management/AssetPDF/FINAL%20Food%20safety%20and%20GHP%20-%20Gambia(2).pdf

Learning Outcome 2.2: Assist in production planning

Objectives: By the end of the learning outcome, trainees will be able to:

a. Categorise raw materials and design packaging materials according to food products requirements

b. Select food processing staff for a production line

c. Use of tools, utensils, equipment, and documentation records required according to food processing program

Time Required: 8 hours

Learning Methodology: Brainstorming, group discussion, problem solving, practical exercise, field visit, written activities

Materials Needed:

- **Standard training materials:** Flipchart, marker, pens, reference books, paper, notebooks
- **Audio/visual equipment:** internet, videos, projectors
- **Other:** Raw materials sample

Preparation:

- ❑ Gather all resources and store them in orderly and secure condition for easy access to avoid time wasting in practical activities.
- ❑ Contact the owners of the food processing plant you will visit.
- ❑ Check the expiration date of all chemicals you will use in teaching this topic.
- ❑ Make sure that the provided are for practical activities is available and organised whenever you need it.

Cross Cutting Issues:

- ✓ **Environment and sustainability**: should be considered while identifying cleaning chemicals, drainage, and waste disposal procedures
- ✓ **Standardisation culture**: Follow standard procedures while identifying appropriate cleaning solutions.
- ✓ **Financial education**: Consider financial education while purchasing PPE consumables, cleaning materials, tools, and equipment.

Prerequisites:

- Basic communication skills
- Learning Unit 1
- Learning Outcome 2.1

Key Competencies:

Knowledge	Skills	Attitudes
1. Identify raw materials and design packaging materials according to food products requirements	**1.** Categorise raw materials and design packaging materials according to food products requirements	**1.** Detail-oriented
2. Describe the appropriate food processing staff for a production line	**2.** Select food processing staff for a production line	**2.** Diligent
3. Describe the tools, utensils, equipment and document records required according to food processing program	**3.** Use of tools, utensils, equipment and documentation records required according to food processing program	**3.** Methodical

Steps:

Getting Started: What do we know and where are we going?

Topic 2.2 Task 1:

1. Have the trainees open their manuals to **Topic 2.1 Task 2** and look at the images.

2. Ask them to discuss the following questions with a partner:
   - **a.** What happening in each image?
   - **b.** Have you ever seen something similar to this in your community?
   - **c.** How might these illustrations be related to food processing?
   - **d.** If you had to guess which step might come first and last?

3. Introduce the learning outcomes and the Key Competencies table for this learning outcome.

Figure 1

Figure 2

Figure 3

Figure 4

Answer: The illustrations represent some steps taken from processing food products, in this case pineapples. The first illustration (**Figure 1**) shows the pineapples being processed in a machine, while **Figure 2** shows workers receiving raw pineapple. The **Figure 2** shows labourers in PPE packaging the pineapple products while the final image (**Figure 4**) shows the workers transporting the boxed product**.**

Problem Solving Activity

Topic 2.3 Task 2:

1. Ask the trainees to turn to **Topic 2.2 Task 2** in their manuals and read the following scenario:

   Mwiza, Muyango, and Kaneza have built their food processing facilities according to your recommendations. However, they are faced with a new problem: They do not have any workers nor raw, unprocessed food to start production with. They need your help!

2. Discuss the following questions with your group:
   a. What problems might occur if Mwiza, Muyango, and Kaneza take in raw food, materials, or produce without procedures in place?
   b. What kinds of tasks and processes need to occur on a food production line to make food products?
   c. Which of these tasks could be done by one person and which might need more than one person?
   d. How should Mwiza, Muyango, and Kaneza go about staffing their factory?
   e. How could sanitation and hygiene be related to this situation?

3. Facilitate a sharing round in which groups can discuss their answers. Encourage groups to supplement their answers by consulting **2.3 Key Facts**.

4. Conclude by harmonizing the answers and review **2.3 Key Facts** together.

Guided Practice Activity

Topic 2.2 Task 3:

1. Direct the attention of the trainees to the illustrations (A-H) shown in **Topic 2.2 Task 3** in their manuals. Explain that these illustrations show the entire workflow of fruits being processed, from the receiving point to the finished products are out for order.

2. With a partner, tell the trainees to identify the corresponding tasks and write them in each box.

3. Then, they must write corresponding letters to each task in the correct sequence below. The first letter and task name are already provided. The **Answers** are provided for your reference.

Order: H, F, E, D, B, C, G, A

A

Processing task:

Loading finished product for transport

B

Processing task:

Mixing or homogenising processed juice

C

Processing task:

Labelling processed pineapple juice

D

Processing task:

Loading sorted and graded pineapples into a processing machine, most likely a juice squeezer

E

Processing task:

Sorting raw pineapples

F

Processing task:

Grading and washing pineapples

G

Processing task:

Packaging the bottled and labelled pineapple juice

H

Processing task:

Receiving produce

4. Once trainees have completed the first part of the activity above, put them in groups and provide the outlines of other workflows, included below. Give each group a different workflow outline.

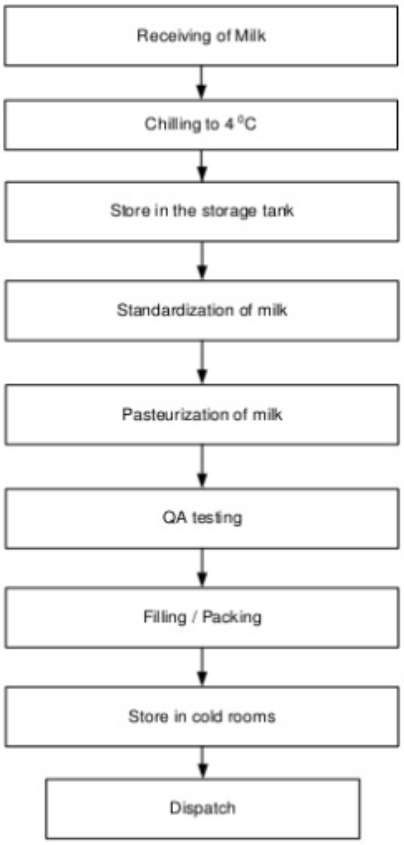
5. Instruct the trainees to draw out (sketch) each task in the workflow similar to the illustrations above.

6. Then, have the trainees cut the sketches out so that they can be rearranged and have another group try to put them in the correct order. Some of the outlines may be too difficult for trainees, in which case use only the fish processing and milk workflows, which are the simplest and should be familiar to them.

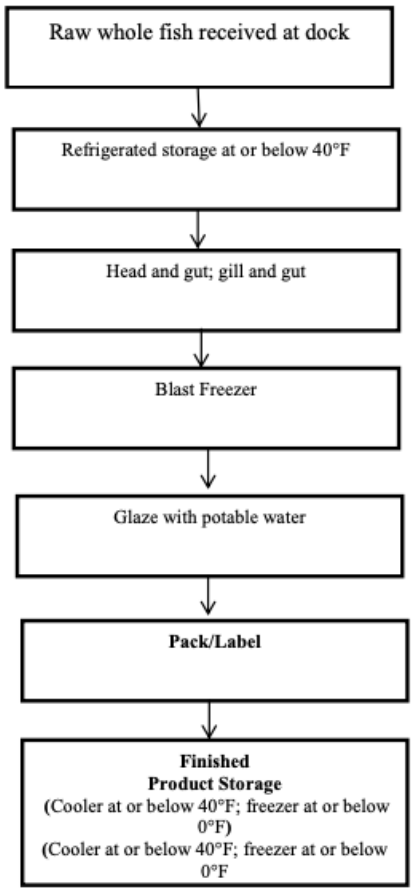
7. Review the workflows for each type of food product as well as the information included in the **2.4 Key Facts**.

Sample Flowchart for Pasteurised Milk

Processing of Milk

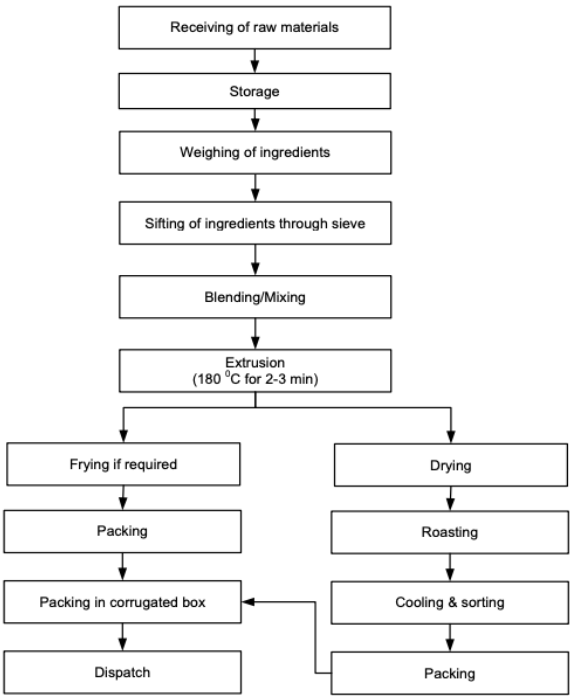


Sample Flowchart for Fish Processing

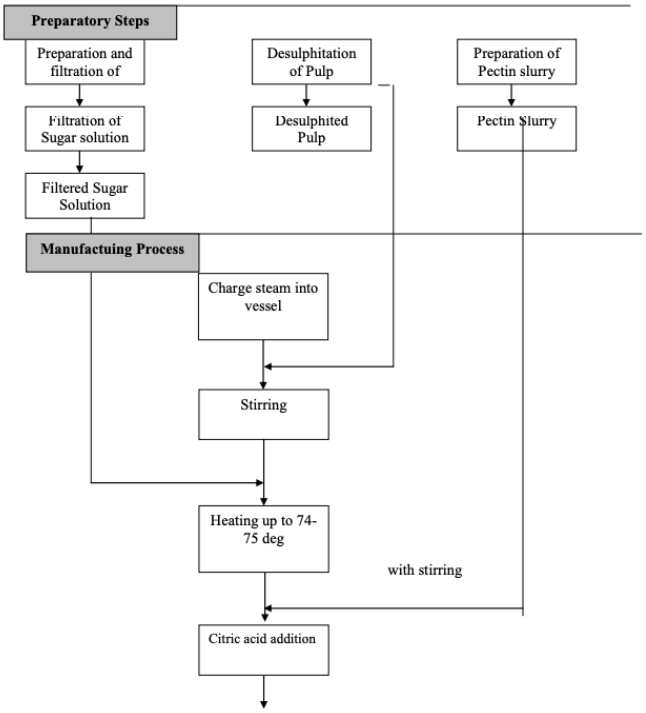


Sample Flowchart for Extruded Snacks

Manufacturing of Extruded Products



Sample Flowchart for Jam Manufacturing Process



Application Activity

Topic 2.2 Task 4:

1. Form groups of four trainees in each group and tell them to get ready for field work in the training centre's small-scale soya milk and tofu processing unit. In this activity, they will work in teams with the experienced staff of the processing unit.

