

# Facilitating and Learning Materials

NATIONAL PROFICIENCY II

TRADE AREA:

## CASHEW VALUE CHAIN

UNIT 10:

**BASICS OF FOOD SAFETY AND HYGIENE  
PRACTICES IN AGRIBUSINESS**

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### What is a QR Code (Quick Response Code)?

A QR code (quick response code) is a type of **2D bar code** that is used to provide easy access to information through a **smartphone**.





Example of a QR code

### How to scan the QR Code

- You open an app called *barcode reader* and point the phone camera at the QR code, the app works together with the phone's camera.
- The barcode scanner reads the code and takes you to either the webpage with the extra information or to a video with extra information for independent studies.

After certain information you will see a table with a QR code as well as the title of the document or video of the QR code and an icon, like the one below.

- You can either scan the QR code with your smartphone or
- Ctrl + Click on the heading which will take you to the same information.

For more information on cost scan the QR below or follow the URL hyperlink		
	<a href="#">[QR Code] How to Use QR Codes</a>	



What is GLOBALGAP Certification? GLOBALG.A.P. is an internationally recognized set of farm standards dedicated to Good Agricultural Practices (GAP). Through certification, producers demonstrate their adherence to GLOBALG.A.P. Standards



Ghana Standards Authority (GSA) certification attests that a food product complies with the safety, fitness for use and/or interchangeability characteristics defined in standards. The Ghana Standards Authority (GSA) formerly Ghana Standards Board (GSB) is a Government of Ghana agency responsible for the maintenance of acceptable standards for product and services and sound management practices in industries and public institutions in Ghana



HACCP Stands for Hazard Analysis and Critical Control Point. HACCP is an internationally recognized system for reducing the risk of safety hazards in food. A HACCP System requires that potential hazards are identified and controlled at specific points in the process.



### PC (c) State the Importance Of Food Safety Standards

Foodborne illnesses are a preventable and underreported public health problem. These illnesses are a burden on public health and contribute significantly to the cost of health care. They also present a major challenge to certain groups of people. Although anyone can get a foodborne illness, some people are at greater risk. For example:

- Children younger than age 4
- People older than age 50 and those with reduced immunity are at greater risk for hospitalizations and death from intestinal pathogens commonly transmitted through foods.

Safer food promises healthier and longer lives and less costly health care, as well as a more resilient food industry.

#### Importance of food standards:


Safeguards the health of consumers		Ensure confidence of consumers in the food systems (from farm to table)	
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<p>Enable consumers to make informed decisions concerning the food they purchase.</p>		<p>Used to differentiate different food products</p>	
<p>Used to communicate product quality and safety to consumers</p>		<p>Used as a competitive strategy to enhance product marketing-competitive advantage).</p>	

### PC (d) State food safety practices in an agribusiness

To safeguard consumers' health and gain their trust, small and medium-sized agribusinesses must tackle many challenges if they are to implement good practices and increasingly comprehensive and complex food safety management systems. Regardless of whether their products target local or international markets, small and medium-sized businesses have the same responsibilities as any large food company.

The challenges are even greater for small businesses in rural areas due to adverse infrastructure, sanitation, and transportation conditions, as well as an unskilled labor force. Typically, in small businesses in rural areas, all responsibility falls to a single person who must handle everything from production and marketing to complying with food safety and food quality requirements.

<p><b>Good manufacturing practices (GMP)</b></p>	
<p>Good manufacturing practices are a set of technical principles and recommendations used in processing food products in order to guarantee that they are safe and suitable for consumption, and to prevent contamination or contamination. They are also sometimes called “good processing practices” or “good fabrication practices”</p>	

Principles of GMP:

- Writing procedures.
- Follow written procedures.
- Document (record) the work.
- Validate the work.
- Design and build proper facilities and equipment.
- Maintain the facilities and equipment.
- Be competent (as a result of education, training and experience).
- BE CLEAN!
- Control quality.
- Audit for compliance.

HACCP



A **HACCP plan** is a **food safety** monitoring system that is used to identify and control biological, chemical, and physical hazards within the storage, transportation, use, preparation, and sale of perishable goods. It also determines critical control points (CCP) in the process of food production.

Principles of HACCP

- Conduct a hazard analysis.
- Identify the critical control points.
- Establish critical limits.
- Monitor CCP.
- Establish corrective action.
- Verification.
- Recordkeeping.



