



Basic Agro Food Processing

Level-I

Based on October, 2019, Version 2 Occupational standards

Module Title: - Identifying Key Characteristics in Food Production

LG Code: IND BAFP1 M15 LO (1-2) LG (48-49)

TTLM Code: IND BAFP1 TTLM 1020v1

October, 2020



United Nations
Educational, Scientific and
Cultural Organization



Table of Contents

LO #1- Identify major stages in food and beverages making	3
Instruction sheet	3
Information Sheet 1- Identifying key activities in preparation of various food and beverages for production	5
Self-check 1	9
Information Sheet 2- Explaining purpose and process	10
Self-Check – 2.....	18
Information Sheet 3- Identifying sequence of unit operations and use key equipment	19
Self-Check – 3.....	32
Operation Sheet 1- Coffee processing.....	33
Operation Sheet 2- Jam/jelly making	34
Operation Sheet 3- Preparation of the dried tomatoes	35
LAP TEST	36
Information Sheet 4- Identifying basic differences between various industrial..	37
Self-check 4	39
Information Sheet 5- Identifying basic differences between various industrial..	40
Self-check 5	43
LO #2- Identify food and beverages sales and marketing strategies and processes	44
Instruction sheet	44
Information Sheet 1- Identify standard forms of food and beverages packaging and labeling	46
Self-Check – 1.....	48
Information Sheet 2- Identifying range and purpose of labeling information	49
Self-Check – 2.....	53
Information Sheet 3- Identifying scope and purpose of different types of cellar door operations.....	54
Self-Check – 3.....	55
Information Sheet 4- Identify major Agro-food Processing regions and Agro-food Processing types in Ethiopia.....	56
Self-Check – 4.....	57
Information Sheet 5- Describing key features and market expectations of food and beverages products	58
Self-Check – 5.....	60



Information Sheet 6- Identifying difference between domestic and export markets
and marketing strategy 61

 Self-Check – 6..... 67

 Reference Materials 68



LG #48

LO #1- Identify major stages in food and beverages making

Instruction sheet

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

- Identifying key activities in preparation of various food and beverages for production
- Explaining purpose and process of grinding, crushing, pressing, fermentation, maturation, fining, filtering , bottling and packaging
- Identifying sequence of operations and use key equipment
- Identifying basic differences between various industrial food products and beverages processing
- Using food and beverage industry terminology

This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:

- Identify key activities in preparation of various food and beverages for production
- Explain purpose and process of grinding, crushing, pressing, fermentation, maturation, fining, filtering , bottling and packaging
- Identify sequence of operations and use key equipment
- Identify basic differences between various industrial food products and beverages processing
- Use food and beverage industry terminology



Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
3. Read the information written in the information Sheets
4. Accomplish the Self-checks
5. Perform Operation Sheets
1. Do the “LAP test”



Information Sheet -1 Identifying key activities in preparation of various food and beverages for production

1. Identification of key activities in preparation of various food and beverages

1.1 Key activities in food and beverage production

The food and beverage processing sector covers a wide range of products. Many process steps are common to the manufacture activities of different products. Food and beverage processing plants vary in size and location, and are ideally located in close proximity to fresh water resources. Plant operation is often seasonal reflecting the harvesting of the raw materials, however product lines are unaffected by seasonal variations and take place throughout the year.

Fruit and vegetable production begins with the preparation of the raw food and beverages through a variety of methods including cleaning, trimming and peeling to reduce the product to a uniform size before cooking, canning, drying or freezing, as well as pulping and filtration to make soft drinks. Grain production carried out the operations like, raw material preparation, cleaning, sorting, grading, tempering/conditioning, scouring, milling, mixing, shaping/extruding, etc depending on the desired end product.

The process culminates with the packaging and transport of the final product. There are two major sub-sectors including fresh packed products and processed products. Processed products involve other unit operations such as cooking, evaporating, drying etc to provide product diversity and increase shelf-life. Common examples of processed fruit products are dried fruits, jams and jellies, and fruit purees for use in the food industry. Examples of processed vegetable products include canned beans and frozen peas, as well as vacuum packed beetroot. In general the food and beverage production operation covers the following common activities.

1. Receipt of Raw Materials



Raw materials are typically delivered in bulk on trucks and are off-loaded directly for processing or for storage (e.g. in silos). Other solid material ingredients may be delivered in bags on pallets. Liquid raw materials and ingredients may be transported in bulk tankers and pumped to storage tanks or delivered in containers on pallets. Solid raw materials are conveyed by belts and elevators.

2. Primary Grading / Screening

This process stage often covers grading and sorting but its main objective is the assessment of the overall quality of the food using a number of criteria. Solid raw materials should preferably be sorted and graded on the farm in order to minimize the quantity of waste material, organic and non-organic debris, and off-specification product that is transported to the processing plant.

3. Intermediary Storage

Storage of food and beverages can be required at various stages of the manufacturing process and the storage conditions will be dependent on the product. In general the parameters to be controlled for storage include humidity, temperature, atmospheric conditions, and hygiene.