2. Visit the training centre's small-scale soya milk and tofu processing unit. Make sure that the food processing unit is working properly and has all the needed equipment, tools, utensils, raw materials, and supplies. Trainees will identify raw materials and design packaging materials according to the food product requirements.

3. Ask groups complete the following tasks:
   - **a.** List the equipment, tools, utensils, supplies, and raw materials used.
   - **b.** Explain how the staff identifies, sorts, stores, and grades the incoming raw food or materials.
   - **c.** List each staff member and briefly describe their tasks. If there are more than 20 staff in the company, then focus on the staff working on the production line.
   - **d.** Take notes on the design of the packaging materials. What information is included? Be sure to ask why!
   - **e.** Observe how documents are recorded and kept for food processing program.
   - **f.** Be prepared to share your answers.

4. By the end of the practical activity, each group should share their answers and discuss their experiences.

Points to Remember

- First in First Out (FIFO) is an effective food rotation system in which the first lot of product received is used up before using those received at later dates.

- The basic rules for clean and healthy practices, known as Good Hygiene Practices (GHP), must be incorporated at all stages of the processing work line.

Formative Assessment

Part I: Formative Evidence

Read the questions closely and select ONE correct answer.

1. Which of the following statements indicates the specification conditions needed to identify the raw materials for food processing?
   a. Your product idea, market research, business planning, business insurance, and regulations food safety.
   b. Applicable workplace cleaning plan and the type of raw materials to remove during cleaning, and the type of products to be processed after cleaning.
   c. The name of the product and the supplier's item number, the composition of the material, the presence of regulated or customer-recognized food allergens, and organoleptic information.
   d. Consideration of tourists and expatriates, restaurants and snack bars, other food processing companies, and people living in rural areas with low-to-average incomes.

2. Which of the following statements shows the proper practices for food processing employees?
   a. Employees should wear personal belongings and eat anything during the production process.
   b. Employees should wear a coverall suit, white boots, sodium hypochlorite, and hydrochloride. They should receive phone calls during production operations.
   c. Employees should wear appropriate gloves and protective clothing, including aprons and hair nets.
   d. Employees should not change gloves when they touch their bodies nor wash their hands after visiting the toilet. They should not report minor illnesses like a common cold or skin boils.

Determine if the following statements are appropriate for a food processing area according to standard operating procedures. Write **True** if they are appropriate and **False** if they are not appropriate.

3. Production planning has no connection to a food safety plan.

4. Identification of raw materials should be done according to standard specifications.

5. Records are useless operations in the food processing workflow.

Answers:

1. **C**
2. **C**
3. **False**
4. **True**
5. **False**

Part II: Performance Evidence

Bana is a young entrepreneur in Ruhango District. He has been selected by the district's Youth Empowerment Community as the best innovative young entrepreneur and received financial support for setting up a small-scale potato processing operation. He wants his business to comply with food safety guidelines.

As a food safety technician, Bana needs your support in production planning, especially in the identification, selection, and use of tools and equipment in the production line. This task must be performed in a small food processing area of 49 m^2 with eight processing points. This task should be performed within 2 hours according to proper food processing procedures.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Proper selection of staff for each processing point	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper identification, selection, and use of tools and equipment at each point in the food processing line	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper documentation and recording of standard records in food processing procedures.	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected.	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

*The assessor should consult the **Key Facts** in the Trainee Manual as well as the **Points to Remember** found in both the Trainer and Trainee Manuals for more details on each element listed.

ⓘ Further Information for the Trainer

1. Food and Agriculture Organization of the United Nations (FAO). Guide to Good Hygienic, Agricultural and Manufacturing Practices for the primary production (cultivation-harvest), conditioning, packing, storage, and transportation of fresh fruits. SENASA Resolution 510/02. Retrieved from: http://www.fao.org/3/y4893e/y4893e0a.htm
2. Amsbary, R. (2013, June 12). Raw Materials: Selection, Specifications, and Certificate of Analysis. Retrieved from: https://www.qualityassurancemag.com/article/aib0613-raw-materials-requirements/

Learning Outcome 2.3: Assist with implementation of standard operations procedures

Objectives: By the end of the learning outcome, trainees will be able to:

a. Apply food safety and sanitation practices in accordance with health and safety requirements

b. Process raw materials following the protocol and procedures of food processing standards

c. Demonstrate packaging methods according to food processing procedures and processed products requirements

Time Required: 7 hours

Learning Methodology: Brainstorming, group discussions, role play, field visit, presentation, practical exercise

Materials Needed:

- **Standard training materials:** Flipchart, markers, pens, internet, reference books, notebooks

Preparation:

❑ Make sure that the teaching materials are properly selected and arranged according to the activities and the number of trainees.

Cross Cutting Issues:

✓ **Environment and sustainability**: The environment should be considered while identifying cleaning chemicals, drainage, and waste disposal procedures.

✓ **Standardisation culture**: Follow standard procedures while operating in a food processing plant.

✓ **Financial education**: Consider financial education while purchasing tools and equipment.

✓ **Gender:** Consider gender when forming small groups

✓ **Inclusivity**: Allow for inclusivity when allocating roles for scenarios or situations

Prerequisites:

- Basic communication skills
- Learning Unit 1
- Learning Outcomes 2.1 and 2.2

Key Competencies:

Knowledge	Skills	Attitudes
1. Identify the application of food safety and sanitation practices in reference with health and safety requirements	**1.** Apply food safety and sanitation practices in reference with health and safety requirements	**1.** Attention to detail
2. Describe, the processing of raw materials following protocol and procedures	**2.** Process raw materials following the protocol and procedures of food processing standards	**2.** Confident
3. Define the packaging methods according to food processing procedure in reference with processed products requirements	**3.** Demonstrate packaging methods according to food processing procedure in reference with processed products requirements	**3.** Detail-oriented

Steps:

Getting Started: What do we know and where are we going?

Topic 2.3 Task 1:

1. Briefly review the previous topic. Then, present this statement to the trainees for discussion. Get the trainees interested by applying their prior knowledge and experience.

Knowledge with skills is like refined silver, but when connected to the law, rules, and standards they yield a pure shining gold mixed with diamond.

2. Ask the trainees to describe what the statement means to them. Ask them if they can relate or give an example of this situation from their own lives.

3. Ask volunteers to share their answers and discuss them as a class. Ask the trainees how this situation could link to their professional lives and this Learning unit.

4. Introduce the learning outcomes and the Key Competencies table for this learning outcome.

Problem Solving Activity

Topic 2.3 Task 2:

1. Ask trainees to open their trainee manuals to **Topic 2.3 Task 2**. Instruct them to read the following scenario and answer the questions that follow in groups:

   Mwiza, Muyango, and Kaneza have staffed their entire production line, but realised that some of them have never had any experience processing raw food. They need to create a training program for their workers to avoid contamination and prevent future customers from becoming sick due to poor quality products.

2. Tell trainees to think back to the last scenario with Mwiza, Muyango, and Kaneza when they helped identify the steps of food safety and sanitation practices and apply it to their own production line. In groups, tell the trainees to give them advice again by answering the following questions:
   a. What should they consider before the processing of raw materials in order to follow hygiene and safety protocols and procedures?
   b. What packaging methods would be appropriate to use?
   c. How should they properly store and organise their finished products according to the product's requirements?

3. Once the groups have had adequate time to discuss, ask each group to write their answers on the flipchart or white/blackboard. Ask the groups to choose a presenter to share their results with the rest of the class. Ask the trainees to listen carefully and provide comments after each presentation.

4. After all groups have presented, ask trainees to compare their answers. Do they have similar responses and ideas?

5. Finally, review the correct answers together by reading **2.5 Key Facts**.

Guided Practice Activity

Topic 2.3 Task 3:

1. Divide the class into groups of four. Explain that their task is to write a Standard Operating Procedure (SOP) for one of the food products that they have observed so far in this module.

2. Inform the groups that they can pick the food product. Ensure that group members agree on the product and specific processing task.

3. Then, have trainees think back in greater detail to their experiences during field visits and brainstorm all the relevant information that should be included in their SOPs.

4. Refer the groups to the template provided and instruct them to use it to ensure that the SOP is easily readable and that they do not forget any important steps.

Title:
Table of Contents:
Purpose:
Definitions:
Staff Responsibilities
Materials:
Safety Warnings:
Procedures:
Training:
Documentation:

5. Before beginning, direct the trainees to **2.6 Key Facts** where they can find useful information for this activity. Then, tell the groups to start their plans and give guidance

or instruction where needed. Explain that they should be prepared to share their answers once finished.

6. After all groups have completed creating their SOPs, facilitate a sharing round where each group presents the plan while other groups give feedback.

Application Activity

Topic 2.3 Task 4:

1. Ask trainees to form small groups of 3-4 people and get ready for a field visit to a local business. They will visit a small-scale sugar cane processing unit that makes gur and brown sugar.

2. Visit the small-scale sugar cane processing unit together.

3. Direct trainees to the five tasks to be performed by each group:
   a. Identify the food safety and sanitation practices in accordance with health and safety requirements.
   b. Classify the conditions to consider before the processing raw materials.
   c. Demonstrate how to process raw materials according to food processing protocols.
   d. Illustrate the packaging methods used.
   e. Indicate the proper storage methods used.

4. By the end of the practical activity, ask each group to share their answers to the above questions. Ask trainees to compare their observations with the information in **2.5 and 2.6 Key Facts.** Answer any questions trainees have and make clarifications as needed.

Points to Remember

- Remember to establish and enforce basic Standard Operating Procedures (SOPs).
- Remember to follow the specific food packaging protocol while packaging the processed food products.

Formative Assessment

Part I: Formative Evidence

Determine if the following statements refer to correct food safety and sanitation practices considering health and safety requirements. Write True **if the statements are correct and** False **if they are incorrect.**

1. Cleaning procedures and schedules are not a must for applying food safety**.**

2. Appropriate use of tools and multi service utensils cleaning and sanitizing. procedures.

3. Routine equipment maintenance and personal hygiene are not applicable practices in small scale food processing.

4. Hand washing program, garbage and pest control are not important to prevent cross contamination and food hazards in food processing.

Circle the correct answer for each question.

1. Which of the following is NOT included in the packaging procedures for processed food products?
   a. Selection of packaging materials is mandatory
   b. Package any way depending on the products processed
   c. Preparation of packaging materials is recommended
   d. Package the processed products according to processed products packaging procedures

2. Which of the following statements does NOT indicate an example of proper storage record keeping?
   a. Records of stored food temperature condition.
   b. Records of dates of entry for store management.
   c. Records of damaged vehicles for products transport to the farm.
   d. Records of stock rotation.

Answers:

1. **False**
2. **True**
3. **False**
4. **False**
5. **B**
6. **C**

Part II: Performance Evidence

Mageza is a young entrepreneur who has started small-scale fresh banana processing unit in Ngoma District. He wants to implement food safety and basic Standard Operating Procedures at his processing unit.