**Sanitation Standard Operating Procedures**



Hygiene involves a series of procedures that should be envisaged as an integral part of food preparation and processing activities, the objective of which is to ensure food safety. These procedures are more effective when they have been duly verified and are carried out regularly in standardized fashion pursuant to the guidelines that govern food processing and preparation processes. A safe and efficient way of doing this is to implement Sanitation Standard Operating Procedures (SSOP). SSOPS cover sanitation procedures that should be carried out before, during and after the preparation process.

**PC (e) Apply food safety practices in an agribusiness**

In each area food safety must be a priority. Food hygiene should cover all of these elements below throughout the supply chain:

- Primary Production (environmental hygiene, hygienic production, handling storage & transport, cleaning, maintenance and personnel hygiene)
- Establishment – design and facilities (location, premises and rooms, equipment, facilities)
- Control of operation (food hazards, hygiene control systems, incoming materials, packaging, water, management & supervision, documentation & records, recall procedures)
- Establishment – maintenance and sanitation (maintenance & cleaning, cleaning programmes, pest control systems, waste management, monitoring effectiveness)
- Establishment – personal hygiene (health status, illness and injuries, personal cleanliness, personal behaviour, visitors)
- Transportation (general, requirements, use & maintenance)
- Product information and consumer awareness (lot identification, product information, food labelling, consumer education)

- Training (awareness & responsibilities, training programmes, instruction & supervision, refresher training)

### PC (e) Apply food safety practices in an agribusiness



#### Situation:

You are a food safety coordinator at Blue Sky's mango processing plant. Your daily duty is to ensure healthy and safe food practices throughout the plant.

#### Instructions:

1. Fruits are delivered on a daily basis inspect the fruits for freshness and any defects and possible contamination
2. Ensure that staff all follows all health and hygiene procedures when entering the plant
3. Do regular inspections
4. Use the companies normal SOP and manage the daily activities when it come to safety practices at the plant

#### Performance criteria:

1. Inspections done correctly
2. Staff Trained and monitored
3. Regular inspections done
4. Safe food practices followed and implement according to companies SOP

Use the checklist to follow the stated steps in monitoring and ensuring safety food practices. Rate your own performance critically and honestly after you have completed each activity.



Excellent



Okay



Try Again

Apply food safety practises	Rate
1. Inspections done correctly	
2. Staff Trained and monitored	
3. Regular inspections done	
4. Safe food practices followed and implement according to companies SOP	

**Self – assessment**

**LO 1: DEMONSTRATE KNOWLEDGE OF FOOD SAFETY STANDARDS IN AN AGRIBUSINESS**

PC (a) Explain food safety standards

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PC (b) Explain food safety certification in an agribusiness

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PC (C) State the importance of food safety standards

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PC (d) State Food Safety Practices in An Agribusiness

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## **LO 2: DEMONSTRATE KNOWLEDGE OF FOOD HYGIENE IN AN AGRIBUSINESS**

### **PC (a) Explain Food Hygiene in An Agribusiness**

Food hygiene are the conditions and measures necessary to ensure the safety of food from production to consumption. Food can become contaminated at any point during slaughtering or harvesting, processing, storage, distribution, transportation and preparation. Lack of adequate food hygiene can lead to foodborne diseases and death of the consumer.



### **PC (b) State the importance of food hygiene in an agribusiness**

If food is not processed in the correct manner, transported or delivered many consumers can get sick or even die. Food hygiene is important as it helps to protect consumer from the risk of food borne illnesses. It also helps to prevent consumers from risks of health –related conditions.

The importance of food safety and sanitation cannot be underestimated. An effective way to communicate this information is through food hygiene training, which teaches food handlers how to apply proper handling, storage, and cleaning techniques. These good practices prevent customers from suffering food poisoning and allergic reactions, help minimise food waste, and boost efficiency

### **PC (c) State food hygiene practices applicable to an agribusiness**

Good agricultural practice (GAP) are specific methods which, when applied to agriculture, create food for consumers or further processing that is safe and wholesome

The principle of food hygiene implies that there should be minimal handling of food items. Food handlers are thus expected to observe proper hygiene and sanitation methods as the chances of food contamination largely depend on their health status and hygiene practices.