As a basic food safety and basic GMP technician, you are requested to contribute to the basic standard operating procedures for processing dry banana products (bread) in a food processing area of 64 m^2 (8 x 8 m). This activity must be performed within 1 hour. The staff, equipment, materials, and other facilities you will need are available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Follow protocol considering conditions before processing raw materials	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Following steps and conditions for processing raw materials	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Consider storage conditions of the processed products	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

ⓘ Further Information for the Trainer

1. University of Minnesota Extension. (2018). Standard Operating Procedures (SOPs). Retrieved from: https://extension.umn.edu/food-service-industry/standard-operating-procedures-sops
2. Figuerola, F., Rojas, L., & Food and Agriculture Organization of the United Nations (FAO). (1997). *Technical manual on small-scale processing of fruits and vegetables*. *Technical manual on small-scale processing of fruits and vegetables*. Santiago, Chile. Retrieved from: http://www.fao.org/3/x0209e/x0209e00.htm#TopOfPage

Learning Outcome 2.4: Document and record information

Objectives: By the end of the learning outcome, trainees will be able to:

a. Maintain records to provide evidence of conformity with the GMP manual

b. Make the listing of records traceable according to GMP manual

c. Report records to concerned personnel according to workplace procedures

Time Required: 6 hours

Learning Methodology: Brainstorming, group discussions, field visit, questions and answers, presentation, practical exercise

Materials Needed:

- **Standard training materials:** Flipchart, marker pen, pen, internet, reference books

Preparation:

- ❑ Make sure that the teaching materials are properly selected and arranged according to the activities and number of trainees.
- ❑ Organise a field visit by contacting local owners and arranging with the training centre's administration.

Cross Cutting Issues:

- ✓ **Environment and sustainability**: The environment should be considered while identifying cleaning chemicals, drainage, and waste disposal procedures.
- ✓ **Gender:** Consider gender balance when forming small groups.
- ✓ **Inclusivity**: Allow for inclusivity when allocating roles for scenarios or situations.

Prerequisites:

- Basic communication skills
- Learning Unit 1
- Learning Outcomes 2.1-2.3

Key Competencies:

Knowledge	Skills	Attitudes
1. Define the maintenance of all records to provide evidence of conformity in accordance with GMP manual	**1.** Maintain records to provide evidence of conformity with the GMP manual	**1.** Attention to detail
2. Describe the listing of records traceability according to GMP manual	**2.** Make the listing of records traceable according to GMP manual	**2.** Confident
3. Identify reporting records to concerning personnel according to workplace procedures	**3.** Report records to concerned personnel according to workplace procedures	**3.** Detail-oriented

Steps:

Getting Started: What do we know and where are we going?

Topic 2.4 Task 1:

1. Briefly review the last topic. Then, present this Latin proverb translated to English.

"Spoken words fly away, written words remain."

2. Ask the trainees to describe what the proverb means to them.
   a. What is the content of the proverb?
   b. How does it apply to your own life?
   c. Have you ever experienced or heard of a similar situation reflected by the proverb?

3. Ask volunteers to share their ideas. Discuss them as a class.

4. Introduce the learning outcome and the Key Competencies table for this learning outcome.

Problem Solving Activity

Topic 2.4 Task 2:

1. Ask the trainees to open their Trainee Manuals to **Topic 2.4 Task 2**. With a partner, tell them to read and discuss the following scenario:

   Mwiza, Muyango, and Kaneza have started processing activities with good results and high consumer satisfaction. However, now they have a serious problem of unexplained loss of money and raw food. Kaneza suspects it is due to lack of appropriate documentation, record keeping, and reporting. They want to correct this problem to stop their processing unit from operating at a loss.

2. With their partners, tell the trainees to discuss the questions. Ask each pair to write their answers on a common flipchart or white/blackboard if available at the front of the class.
   - **a.** How should they begin maintaining records to enforce conformity in accordance with GMP?
   - **b.** What should the keep records of?
   - **c.** How should they list records so that traceability can happen?
   - **d.** How should they report records to relevant personnel according to workplace procedures?

3. Ask the trainees to present their ideas and listen closely to others as they present.

4. Review the **Answers** provided together as well as **2.7 Key Facts**.

Answers:

Question	Answer
What types of records need to be maintained to provide evidence of conformity in accordance with the GMP manual?	Record to be maintained for providing evidence of conformity may include: - Review of records inventory - Organisation/filing of records - Organisation electronic records - Records disposal - Secure document storage
What is the procedure for listing records of	The procedure for listing records for traceability according to GMP manual may include: - Company/business documents (quality manual)

traceability according to GMP manual?	- Policies documents - Standard operating procedures documents - Batch records - Test methods records

Guided Practice Activity

Topic 2.4 Task 3:

Preparation Note: Print out and prepare the forms listed below before the activity**.**

1. Divide the trainees into groups of three.

2. Provide the groups with examples of various record keeping forms.

3. Explain that the groups' task is to evaluate the forms according to the following points:
   a. Do they include organization and reporting records?
   b. Are they standard operating procedure documents?
   c. Do they serve to provide evidence of conformity in accordance with the GMP manual?
   d. Do they allow for traceability according to GMP manual?
   e. Do they record reporting to concerned personnel according to workplace procedures?

4. Give trainees plenty of time to analyse the forms as this may be a difficult task.

5. If trainees are struggling with this task, review **2.8 Key Facts** with them.

Form 1

PEST CONTROL PLAN AND REPORT

Area / Facility (reference #1)	Assigned to	When done	What to do, pest control solutions	Done by (Initial / date)	Comments and Corrective Action

Verification: _____ Date: _____

Form 2

CHEMICALS LIST AND MATERIAL SAFETY DATA SHEETS

The following is a list of chemicals used in this facility and the suppliers.

Name	Supplier	Description

Form 3

SUPPLIER QUALIFICATION LIST

Ingredient	Item #	Supplier(s)	Qualifications
Meat, fish, poultry, seafood			
Produce: fruits, vegetables			
Groceries: flours, grains, batters,			
Groceries: spices, herbs			
Groceries: canned, bottled, etc.			

Form 4

SUPPLIER FSMS QUALIFICATION STANDARDS

Vendor: _____ Date: _____

Address: _____

Since you are one of our current / potential vendors, we would like to know about your quality assurance program. If you have a FSMS program, we consider this to be part of your QA program. It is very costly for us to receive a product or service from a vendor that does not meet our expectations. Please answer the following questions and provide the material as appropriate concerning your quality assurance plan and program to achieve each requirement. When we visit with you, we will expect that you be able to demonstrate that you do each item effectively and are continually improving.

1. Who developed your FSMS / Quality Assurance program?

   Who validated your program as effective?

   Who are the members of your SMS / QA team? How often do they meet?

   Describe your pre-ship verification program.

2. Have you taught each employee who works with food the hazards associated with the task he/she performs and how to perform the necessary controls?

3. What do you require of your suppliers in terms of ingredient FSMS controls?

4. Please tell us about your recall and emergency action program.

5. Describe the responsibilities of your Quality Assurance / Quality Control department.

   What ingredient testing do you do? What product testing do you do?

6. What are the critical limits, if you have them, for the biological, chemical, and physical hazards that are reasonably likely to be in the products you provide to use?

In addition to the above, please provide specifications to us for the products we purchase from you.

We will appreciate your quick response.

Sincerely,

_____

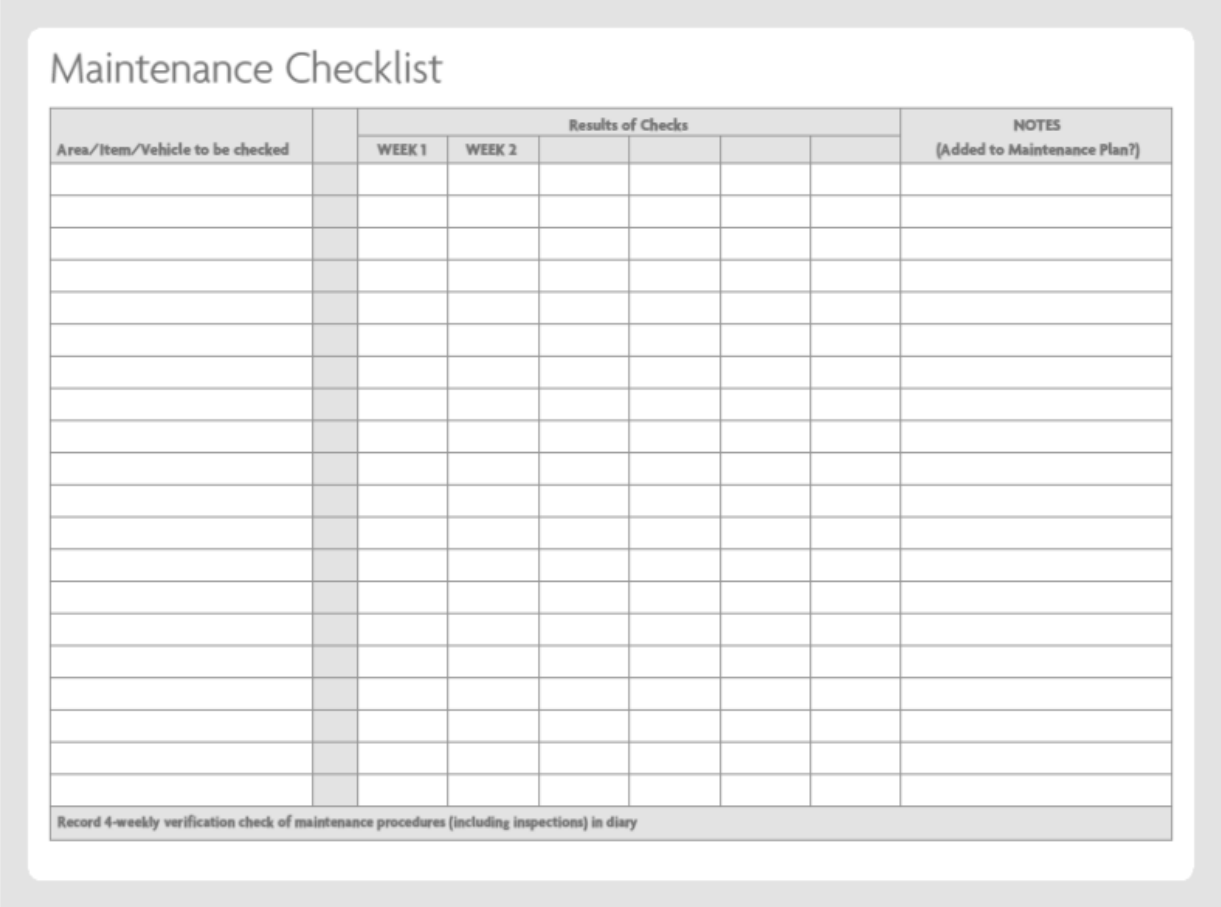
Form 5

Receiving Report
Incoming Product
Temperature / Visual
Check

This form is used to check in fresh and frozen ingredients. It is also used to record rejected food and reasons for rejection.

Date	Item and Lot #	Temperature	Comment

Form 6



Maintenance Checklist

Area/Item/Vehicle to be checked		Results of Checks						NOTES (Added to Maintenance Plan?)
		WEEK 1	WEEK 2					
Record 4-weekly verification check of maintenance procedures (including inspections) in diary								

Additional Information for the Trainer:

Questions	Answers
What are the specifications in recording tractability? What are the types of logbooks traceability records?	Specifications in record of tractability may include: - Supply records - Material records - Products records Logbooks traceability records include: - Operating records - Maintenance records - Calibration records
What is the process of reporting records to concerned personnel according to workplace procedures?	The procedure of reporting records to concerned personnel include: - Identification of the roles and responsibilities of all personnel working in the organization. - Verbal report to a supervisor - Completing report form - Raising the issue at a staff meeting

Application Activity

Topic 2.4 Task 4:

1. Ask trainees to form small groups and get ready for fieldwork at a local business where an entrepreneur has a small-scale cheese processing unit.

2. Visit the cheese processing unit as a class.

3. Give the groups four different tasks to perform:
   a. Identify all records kept as evidence of conformity in accordance with the GMP manual.
   b. Carefully note how the records are kept and tracked in live time, such as during food processing.
   c. Grade records of traceability according to the GMP manual.
   d. Write a brief report of records according to workplace procedures to share with your trainer

4. At the end of the practical activity, ask each group to share their answers.

5. Clarify any questions and misunderstandings while highlighting important insights that arise in the share session.

Points to Remember

- Maintaining records as evidence for conformity to standards is mandatory in every food processing area.
- Records of materials, supplies, and products specifications are examples of traceability records to be maintained.
- The procedure of reporting records to concerned personnel should always be followed in food processing area.

Formative Assessment

Part I: Formative Evidence

Read the following questions carefully and circle the best answer for each one.

1. What is an appropriate way of securing and deposting of recorded documents?
   a. Organization program with filing of records.
   b. Review of record's inventory of cars in the parking of food processing premises.
   c. Organization's electronic records of food eaten by staff in a year at their homes

2. Which of the following elements should be included in logbooks of the production area to allow for tractability?

   a. Supply of equipment spare parts records
   b. Operating records
   c. Walls of the production area maintenance records.
   d. Calibration records of food processing 's fuel equipment.

3. Which of the following does SOP stand for?
   a. Society of Paints for food processing equipment
   b. Standard Operating Procedures
   c. Standard Outcomes Papers

4. Which of the following does GMP stand for?
   a. Good Manufacturing Planning
   b. Good Manufacturing Practices
   c. Guidance for Manufacturing Personnel

Answers:

1. **A**
2. **B**
3. **B**
4. **B**

Part II: Performance Evidence

Munezero is a young entrepreneur in Nyamasheke District in Nyabitekeri Sector. He has a small-scale fish processing unit and wants to comply with good manufacturing practices in his unit. You are requested to assist him with documenting and recording all information recommended to be maintained in order to comply with good manufacturing practices. This activity must be performed within 45 minutes.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Proper maintenance of records to provide evidence of conformity in accordance with the GMP manual	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper listing of records for traceability	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper record reporting to concerning personnel according to workplace procedures	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

Self-Reflection

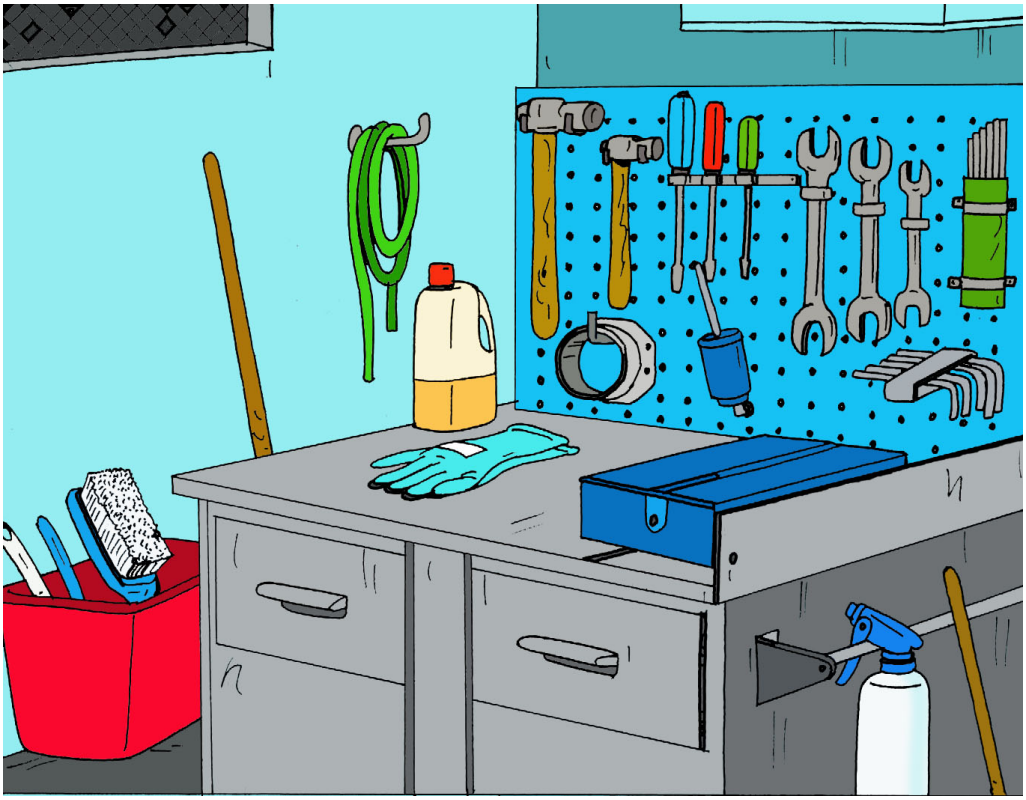
1. Ask trainees to re-take the self-assessment at the beginning of the unit. They should then fill in the table in the Trainee's Manual to identify their areas of strength, areas for improvement and actions to take to improve.

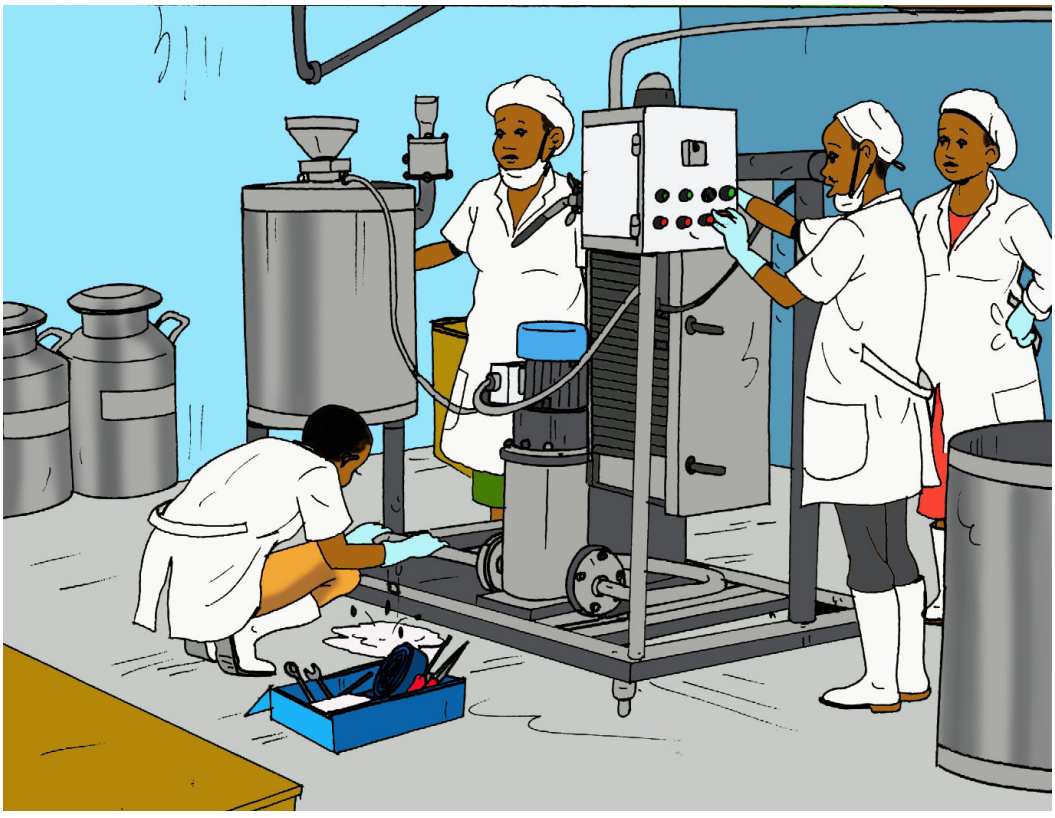
2. Discuss trainees' results with them. Identify any areas that are giving many trainees difficulties and plan to give additional support as needed (ex. use class time before you begin the next learning outcome to go through commonly identified difficult concepts).

ⓘ Further Information for the Trainer

1. Government of Manitoba. (2012). *Basic Good Manufacturing Practices Food Safety Program*. *Basic Good Manufacturing Practices Food Safety Program* (pp. 1–38). Winnipeg, Manitoba: Manitoba Agriculture, Food and Rural Initiatives. Retrieved from: https://www.gov.mb.ca/agriculture/food-safety/at-the-food-processor/basic-gmp-program/pubs/basic_gmp_guidebook.pdf
2. United Nations Industrial Development Organization, P., & Fellows, P. (2004). *Small-scale root crops and tubers processing and products: Production methods, equipment and quality assurance practices* (November 2010 ed., Vol. V.10-57762, Ser. 150, pp. 1-94, Rep.). Vienna, Austria. Retrieved from https://open.unido.org/api/documents/4672285/download/Small-scale%20root%20crops%20and%20tubers%20processing%20and%20products%20-%20Production%20methods,%20equipment%20and%20quality%20assurance%20practices
3. November, V., & Evans-Lara, A. (2019, June 6). GMP in the Food industry. Retrieved from: https://haccpmentor.com/gmp/gmp-in-the-food-industry/9/
4. Department of Health & Human Services. (2015, October 08). Personal hygiene for food handlers. Retrieved August 1, 2019, from https://www2.health.vic.gov.au/public-health/food-safety/food-businesses/food-how-to-keep-it-safe/personal-hygiene-for-food-handlers
5. Mendis, PhD, E., & Rajapakse, PhD, N. (2009). *Gmp And Haccp: A Handbook for Small and Medium Scale Food Processing Enterprises*. (pp. 1–83). Colombo 2, Sri Lanka: The Ceylon Chamber of Commerce in collaboration with the Sri Lanka Food Processors Association. Retrieved from: https://www.researchgate.net/publication/311571232_GMP_and_HACCP_handbook_for_small_and_medium_scale_food_processing_enterprises

Learning Unit 3: Conduct routine maintenance





Learning Outcomes

By the end of the Learning Unit, trainees will be able to:

3.1 Conduct routine inspection of processing plant and equipment

3.2 Prepare to conduct routine maintenance

3.3 Carry out routine maintenance

3.4 Complete maintenance tasks

Learning Unit 3 Self-Assessment

1. Ask trainees to look at the illustration above (in their Trainee Manuals) and discuss what they see. What topics do they think this unit will include based on the illustration? After some brainstorming, share the main topics.