As with other areas of food safety, sanitation and food hygiene should be proactive. End-product testing is important, but a positive result in the end-product doesn't tell you where the contamination originated. The overall food hygiene system, when applied at each point in the supply chain, is about managing risks before they result in a case of food contamination. The following are standard safe food hygiene practices:

## **1. Notification**

Contact details and information on the nature of the business must be given to the FDA-Ghana.

## **2. Skills and knowledge**

Food businesses must make sure that people who carry out or supervise the handling of food have appropriate skills and knowledge in food safety and food hygiene matters. Formal training is not necessarily required. Food handlers can also acquire skills and knowledge through, for example, 'in house' training, reading information provided by their employer, following specified operating procedures, or attending courses run by industry associations or a local council.

## **3. Maintaining potentially hazardous food at correct temperatures**

To limit the growth of food poisoning bacteria in food, businesses must minimise the amount of time that potentially hazardous food is at temperatures between 5° C and 60° C. Temperature controls also apply to the receipt, storage, processing, display and transport of potentially hazardous food.

## **4. Cooking or another processing step to make food safe**

Where food must be cooked or otherwise processed to make it safe, food businesses must carry out this step correctly. For example, pasteurization of mango juice to kill food poisoning bacteria.

## **5. Protecting food from contamination**

Food must be protected from contamination. There are also specific requirements for the protection of ready-to-eat food that is on display. These include supervision of the display area, separate serving utensils for each food, and protective barriers.

## **6. Food disposal**

Food that has been recalled or returned or that may not be safe or suitable must be labeled and kept separate from other food until a decision is made about what to do with the food, in accordance with the food disposal requirements.

## **7. Food recall**

Wholesale suppliers, manufacturers and importers of food must have a written recall system for the recall of unsafe food and must use this system when recalling unsafe food.

## **8. Health and hygiene requirements**

Food businesses must:

- tell food handlers about their health and hygiene responsibilities;
- make sure that people who have or are carrying a disease that might be passed on through food do not contaminate food. Hepatitis A and illnesses caused by giardia, salmonella and campylobacter are examples of diseases that can be passed on through food;
- make sure that a food handler with infected skin lesions or discharges from his/her ears, nose or eyes does not contaminate food;
- provide adequate hand washing facilities and make sure that they are used only for washing hands, arms and faces; and
- make sure that people on the premises do not contaminate food.

## **9. Cleaning, sanitising and maintenance**

A food business must ensure:

- Food contact surfaces are cleaned and sanitised to keep microorganisms at safe levels. This applies to food serving equipment such as plates and cutlery, and to any equipment or surfaces that may come into contact with food.
- Food premises, fittings and equipment within the premises are clean and in a good state of repair and working order.
- Chipped, cracked or broken utensils are not used.

## **10. Animals and pests**

Premises must be kept free of animals and pests.

## **11. Key practices for food handlers**

- Food handlers must tell their supervisor if they may have contaminated food.
- Food handlers must tell their supervisor if they have, or are carrying a disease that might be transmitted through food. Hepatitis A and illnesses caused by giardia, salmonella and campylobacter are examples of diseases that can be passed on through food.
- Food handlers must tell their supervisor if they are suffering from diarrhoea, vomiting, a sore throat with fever, fever or jaundice unless they know their symptom or symptoms do not relate to a food-borne illness.
- Food handlers must tell their supervisor if they have any infected skin lesions or discharges from their ears, nose or eyes as these could contaminate food.
- Food handlers must do everything they can to make sure they do not contaminate food.

- Food handlers must wash their hands with soap and warm running water in the hand washing facilities provided and dry them thoroughly whenever there is any risk that they might contaminate food.
- Food handlers must not behave in ways that could cause food contamination. For example, they must not eat over unprotected food or smoke in food handling areas.

### **PC (d) Apply food hygiene practices in an agribusiness**

In Ghana agribusiness are using systems and organizations like HACCP and FDA-Ghana to ensure they are up to standard with food safety and food hygiene practices.

#### **PC (d) Apply food hygiene practices in an agribusiness**



#### **Situation:**

You are a food safety and hygiene coordinator at Blue Sky's mango processing plant. Your daily duty is to ensure healthy, hygiene and safe food practices throughout the plant.