2. Ask trainees to fill out the self-assessment at the beginning of the unit in their Trainee Manuals. Explain that the purpose of the self-assessment is to become familiar with the topics in the unit and for them to see what they know or do not know at the beginning. At the end of the unit, they will do a self-reflection, which includes re-taking the self-assessment and identifying their strengths, areas that need improvement and actions to take. The self-assessment is not a test.

Learning Outcome 3.1: Conduct routine inspection of processing plant and equipment

Objectives: By the end of the learning outcome, trainees will be able to:

a. Inspect food processing equipment to identify signs of wear

b. Perform assessment of maintenance nature

c. Follow preventive maintenance schedules for food processing equipment including record keeping

Time Required: 5 hours

Learning Methodology: Brainstorming, group discussions, field visit, role plays, presentations, practical exercise

Materials Needed:

- **Standard training materials:** Flipchart, markers, pen, ream of paper, internet, reference books
- **Tools and materials:** Spare parts, special tools, oils, greases, Vaseline, file, measuring tools, toolbox
- **PPE**: Gloves, earmuffs, respirators, goggles, boots, overshoes, sorbets (coverall suits), head nets, visitor coats, aprons, gowns
- **Personal hygiene materials**: Disposable paper towels, liquid soap, water, electrical hand air drying equipment, and hand sanitizing products
- **Other materials:** Handwashing sink, dust bins, first aid box

Preparation:

❑ Make sure that the training centre has all materials needed and proper accommodation for delivering the lesson.

Cross Cutting Issues:

✓ **Environment and sustainability**: The environment be considered while identifying cleaning chemicals, drainage, and waste disposal procedures.

✓ **Standardisation culture**: Follow standard procedures while undergoing any maintenance work or routines.

✓ **Gender**: Consider gender balance when forming small groups and create opportunities which maximize participation, recognition, and cooperation for both men and women.

Prerequisites:

- Basic communication skills
- Learning Unit 1
- Learning Unit 2

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe inspection of food processing equipment to identify signs of wear	**1.** Inspect food processing equipment to identify signs of wear	**1.** Accurate
2. Define assessment of maintenance nature	**2.** Perform assessment of maintenance nature	**2.** Attentive
3. Identify inspection schedules, used for preventive maintenance of food processing equipment	**3.** Follows preventive maintenance schedules for food processing equipment	**3.** Methodical

Steps:

Getting Started: What do we know and where are we going?

Topic 3.1 Task 1:

1. Direct trainees' attention to the illustrations found in their manuals.

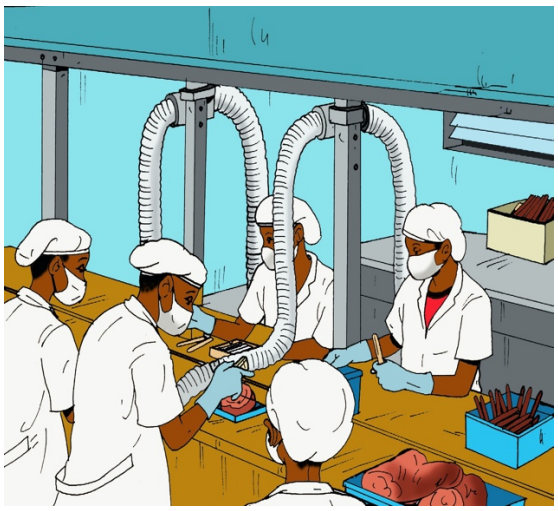


Illustration 1

Illustration 2

2. Ask the trainees to describe what they see to a partner using the following questions:

a. What is the setting of the illustrations?

b. What is the link between the two situations in the pictures?
c. Have you ever visited local food processing units and observed a similar situation?

3. Ask volunteers to share their ideas and discuss as a class.

4. Explain that the illustrations show a food processing environment. Discuss and clarify the possible problems that can happen to the food processed in each setting shown.

Illustration 1: Display a picture showing one group of six staff male and female in equal number in appropriate PPE working in production line but in a short period of equipment stops, due to incorrect settings or misaligned equipment, two operators are correcting the problem while other staff are waiting for restarting the processing activities of food processing procedure

Illustration 2: The second group of two staff, a man and a woman, are in correct PPE and doing processing equipment inspection before the start of the processing procedure they are writing on their inspection forms for reporting any default to be fixed before the starting of food processing activities.

5. Introduce the learning outcomes and the Key Competencies table for this learning outcome.

Problem Solving Activity

Topic 3.1 Task 2:

1. Ask trainees to open their manuals to **Topic 3.1 Task 2** and form two groups. Tell each group to read the following scenario:

Bwiza and Bingo are emerging entrepreneurs interested in starting a new small-scale food processing unit. They want to process brown sugar from sugar cane juice mixed with ginger and lemon juice. Bwiza and Bingo want to comply with the appropriate sanitation standards by setting up a routine maintenance program at their processing unit.

2. Tell the groups to discuss the following questions. Ask each group to write their answers down and choose one person to present.
a. What signs of wear should Bwiza and Bingo look for while inspecting the equipment?
b. What factors should they consider when deciding to perform maintenance?
c. How should they determine inspection schedules?

d. How should they keep an inspection record?

3. Ask each group to present their ideas.

4. Review the answers together using the **Answers** provided below.

5. Then, turn their attention to **3.1 Key Facts** and read the information together, correcting any errors or misunderstandings from the activity.

Guided Practice Activity

Topic 3.1 Task 3:

Preparation Note: For this activity, trainees will simulate working in a food processing plant. Ensure that trainees will have access to PPE and equipment best suited for different work tasks to conduct routine inspection of processing plant and equipment. Trainees will need at least one person in each group to have writing materials. You will need to prepare and arrange the appropriate equipment (or photos of such equipment) for trainees to use during their inspections.

Additionally, this activity will require a field visit to a food processing plant, so be sure to communicate to the plant's management team early on in order to book all times and appointments required for the visit. Be clear about what you have for expectations and come to an agreement about the level of participation for the trainees.

1. Ask trainees to separate into two groups. Each group should have an equal number of trainees. Consider people with disabilities as well as gender balance in each group. Explain that they must pretend to be staff in a food processing unit, and they are going to conduct routine inspection of processing plant and equipment.

2. Give each group two minutes to familiarise themselves with the equipment in front of them. Then ask each group to take inventory by filling in the Inspection Master List (sample provided).

Equipment Name			
Serial Number			

Description			
Location			
Frequency/ Maintenance schedule			
Method/Procedure			
Person Responsible			
Other Comments			

3. Once each group has finished, have trainees discuss their observations together and summarise what they have learned.

4. The next part of this activity involves visiting a local food processing unit.

5. At the food processing unit, ask trainees to inspect the equipment and identify the appropriate inspection schedules for preventive maintenance.

6. They should use the following questions to guide their observations:
- **a.** Logbook entries containing records on inspection of performance
- **b.** Scheduled inspection combined with scheduled servicing
- **c.** Scheduled inspection of non-standard items
- **d.** Inspection schedule's record keeping

7. After the visit, ask the groups to share their responses and discuss. **Possible Answers** are provided.

8. Refer to **3.2 Key Facts** and read the information together. Guide trainees as they connect the information to the previous activity.

Application Activity

Topic 3.1 Task 4:

1. Ask trainees to form small groups of about four people per group. Once all the groups have been formed, notify trainees that they will be doing a fieldwork assignment. For this activity, each group has a choice of which local business they want to visit.

2. Ask the groups to visit either a local business where an entrepreneur has a small scale-milk processing unit or another food processing unit.

3. Notify trainees that each group must accomplish the following tasks help of the food processing unit staff.
   a. Execute a correct inspection of equipment to identify signs of wear.
   b. Assess the nature of the maintenance needed.
   c. Establish inspection schedules for preventive maintenance.
   d. Create a possible inspection record template.

4. Once all groups have concluded their fieldwork assignment, ask the trainees to answer and discuss the following questions:
   a. What are guiding criteria for equipment inspection to identify signs of wear?
   b. How does one determine the nature of the maintenance needed?
   c. What are inspection schedules and why are the important?

5. Once each trainee has had the chance to discuss and respond, conclude the lesson by highlighting the **Points to Remember**.

Points to Remember

- The correct inspection of equipment to identify signs of wear should always be executed for equipment maintenance.
- The purpose of an inspection is to identify whether the equipment can be operated, adjusted, and maintained safely.
- It is important to keep records that align with the inspection schedule.

Formative Assessment

Part I: Formative Evidence

Determine if the following statements are True **or** False**.**

1. Inspection of equipment is planned because of visitors.

2. Identification of signs of wear should be done using inspection methods or procedures.

3. It is important to make equipment inspection procedures and schedules.

4. Inspection is a waste of time when the company has a big demand of products from clients.

5. When the processing equipment is very old, inspection is done only when breakdowns happen.

Circle ONE correct answer.

6. What are items covered in a scheduled inspection of non-standard equipment?
   a. The food processing equipment and their accessories.
   b. The Inspection of civil structures and Inspection of the sanitation of the whole plant
   c. The inspection of the garden and the street near the factory

Circle ALL answers that are correct.

7. Which of the following statements are true about proper inspection and maintenance records?
   a. Minimises the number of expensive repairs.
   b. The staff get more time to relax during the production.
   c. The salary decreases due to a lot of projects in the factory.
   d. Increase operator safety.
   e. Positively impact on resale value.
   f. Identify inventory trends.
   g. The staff on the night shift get time to sleep while automated equipment is working.
   h. Enhance the visibility of every equipment's health.

Answers:

1. **F**
2. **T**
3. **T**
4. **F**
5. **F**
6. **B**
7. **a, d, e, f, h**

Part II: Performance Evidence

Nyabunyana has a small-scale mushroom and stinging nettle processing unit and wants to establish an equipment inspection program at her processing unit. As a food safety and maintenance inspection technician, you are requested to help her to identify inspection schedules and record keeping measures according to maintenance requirements. The processing area 25 m^2. This activity must be performed within 45minutes. All materials needed to perform this task are available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Proper inspection of equipment	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper planning and scheduling inspection	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Proper inspection record keeping	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

The assessor should consult the **Key Facts** in the Trainee Manual, as well as the **Points to Remember** found in both trainer and Trainee Manuals for more details on each element listed.

Further Information for the Trainer

1. Food and Agriculture Organization of the United Nations. (n.d.). Chapter I Preventive Maintenance. Retrieved from: http://www.fao.org/3/x6548e/X6548E01.htm
2. Food safety an d good hygienic practices hand book for Gambian youth entrepreneurs October 2017 Banjul, and Geneva published by International Trade Centres ait Matty Road, Bakau The Gambia.
3. Health and Safety Executive. (2013, March). Providing and using work equipment safely. Retrieved from: http://www.hse.gov.uk/pubns/indg291.pdf
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Learning Outcome 3.2: Prepare to conduct routine maintenance

Objectives: By the end of the learning outcome, trainees will be able to:

a. Assist in assessment of maintenance tasks to determine tools and services required according to maintenance procedures

b. Prepare maintenance equipment and select tools according to task requirements

c. Check and report condition of tools before use and planning

Time Required: 5 hours

Learning Methodology: Brainstorming, group discussion, practical exercises, field visit, written activities

Materials Needed:

- **Standard training materials:** Flipchart, marker pen, pen and notebooks, internet, reference book
- **Other materials:** Recording form, PPE, dust bins

Preparation:

- ❑ Collect and arrange all needed tools, materials, and equipment.
- ❑ Contact the owners of the food processing plant you will visit to book the visit about one month in advance.
- ❑ Check the expire date of all chemicals you will use in teaching this topic.

Cross Cutting Issues:

- ✓ **Environment and sustainability:** The environment should be considered while identifying cleaning chemicals and drainage and waste disposal procedure.
- ✓ **Gender**: Consider gender equality and balance when forming small groups by creating opportunities which maximises participation, recognition, and cooperation for both men and women.
- ✓ **Standardisation culture:** Follow standard procedures while identifying the appropriate oils and spare parts.

Prerequisites:

- Learning Unit 1
- Learning Unit 2
- Learning Outcome 3.1

Key Competencies:

Knowledge	Skills	Attitudes
1. Describe how to assess maintenance tasks to determine tools and services required	**1.** Assist in assessment of maintenance tasks to determine tools and services required according to maintenance procedures	**1.** Detail-oriented
2. Plan preparation of maintenance equipment	**2.** Prepare maintenance equipment	**2.** Diligent
3. Explain how to check and report tools' condition before use and schedule maintenance appropriately	**3.** Check and report condition of tools before use and schedule maintenance	**3.** Attentive

Steps:

Getting Started: What do we know and where are we going?

Topic 3.2 Task 1:

1. Begin the lesson by informing trainees that they will learn more about food processing equipment routine maintenance at school and in their community.

2. Ask trainees if they have any comments or questions about the previous topic and address them. Then, ask trainees a few review questions on routine inspection of processing plant and equipment. Encourage trainees to participate and share their knowledge.

3. After the brief review session, take five minutes to discuss the following proverb:

When all you have is a hammer, everything looks like a nail.

4. Ask trainees the following questions to get them thinking about the proverb:
   a. What does this proverb mean to you?

b. How does the proverb relate to real life?
c. How could the proverb relate to food process maintenance?

5. Ask the trainees to share and compare their answers.

6. Facilitate a class discussion and clarify as needed.

Possible Answer: The proverb suggests that while there is a proper tool for different jobs, sometimes we don't have the correct tool. Then, the solution will be built around the tool at hand, rather than one that is most optimal. We can apply this metaphorically to life especially when it comes to one's own attitude in the face of a problem or challenge.

7. Finally, review the new learning outcomes and the Key Competencies table for this topic.

Problem Solving Activity

Topic 3.2 Task 2:

1. Divide the class into small groups.

2. Instruct the trainees to read and discuss the following scenario:

Bwiza and Bingo have now trained some of their mechanics to conduct routine and preventative maintenance inspections. Today, the mixer in the processing line showed signs of wear. The mechanics want to fix the machine right now, however there is a large order going through that must be finished by today! Furthermore, the mechanics report that some of the tools they need are missing, while others are simply broken.

3. In their small groups, instruct trainees to discuss the following questions:
a. Thinking back to the previous field visit, how might the mechanics determine the tools and services required?
b. What might they need to prepare for maintaining the equipment?
c. Describe the factors to consider when selecting tools according to task requirements.
d. Can you think of any procedures for checking tools before use and reporting unsafe/faulty items?
e. What is the process for scheduling maintenance?

4. Ask one person from each group to write their ideas on the flipchart. After all groups have written their responses, discuss the different ideas presented.
   a. How are the responses similar?
   b. How are they different?
   c. What evidence—from previous experience or knowledge—is there to support your responses?

5. After the discussion, turn to **3.3 Key Facts** and read the information together. Revise the trainees' responses to the previous questions according to this information.

Guided Practice Activity

Topic 3.2 Task 3:

Preparation Note: This activity requires prepared scenarios which typically need maintenance. For examples of different scenarios, consult the table from **3.1 Key Facts**. Likewise, there is a sample maintenance checklist provided in **3.3 Key Facts**.

Before the activity begins, set up several stations (4-7), each of which describes a situation in which maintenance is needed. Include a maintenance task description.

1. Inform trainees that they will simulate working in a food processing plant. They must first practice selecting PPE to perform maintenance tasks.

2. Separate the trainees into groups of three.

3. Tell the groups to go to each station, read the scenario and maintenance task description, and draft a maintenance plan.

4. Their maintenance plans should include the following:
   a. An assessment of which tools are required.
   b. A logbook to report the tools used for the equipment before beginning maintenance.
   c. A scheduled time for when the line will need to be shut down for maintenance downtime.
   d. A report to the line manager and labourers.

5. As the groups work, guide their efforts by asking them questions and providing useful information.

6. Ask the groups to share their plans while the other groups listen. Highlight particularly well thought out points and ask for clarification if something was overlooked.

7. Conclude the activity by reviewing **3.4 Key Facts** together as a class.

Application Activity

Topic 3.2 Task 4:

1. Ask trainees to form groups of six people and get ready for field work at a small-scale meat processing unit.

2. Ask them to perform five different tasks in cooperation with the help of experienced staff:
   a. Assist the staff with assessing maintenance tasks to determine tools and services required according to maintenance procedures.
   b. Consider how to prepare the maintenance equipment.
   c. Consider the factors for selecting tools according to task requirements.
   d. Follow the procedure of checking and reporting unsafe/faulty tools before using them.
   e. Follow the process to plan and schedule maintenance in consultation with workers, and production management.

3. At the end of the practical activity, ask each group to answer the following questions based on their experiences:
   a. What is the procedure to assess maintenance tasks to determine the tools and services required?
   b. What are the considerations for preparation of maintenance equipment?
   c. What are the factors to consider when selecting tools according to task requirements?

4. Encourage trainees to discuss and compare their experiences. Remind them of the importance of following standard procedures.

Points to Remember

- Routine maintenance involves simple repairs, like painting or adjustments to equipment.
- Successful maintenance is well-organised, scheduled, and controls hazards.
- Equipment maintenance and food safety should work together when in the food processing unit.

Formative Assessment

Part I: Formative Evidence

Circle ALL of the correct responses for the following questions.

1. Which of the following tasks help determine tools and services required for maintenance?
   a. Routine maintenance.
   b. Repairing cars and motorcycles.
   c. Simple repairs of equipment.
   d. Painting equipment.
   e. Boat equipment maintenance.
   f. Adjustments to equipment.

2. Checking and reporting unsafe/faulty tools involves which of the following steps?
   a. Identification of tools and equipment checking requirements.
   b. Filling tools and equipment checklists before use.
   c. Reporting equipment faults to executive secretary of your sector.
   d. There are three types of equipment reports: periodic reporting, pre-operational reporting and ongoing reporting.
   e. Providing written and verbal reports.
   f. Checking and reporting the received raw materials for processing.
   g. Describing the location and type of problem faults.

Circle ONE correct answer for the following questions.

3. Which of the following is true about well-maintained equipment?
   a. Breaks down often.
   b. Works well during the manufacturing and processing of raw materials.

c. Compromises the integrity of the equipment.
d. Will not frequently interrupt the production process.
e. Presents physical hazards to the food being produced.

4. A successful maintenance program is characterised by which of the following?
a. Controls hazards outside of the food processing area.
b. Defines operational procedures and trained personnel for each task
c. Is scheduled at the last minute.

Answers:
1. a, c, d, f
2. a, b, d, e, g
3. b
4. b

Part II: Performance Evidence

Kanziga, Nyirabukara, and Mizero have a small-scale moringa and turkey berries (intagarasoryo) processing unit. They want to ensure food safety and appropriate preparation by conducting routine maintenance at their processing unit. As a food safety and maintenance preparation technician, you are requested to help them to identify maintenance schedules and assist in establishing the preventive maintenance of food processing equipment. The processing area is 25 m^2. This activity must be performed within 45 minutes. All tools, materials, and equipment needed to perform this task are all available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Prepare maintenance equipment and selection of tools	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Check and report tools' condition before use	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Participate in assessing maintenance tasks to determine tools and services required in maintenance procedures	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

Learning Outcome 3.3: Carry out routine maintenance

Objectives: By the end of the learning outcome, trainees will be able to:

a. Identify types of routine equipment maintenance to carry out according to work area procedures

b. Select and use tools and materials for carrying out routine maintenance

c. Assist with reporting maintenance activities according to workplace reporting requirements

Time Required: 6 hours

Learning Methodology: Brainstorming, group discussions, field visit, presentation, practical exercises

Materials Needed:

- **Standard training materials:** Flipchart, Marker pen, Pen and notebook, Internet, Reference books
- **Maintenance equipment, tools, and materials:** Notebooks, health and safety signs, PPE
- **Other:** Personal hygiene materials

Preparation:

- ❑ Make sure that the training centre has all materials needed for delivering the lesson.
- ❑ Make sure that the teaching materials are properly selected and arranged according to the activities and the number of trainees.

Cross Cutting Issues:

- ✓ **Standardisation culture:** Standard procedures should be followed when identifying the tools and materials.
- ✓ **Financial education:** Cost should be considered while identifying consumables for PPE, cleaning materials, tools, and equipment.
- ✓ **Gender:** Consider gender balance when forming small groups.
- ✓ **Inclusivity:** Inclusion of all people should happen all of the time in the classroom and while allocating roles for the scenarios or situations.

Prerequisites:

- Learning Unit 1
- Learning Unit 2
- Learning Outcomes 3.1 and 3.2

Key Competencies:

Knowledge	Skills	Attitudes
1. Identify types of routine maintenance to carry out according to maintenance work area procedures	**1.** Carry out routine maintenance on equipment according maintenance work area procedures	**1.** Attention to detail
2. Explain how to select and use tools and materials for carrying out routine maintenance	**2.** Select and use tools and materials for routine maintenance	**2.** Confident
3. Describe procedures for reporting maintenance activities according to workplace reporting requirements	**3.** Assist with reporting maintenance activities according to workplace reporting requirements	**3.** Detail-oriented

Steps:

Getting Started: What do we know and where are we going?