#### **Instructions:**

1. Staff must be trained to adhere to the companies basic hygiene practices
2. Ensure that staff all follows all health and hygiene procedures when entering the plant
3. Do regular inspections
4. Use the companies normal SOP and manage and monitor the daily activities when it comes to hygiene practices at the plant

#### **Performance criteria:**

1. Inspections done correctly
2. Staff Trained and monitored
3. Regular inspections done
4. Safe hygiene practices followed and implement according to companies SOP

Use the checklist to follow the stated steps in monitoring and ensuring hygiene practices. Rate your own performance critically and honestly after you have completed each activity.



Excellent







Okay



Try Again

Apply food safety practises	Rate
1. Inspections done correctly	
2. Staff Trained and monitored	
3. Regular inspections done	
4. Good hygiene practices followed and implement according to companies SOP	

For more information on Codex guidelines scan the QR below or follow the URL hyperlink		
	<a href="https://slideplayer.com/slide/6027705/">https://slideplayer.com/slide/6027705/</a>	
For more information on HACCP Guidelines scan the QR below or follow the URL hyperlink		
	<a href="https://www.youtube.com/watch?v=50e_lc2rPK4">https://www.youtube.com/watch?v=50e_lc2rPK4</a>	

## Self-Assessment

### LO 2: DEMONSTRATE KNOWLEDGE OF FOOD HYGIENE IN AN AGRIBUSINESS

#### PC (a) Explain food hygiene in an agribusiness

1. What is food hygiene?

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#### PC (b) State the importance of food hygiene in an agribusiness

1. Why is it important to have food hygiene?





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**PC (c) State food hygiene practices applicable to an agribusiness**

2. What are the responsibility of each parameter

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### LO 3: DEMONSTRATE SKILLS FOR PREVENTING CONTAMINATION OF FOOD IN AN AGRIBUSINESS

#### PC (a) Explain the Term “Food Contamination”

Food contamination refers to food that has been corrupted with another substance – either physical, biological, cross or chemical.

**Food contamination** is a commonly used term. However, only a few people are aware of the exact reasons for food contamination and its effects on your health. When food items are not handled or cooked safely, the disease-causing organisms such as bacteria, parasites, and viruses result in food contamination. The disease-causing parasites produce toxins that may also lead to food intoxication. In addition, the presence of pesticides, certain cleaning compounds, contaminate the food.

<p><b>Biological Contamination</b></p>	
<p>Biological contamination refers to food that is contaminated by organisms or substances they produce. This includes biological matter produced by humans, rodents, insects and microorganisms.</p> <p>Bacteria and viruses are typically the two biggest causes of biological contamination and can result in some of the most common types of food poisoning including salmonella, E. coli, listeria and norovirus. Thoroughly washing your hands and sanitising the food handling equipment are two of the best ways to prevent against bacterial contamination.</p>	
<p><b>Physical Contamination</b></p>	
<p>Physical contamination is when a foreign object contaminates food. This can happen at any stage of the production process and could include Band-Aids, steel wool or pieces of plastic.</p>	

Physical contamination can cause injury to an individual who inadvertently consumes the foreign object. The added risk associated with physical contamination is that the foreign object could be carrying biological contamination.

**Chemical Contamination**



Chemical contamination refers to food that has been contaminated with a natural or artificial chemical substance. These contaminants are particularly dangerous as they expose people to any number of toxic substances, some of which can be fatal.

Chemicals can also contaminate food at any time of the food process, whether by pesticides transferred from the soil the food is grown in or during the manufacturing process. Storing chemicals separately from food is essential to help protect against chemical contamination.

**Cross Contamination**



Many of us are not aware of cross contamination; however, this type of contamination can lead to a number of health problems. Cross-contamination takes place when pathogens are transported from any object that you use in the kitchen. Dirty kitchen clothes, unclean utensils, pests, raw food storage can lead to cross-contamination

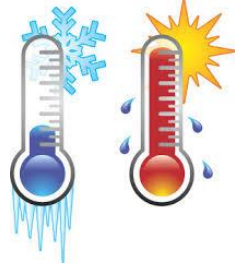
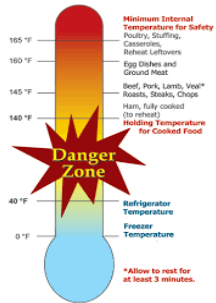
## PC (b) Identify risks of food contamination in an agribusiness (Personal and Customers)

The top five risk factors that most often are responsible for foodborne illness outbreaks are:

- Improper hot/cold holding temperatures of potentially hazardous food
- Improper cooking temperatures of food
- Dirty and/or contaminated utensils and equipment
- Poor employee health and hygiene
- Food from unsafe sources



When food is being prepared by food processing plants, the presence of one or more of these risk factors dramatically increases the risk of a foodborne illness outbreak. If one of these risk factors is observed in a retail food facility, it constitutes a major violation and must be immediately corrected. Often the correction involves the destruction of food products to minimize the risk of foodborne illness to the public.