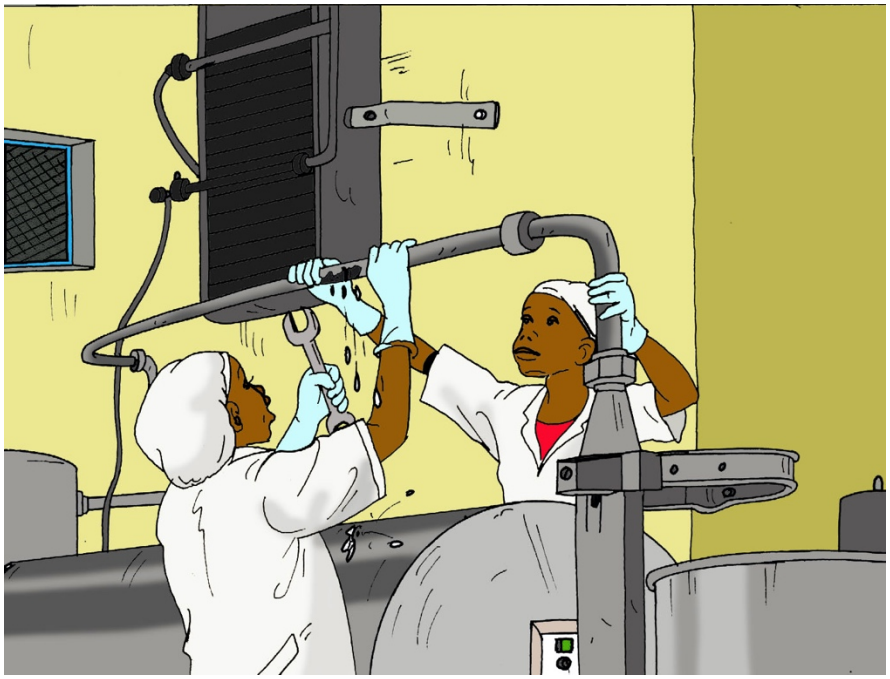
Topic 3.3 Task 1:

1. Briefly review the previous topic then proceed to ask trainees to open their manuals to **Topic 3.3 Task 1**.

2. Ask the trainees to observe the picture and describe what they see. Discuss with them:
   a. What is the meaning of the situation presented in the picture?
   b. Have you ever seen or heard of a similar situation? Explain.

   Possible Answer: The picture depicts milk processing equipment being serviced during the production time. The operator is wearing appropriate PPE (white gown, hair net, mouth covering, plastic gloves, white boots, and a blue waterproof apron). With her assistant, she is fixing a leakage from the pipes that pump milk to the tank.

3. Introduce the learning outcomes and the Key Competencies table for this topic.



Problem Solving Activity

Topic 3.3. Task 2:

1. Ask the trainees to turn their training manuals to **Topic 3.3 Task 2** and read the scenario with a partner:

   Musafiri wants to teach his daughter about the importance of maintenance and taking care of her things. He buys her a bicycle and tells her that she must be responsible for it. It has been six months and she has enjoyed riding the bicycle to and from school but now the bicycle doesn't work. Her father notices that the back tire is worn out, the wheels are out of alignment, the seat has been damaged by the rain, and the chain is rusted and will not move. Musafiri knows that his daughter is an excellent student and well-organised you person. He wonders what could have caused so much damage so quickly.

2. Tell the trainees to discuss the scenario with a partner using the following questions:
   a. What do you think the problem is? How did the bicycle become so damaged?
   b. How might this story relate to performing routine equipment maintenance?
   c. What tools and materials are needed to fix Musafiri's daughter's bike?

   Possible Answer: Just like a machine, the bicycle has many moving parts, some of which (like the chain) require occasional lubrication. The bicycle may have not been stored properly out of the sun and rain as evidenced by the damaged seat. Furthermore, it was

unwise of Musafiri to hand over the bicycle to his daughter without giving her proper maintenance training or at least advice on how often the bike should be taken to a service professional. Thus, we learn that properly trained service technicians and maintenance crews are better equipped to diagnose the damage that occurs on an everyday basis because often times this damage occurs at a rate which untrained individuals cannot detect.

3. After some discussion, have the pairs share and compare their answers with the pairs sitting next to them.

4. Then, facilitate a class discussion in which everyone gets a chance to give their inputs.

5. Conclude by reviewing **3.5 Key Facts** together.

Guided Practice Activity

Topic 3.3 Task 3:

Preparation Note: For this activity, the trainees will simulate working in a food processing plant. Trainees will need access to PPE and equipment best suited for different work tasks to carry out routine maintenance. You must ensure there is such equipment available as well as tools. Trainees will need at least one person in each group to have writing materials.

1. Ask the trainees to form groups of four people.

2. Explain that their task is to carry out routine maintenance at your training centre as if they were staff in the food processing plant.

3. Ask trainees to select and put on PPE.

4. Tell them to create a checklist for making inspections, identifying tools, and following pre-maintenance procedures. They can also use the checklist included in **3.4 Key Facts**.

5. Then, under your guidance, tell them to perform the following:
   a. Assist in carrying out the appropriate service inspection, part replacement, and lubrication of food processing equipment at your training centre.

      Note: This will most likely require you/the trainer to demonstrate the correct procedures and technique for each aspect. For example, demonstrate which lubricant to use, where to apply it, how much is enough, and how to clean it after you have applied it.

b. Preform minor repairs to other equipment or aspects of the facilities including doors, windows, light fixtures, flooring, bathrooms, and painting.
Note: To make sure that this does not disrupt with any other school activities—like paint fumes disrupting other classes—you may want to schedule this activity after school hours.

c. Report maintenance activities according to workplace reporting requirements.

6. Following the activity, ask the groups to share their experiences and discuss as a class.

7. Direct the trainees to **3.6 Key Facts** and review the information together.

Application Activity

Topic 3.3 Task 4:

1. Inform the trainees that they will now go on a field visit to a local business where an entrepreneur has a small-scale fish processing or meat processing unit.

2. Divide the trainees into groups and explain that they are asked to prepare for caring out routine maintenance, cleaning, and sanitising of the fish processing area.

3. Explain that they have three different tasks perform:
- **a.** Carry out routine maintenance according to maintenance work area procedures.
- **b.** Select and use tools and materials for carrying out routine maintenance.
- **c.** Assist with reporting maintenance activities according to workplace reporting requirements.

4. By the end of the practical activity in the field, they should be able to answer the following questions about their experiences:
- **a.** What were the types of routine maintenance carried out according to maintenance work area procedures?
- **b.** What tools and materials were selected and used?
- **c.** What maintenance activities were reported?

5. Discuss these questions with the group and clarify anything that remains unclear while highlighting well-articulated points.

Points to Remember

- Machine operators play an important role in equipment maintenance.
- A well-maintained machine is a top-performing machine. With fresh lubricant, better calibration, and cleaner systems, your equipment will keep your plant running smoothly.
- Always consider the documentation and traceability during equipment maintenance.

Formative Assessment

Part I: Formative Evidence

Circle the ONE correct answer for the following question.

1. How should tools and equipment be kept in the workplace?
   a. On a rack and on the floor near equipment.
   b. Kept in a locked cabinet on the walls of the production area and painted in distinct colour, without other considerations.
   c. Small tools can be kept in a portable, clean metal toolbox.

2. Which of the statements below describe equipment in a normal operation?
   a. A scraping noise of equipment or a motor of a food processing equipment.
   b. An irregular grinding noise or high vibrating sounds.
   c. A consistently smooth humming sound.

Answers:
1. C
2. C

Part II: Performance Evidence

Kabera has a small-scale fish processing unit and wants to practice standard routine maintenance in his unit. As a food safety and equipment maintenance technician, you are requested to conduct routine maintenance on the equipment installed. The processing area is 36 m^2. This activity must be performed within 30 minutes. All tools and materials needed are available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to Verify	Assessment	Re-assessment	
	Date:	Date:	Date:
Proper identification of faulty equipment	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Appropriate selection of tools and materials for routine maintenance	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Performance of minor repairs, lubricant handling, and cleaning and record keeping	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

ⓘ Further Information for the Trainer

1. Kaulbars, C. (Ed.). (2014). *Commercial Vegetable Production on the Prairies*. *Commercial Vegetable Production on the Prairies* (pp. i-300). Alberta, Canada: Alberta Agriculture and Rural Development Information Management Division. Retrieved from: https://www1.agric.gov.ab.ca/$Department/deptdocs.nsf/all/agdex15123/$FILE/250_13-1_web.pdf
2. North Devon Council. (2015). Personal hygiene: Food safety tips. Retrieved October 22, 2019 from: https://www.northdevon.gov.uk/business/food-hygiene-and-safety/food-safety-tips/personal-hygiene

Learning Outcome 3.4: Complete maintenance tasks

Objectives: By the end of the learning outcome, trainees will be able to:

a. Return equipment to operating order
b. Store tools and materials according to workplace procedures
c. Notify relevant personnel of maintenance completion

Time Required: 5 hours

Learning Methodology: Brainstorming, group discussions, field visit, questions and answers, presentation, practical exercise

Materials Needed:

- **Standard training materials:** Flipchart, marker, pen, internet, computer, reference books

Preparation:

- ❑ Make sure that the training centre has all materials needed for delivering the lesson.
- ❑ Organise a field visit, including transportation, one month in advance of the session.

Cross Cutting Issues:

- ✓ **Gender**: Consider gender balance equality when forming small groups by creating opportunities which maximise participation, recognition, and cooperation for both men and women.
- ✓ **Standardisation:** Emphasize the need to follow standard procedures in the food processing unit.
- ✓ **Financial education**: Consider cost and value while identifying consumables for PPE, cleaning materials, tools, and equipment.

Prerequisites:

- Learning Unit 1
- Learning Unit 2
- Learning Outcomes 3.1-3.3

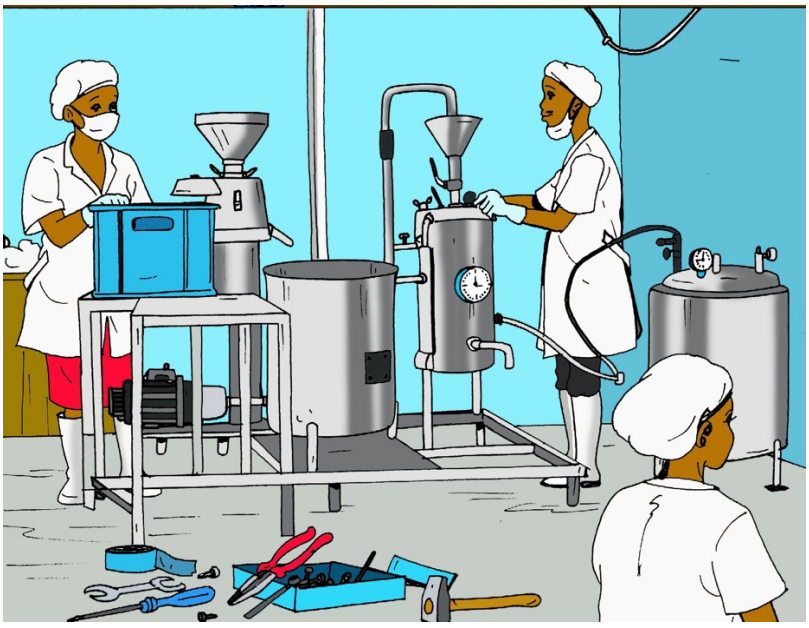
Key Competencies:

Knowledge	Skills	Attitudes
1. Describe how to return equipment to operating order	**1.** Return equipment to operating order	**1.** Accurate
2. Identifies best storage practices of tools and materials	**2.** Store tools and materials according to workplace procedures	**2.** Confident
3. Explains how to notify completion of maintenance to relevant personnel	**3.** Notify relevant personnel of maintenance completion	**3.** Diligent

Steps:

Getting Started: What do we know and where are we going?

Topic 3.4 Task 1:



1. Briefly review the previous topic. Encourage the trainees to ask any questions they have and be sure to clarify the information and/or direct them to additional resources for more information.

2. Ask the trainees to observe the illustration provided in this topic and discuss:
   a. What do you see?
   b. What is the scenario presented in the picture?
   c. Have you ever seen or heard of a similar situation? Explain.

3. Ask volunteers to share their answers and let them compare their ideas.

4. Relate the scenario to following proper maintenance procedures in food processing. Just like there are food safety rules follow during other activities in food processing area, there are safety procedures to follow in the workplace during and after maintenance.

5. Introduce the learning outcomes and the Key Competencies table for this topic.

Problem Solving Activity

Topic 3.4 Task 2:

1. Ask trainees to turn to **Topic 3.4 Task 2** in their manuals and read the scenario with a partner:

   The maintenance staff at Bwiza and Bingo's food processing facility are performing regular inspections as well as preventative and corrective maintenance to a high standard.

   However, they noticed that the tools they use are constantly going missing. Sometimes labourers find a wrench left behind in the processing area. One time, when the line manager reported that an oil can had been left near a mixing vat, the head of maintenance could not identify who was responsible since no one had reported the maintenance task. Today, a worker slipped on some oil spilled in the product storage area and hurt themselves badly.

   Bwiza and Bingo want to correct this problem by implementing proper tools and materials housekeeping in their processing unit.

2. Ask the trainees to provide them with advice by answering the following questions with a partner:
   a. How should the staff return equipment to operating order according to maintenance procedures?
   b. How should they store tools and materials according to workplace procedures?

c. How should they assist with notifying maintenance completion to relevant personnel?
d. How should they maintain good housekeeping standards?

3. If you see that the trainees struggle, refer them to **3.7 Key Facts** for guidance.

4. After discussing, ask the trainees to share their answers.

5. Finally, read **3.7 Key Facts** together and clarify any confusion among the trainees.

Guided Practice Activity

Topic 3.4 Task 3:

Preparation Note: For this activity, trainees will simulate working in a food processing plant. Trainees will need to have access to PPE. You will need to prepare the training centre with various items often found in post-maintenance situations, such as:

- Tools left behind
- Equipment forgotten in unfortunate places
- Oil spills
- Toolboxes left open
- Replacement parts not recycled properly
- Other kinds of waste that is often a result of maintenance procedures
- Poorly stored PPE, tools, and cleaning supplies

These items may take some time to acquire and set up, so be proactive and allow yourself plenty of time to accomplish this before the session starts.

1. Divide the trainees into groups of four.

2. Instruct them to complete the following tasks and summarise their findings in a brief report:
a. Make a list of observations on which maintenance operations should have been completed.
b. Identify who the relevant personal would be in a real food processing facility.
c. Assess what has been left behind after the maintenance operation by looking for items which do not belong, uncleaned areas, or situations that present a hazard for workers and food products.

d. Conduct general housekeeping by cleaning up, sweeping, and removing hazardous waste in an environmentally conscious way.

3. Have trainees share their reports. Discuss the difficulties they faced, and lessons learned.

4. Conclude by reading **3.8 Key Facts** together.

Application Activity

Topic 3.4 Task 4:

1. Ask trainees to form small groups and get ready for fieldwork at a local business where an entrepreneur has a small-scale fish or meat processing unit.

2. Visit the fish processing unit or meat processing unit as a class.

3. Assign each group four different tasks to be performed at the unit:
   a. Explain how to return equipment to operating order.
   b. Classify the storing methods for tools and materials.
   c. Describe the process for notifying maintenance completion to the relevant personnel.
   d. Describe how to maintain housekeeping standards.

4. At the end of the practical activity, ask each group to share their experiences from the tasks. Answer any other questions trainees might have and make clarifications as needed.

Points to Remember

- Always follow workplace procedures when storing maintenance tools and materials.
- Always notify maintenance completion to relevant personnel according to maintenance regulations.

Formative Assessment

Part I: Formative Evidence

Circle ALL of the correct answers for the following questions.

1. Which of the following must be considering when returning equipment to operating order?
   a. The type of maintenance or repairs.
   b. Proper use of PPE and restricted entrance to the bathroom.
   c. Minimising contact with food.
   d. Post-inspection sanitation.
   e. Document review and verification to ensure all sections are documented completely and accurately.

2. What are the considerations for a facility during maintenance tasks?
   a. Safety and/or health sign.
   b. Nature of work performed.
   c. Size and location of the work area.
   d. Fire safety sign.
   e. Acoustic signal facility.
   f. Type of workplace.
   g. Access to the facilities appropriate for maintenance.
   h. Preventive maintenance, also known as PM.

Answers:

1. **a, d, e**
2. **b, c, f, g**

Part II: Performance Evidence

Rugwiro has a small-scale Vernonia amygdalina (bitter leaves) processing unit for export to Nigeria and wants to comply with food safety standards. As a food safety and basic maintenance technician, you are requested to participate in returning equipment to operating order according to maintenance procedures. His workplace has an area of 81 m^2. This activity must be performed within 60 minutes. PPE, personal hygiene materials, and other items are all available.

Trainee's Name:
Trainer's Name:
Date and Signature:

Element to verify	Assessment	Re-assessment	
	Date:	Date:	Date:
Follows recommended procedures in returning equipment to operating order	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Stores tools and materials according to workplace procedures	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Assesses facilities related to environmental guidelines and other relevant considerations	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Time is respected	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

Self-Reflection

1. Ask trainees to re-take the self-assessment at the beginning of the unit. They should then fill in the table in the Trainee's Manual to identify their areas of strength, areas for improvement and actions to take to improve.

2. Discuss trainees' results with them. Identify any areas that are giving many trainees difficulties and plan to give additional support as needed (ex. use class time before you begin the next learning outcome to go through commonly identified difficult concepts).

The assessor should consult the **Key Facts** in the Trainee Manual, as well as the Points to Remember found in both trainer and Trainee Manuals for more details on each element listed.

Further Information for the Trainer

1. Kirui, K., Evans-Lara, A., & Bravo, S. (2019, June 3). What you should include in your Maintenance Program. Retrieved from: https://haccpmentor.com/maintenance/maintenance-program/
2. Baker, PhD, MPH, CQM, D. A. (n.d.). Controlling Food Safety During Equipment or Facility Repair. Retrieved from: http://www.qualtrax.com/wp-content/uploads/2015/12/FoodSafetyDuringRepair.pdf
3. Stier, R. F. (2012). Preventive Maintenance: An Essential Prerequisite for Food Safety. Retrieved from: https://www.foodsafetymagazine.com/magazine-archive1/april-may-2012/preventive-maintenance-an-essential-prerequisite-for-food-safety/

Summative Assessment

Assessment Guidelines

TWIGIRE Food Processing LTD is a small-scale food processing unit owned by Ganza and Mahoro. They are rural innovative entrepreneurs in Gahanga Sector, Kicukiro District. They process a variety of foods, which include fruits juices from pineapples, passions, and watermelon. Additionally, they have another department where they process soya milk, tofu, and other soya products.

While they are creative, they have experienced a big loss due to complaints and returned products. Customers complain about poor quality and lack of respect for food safety for their products.

As a trained and skilled food safety and basic GMP technician, you are requested to assist TWIGIRE Food Processing LTD with solving the challenges of poor quality and food safety in their new location. It is made up of four departments. Two are for food processing. One is for fruits processing that has ten pieces of equipment in a food processing area of 64 m^2. The second is for soya milk and tofu processing with five stages of processing using five pieces of equipment in an area of 49 m^2. The other two departments are used for administration and social activities, including staff facilities, visitor facilities, a hand washing station, and toilets.

Ganza and Mahoro need you to assist them with implementation of the following:

- Basic food safety program and procedures
- Basic compliance with good manufacturing practice (GMP)
- Basic standard equipment maintenance program in their processing unit.

Working time: 3 hours

Resources:
- Raw materials: Fruits pineapples, passions, watermelon, soya beans
- Cleaning equipment, tools, materials and supplies
- Fruits processing tools and materials
- Soya processing equipment, tools, and materials
- Personal Protective Equipment (PPE) appropriate for each task.

Equipment:
- Production area equipment, materials, and supplies

- Staff facility equipment, materials, and supplies
- Visitor facility equipment, materials, and supplies
- Hand washing facility equipment, materials, and supplies
- Toilets equipment, materials, and supplies

Assessment Criterion 1: Quality of Process

Observation Checklist			
Element to Verify	**Assessment**	**Re-assessment**	
	Date:	Date:	Date:
Indicator 1: Appropriate identification the work area for cleaning and sanitation			
Identification of tools, materials, supplies, and equipment for work area cleaning and sanitation	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Classification of personal hygiene equipment, and materials for work area cleaning and sanitation procedures	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Listing of procedures needed in maintaining food safety conditions: Cleaning, sanitising, waste collection and disposal, and documentation and reporting	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 2: Effective conducting of food hygiene and sanitation practices			
Selection and preparation of tools, equipment, materials, and supplies to conduct cleaning in the work area	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Cleaning and sanitising the work area according to food processing area cleaning procedures and regulations	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Waste collection and disposal with documentation and reporting of identified hazards during cleaning process	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 3: Proper respect for health and safety rules in workplace			
Demonstrate following the code of conduct in regard to food hygiene and safety practices	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Check types of health and safety signs in workplace area	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Respect of health and safety rules, record of observations, and follow-up for corrective action, including reporting to concerned personnel	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

Indicator 4: Appropriate establishment of small-scale design and facilities for processing unit			
Identification of requirements in relation to the design and layout of food processing premises	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Participation in ordering construction equipment and materials according to quality standards	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Contribution to monitoring design and building activities and installation of heavy and light equipment	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 5: Assistance with production planning			
Identification of raw materials and categorisation of design packaging materials according to food products requirements	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Description of food processing staff in accordance with production line procedures	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Documentation records kept according to food processing program procedures	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 6: Assistance with implementation of standard operations procedures			
Application of food safety and sanitation practices is demonstrated in accordance with health and safety requirements	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Processing of raw materials following the protocol and procedures of food processing	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Illustration of the packaging methods is according to processed products requirements	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 7: Proper documentation and recording information			
Maintenance of records to provide evidence of conformity with GMP manual	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Listing of records traceability according to GMP manual	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Reporting of records to personnel	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 8: Conducting routine inspection of processing plant and equipment			
Inspection of food processing equipment to identify signs of wear	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Assessment of maintenance nature according to maintenance requirements	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

Identification of maintenance of tools, equipment, materials, and supplies needed to carry out maintenance	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 9: Preparation to conduct routine maintenance according to food processing equipment maintenance standards			
Assessment of maintenance tasks to determine tools and services required	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Preparation of maintenance equipment and selection of tools	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Checking and reporting tools' condition before use	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 10: Carrying out routine maintenance according to maintenance program and procedures			
Identification of the types of routine maintenance to carry out on equipment	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Selection and use of tools and materials for carrying out routine maintenance	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Reporting of maintenance activities	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Indicator 11: Completion of maintenance tasks according to food processing equipment maintenance procedures			
Return of equipment to operating order	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Notification of maintenance completion to relevant personnel	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐
Storage of tools and materials	Yes☐ No ☐	Yes☐ No ☐	Yes☐ No ☐

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