<p><b>Improper hot and cold holding temperatures of potentially hazardous foods</b></p>	
<p>The purpose of holding potentially hazardous foods at proper temperatures is to minimize the growth of any pathogenic bacteria that may be present in the food.</p>	
<p><b>Improper Cooking Temperatures of Foods</b></p>	
<p>Cooking food to the proper temperatures is extremely important because many raw meats have pathogenic bacteria on them naturally, such as salmonella on raw chicken. Cooking is the only food preparation step that will actually kill bacteria. Proper holding temperatures slow down reproduction, freezing food makes bacteria go dormant, but proper cooking temperatures will kill bacteria that are in the food.</p>	

### Dirty or Contaminated Utensils and Equipment



When utensils or equipment become dirty or contaminated, they can transfer that contamination to the food causing a foodborne illness. This may occur a number of different ways. If utensils or equipment are not cleaned frequently, and old food residue is allowed to build up at room temperature, bacteria in the residue may multiply rapidly and contaminate any food that comes into contact with it.

Utensils, equipment, and food contact surfaces may also be contaminated by other means. If they come into contact with dirty mop water, garbage, pesticides, sewage, or anything else that could potentially cause illness.

### Poor Employee Health and Hygiene



It is imperative that food workers are in good health while preparing food. A food worker that has been diagnosed with an acute gastrointestinal illness (GI), or is showing symptoms such as diarrhea, or vomiting in conjunction with diarrhea, could potentially contaminate food. It is possible for a food worker to transfer their illness to customers via the food. Even more disconcerting, there is the potential for employees working with large batches of food to spread the illness to numerous people causing an outbreak.

#### Handwashing

Proper hand washing goes "hand-in-hand" with employee health when preventing foodborne illness outbreaks.

It is imperative to wash your hands before touching food, utensils, or food contact surfaces in each of these instances to prevent spreading foodborne illness:

- When you first arrive at work and enter the kitchen
- After using the restroom
- After sneezing or coughing
- After touching any other part of the body (i.e. hair or face) besides your hands and the exposed part of your arms that were previously washed
- After handling any raw animal products (i.e. raw meat and raw eggs)

- After performing any non-food preparation related activity such as taking out the garbage, eating, drinking, smoking, using pesticides, washing dirty utensils, using a phone, or handling money.

Proper glove use is an excellent tool for protecting the food from contamination. However, the use of gloves must follow strict guidelines or else food becomes contaminated just as though no gloves were used at all. These guidelines include:

- A food worker must wash their hands before putting on a clean pair of gloves
- Gloves must be changed every time that a food worker would otherwise be required to wash their hands
- Gloves must be changed when they have become damaged or deteriorated
- Single-use gloves are to be discarded after use and may not be reused

### Food from Unsafe Sources



Any food that is to be sold, served, given away, or used as an ingredient, must be obtained from an approved source. An approved source is a facility where the food produced, prepared, or processed, meets or exceeds the standards of the responsible regulatory agency. This most commonly means that the facility has a valid permit and is inspected on a regular basis by a regulatory agency.

### PC (c) Demonstrate practices to prevent food contamination in an Agribusiness







Everyone has a role in keeping food safe, starting with the farmer and ending with the consumer. As a farmer, you have many responsibilities, including making sure the food you produce is safe for your customers. The following is a top ten list of practices that will help you reduce your on-farm food safety risks.



## 10 Practices that will reduce your on-farm food safety risks

<p><b>Understand that food safety on your farm is your responsibility</b></p>	
<p>Good food safety practices can protect you and your customers. It is a cost of doing business. If you don't pay the cost upfront, it may cost you the farm if a customer gets sick.</p>	
<p><b>Make a plan and keep good records</b></p>	
<p>If it is not in writing, it does not exist as far as inspectors are concerned. Make a food safety plan and follow it. Monitor all areas on your farm on a regular basis, and keep records of what you do and when you do it.</p>	
<p><b>Identify which produce is higher risk</b></p>	
<p>Focus on reducing those risks first. Higher risk produce includes: produce eaten raw; produce that comes into direct contact with soil; and produce that is hard to wash such as salad mix, lettuce, strawberries, and cantaloupes. Don't assume that because your produce has a peel (e.g. cucumbers), it is lower risk. Additionally, do not pack damaged or dropped fruit. Foodborne illness pathogens can enter damaged fruit, as well as fruit that may have come into contact with animal feces on the ground.</p>	
<p><b>Know the quality of your irrigation water</b></p>	
<p>Irrigation water that touches the edible portion of your crop should be tested for foodborne illness pathogens such as <i>E. coli</i>.</p>	

<p><b>Minimize risks when using compost and manure</b></p>	
<p>Some foodborne illness pathogens can remain in manure for 3 months or more, so it is important to compost manures properly. Plan for 120 days between applying compost and harvest of a crop that comes into direct contact with soil. The interval required for a crop that does not come into direct contact with soil is 90 days. Document the application dates and what was applied. Be aware of your neighbors' use of manures as well, since pathogens can be airborne, carried in runoff water, or transported on equipment.</p>	
<p><b>Be aware of possible contamination by animals</b></p>	
<p>You cannot prevent all wildlife intrusion onto your farm, and many farms have working animals, livestock, and pets. You can make a pre-harvest assessment of your fields. If there is evidence of feeding damage or fecal contamination, you should not harvest affected plants and those growing in close proximity.</p>	
<p><b>Keep vehicles and equipment clean</b></p>	
<p>Reduce the risk of contamination by cleaning harvesting tools, farm equipment, and other vehicles used in harvest and transport of your produce. If a vehicle is used to transport anything other than produce, it should be cleaned and sanitized before using.</p>	
<p><b>Know the flow of your produce from field to consumer, and identify sources of contamination</b></p>	
<p>Identify every surface your produce touches. This includes packing containers, sorting tables, cooler shelves, etc. This will help you understand where contamination could enter your system and help you develop an effective cleaning</p>	



and sanitation program. Cleaning contact surfaces should be the first line of your sanitation program. Remove dirt and debris from food contact surfaces with an appropriate detergent. Follow that with a sanitizer, which will not work properly if there is too much soil and debris.

**Keep postharvest water clean**



Use only potable water. If you are using a sink or tub of water to wash a batch of produce, add a sanitizer. Monitor sanitizer levels to prevent cross-contamination from the water or from one piece of produce to another.

**Train your employees**



This is the easiest and most financially effective food safety practice. Train your workers to be aware of food safety risks and how to follow proper on-farm procedures. Worker training includes hand washing and other hygiene practices; illness and accident procedures; and other standard food safety procedures for your farm.

For more information on food borne illness scan the QR below or follow the URL hyperlink



<https://study.com/academy/lesson/food-borne-illness-prevention-and-treatment.html>



**Self – assessment**

**LO 3: DEMONSTRATE SKILLS FOR PREVENTING CONTAMINATION OF FOOD IN AN AGRIBUSINESS**

**PC (a) Explain the Term “Food Contamination”**

1. What is food contamination?

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**PC (b) Identify Risks of Food Contamination in An Agribusiness (Personal and Customers)**

2. List the top five risk factors that are most often responsible for foodborne illness outbreaks

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**PC (c) Demonstrate practices to prevent food contamination in an Agribusiness**

3. List 5 Practices that will reduce your on-farm food safety risks

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## Reflection on your learning in this unit



You will write **short reflections** of your learning and actions relating to the knowledge you have learnt and the practical skills you have developed.

### Tips for writing your Reflection/Reflection

**Journal:** You should write in your Reflection Journal within 24 hours of completing your practical session to record your experiences while they are fresh in your memory. Use the '**What, So What, Now What Model**' to guide your writing. Answer the following

questions:

**What** happened to...? (Describe what happened when did what you did)

**So What** did I learn from that? (Give at least 2 examples)

**Now, What** can I do better in future? (How can I improve next time?)

What did you learn to do?

.....  
 .....  
 .....

What difficulties did you face in this unit?

.....  
 .....

What can I do it better in future?

.....  
 .....  
 .....

How long did it take you each time you did it?

Attempt 1 .....

Attempt 2 .....

Attempt 3 .....

## REFERENCES

*Other website related to welding and fabrication*

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