4. Primary Cleaning

Primary cleaning removes and separates off-specification material, organic and non-organic debris, metals, and pesticide residues, among other contaminants, from the raw material prior to further processing. The method used depends on the type of materials to be removed and may include the use of water although dry methods are favored for water conservations and wastewater prevention reasons. When water is used, the raw materials may be sprayed, and then immersed for organic and non-organic debris removal using brushes, shaking, and stirring. The spray water may be chlorinated and detergents may be added to the wash water, which may also be heated to increase cleaning efficiency.

5. Sorting, Grading and Inspection

The washed material may be sorted, graded and inspected prior to further processing to ensure uniformity.

- **Sorting:** it is the separation of materials into categories and the main factors are size, shape, weight, and color. Size sorting is typically done using screens



and sieves. Shape sorting may be done manually or mechanically and weight sorting is typically used for valuable material such as tropical fruits. Color sorting is performed manually or by use of computer technology whereby the material passes the control point on conveyor belts at high rates and rejected items are blasted away using compressed air.

- **Grading:** it implies the classification of materials on the basis of commercial values and other uses.

6. Product Preparation

Most raw materials have parts that are inedible and need to be removed in order to make the raw materials uniform and suitable for further processing. In the product preparation phase, the sorted and graded materials are subjected to a variety of processes including trimming (manual or by rotating knives), peeling, and size reduction, as well as mixing, forming, separation and concentration of the food components. Various peeling methods are available including flash steam, flame, knife, abrasion, and caustic.

7. Product Processing

Food and beverages can be processed as a single operation or in a combination of several operations. The most common processing methods are through heat application and heat removal. The heat application methods include blanching, pasteurization, heat sterilization, evaporation, and dehydration including heat processing by baking or cooking in oils. Heat removal processing includes chilling, controlled or modified storage and packaging (to reduce the rate of respiration), freezing, and freeze-drying. Other preservation and processing methods include the use of sodium chloride and sugar, food additives, and irradiation.

8. Packaging

Packaging may be defined in terms of its protective role as in 'packaging is a means of achieving safe delivery of products in sound condition to the final user at a minimum cost' or it can be defined in business terms as 'a techno-economic function for optimizing the costs of delivering goods whilst maximizing sales and profits'.

The functions of packaging are:

- **Containment:** to hold the contents and keep them secure until they are used

Page 8 of 70	Federal TVET Agency Author/Copyright	TVET program title- Basic Agro food processing Level -1	Version -1 October 2020
--------------	---	--	----------------------------

- **protection:** against mechanical and environmental hazards encountered during distribution and use
- **Communication:** to identify the contents and assist in selling the product. Shipping containers should also inform the carrier about the destination and any special handling or storage instructions.
- **Machinability:** to have good performance on production lines for high speed filling, closing and collating without too many stoppages
- **Convenience:** throughout the production, storage and distribution system, including easy opening, dispensing and/or after-use retail containers for consumers. Basic operation in food and beverage production

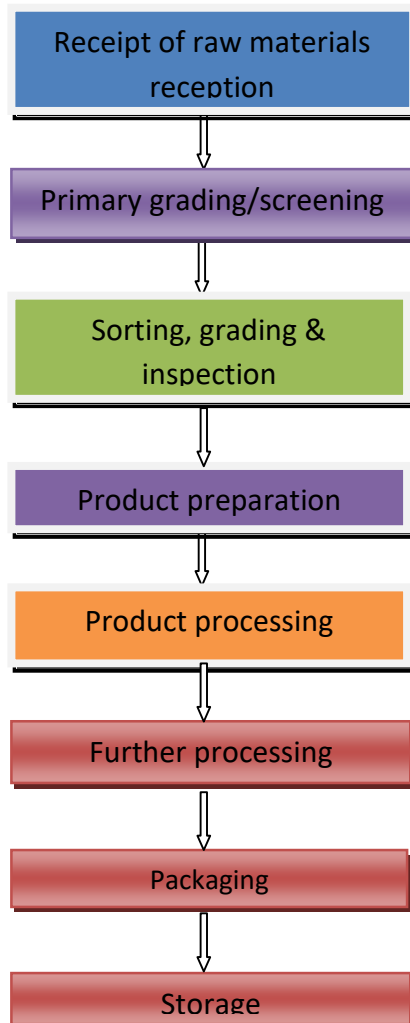


Figure 1 Basic operation in food and beverage production



Self-Check – 1	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Fill in the blank space

1. _____ It implies the classification of materials on the basis of commercial values and other uses.
2. _____ is an active ingredient in the food that play specific structural or functional role in the body's lively activity.

Test II: Write True or False

1. Communication is to identify the contents and assist in selling the product.
2. Beverage means simply a drink that quenches thirst.

Note: Satisfactory rating - ≥ 2 points Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Information Sheet-2 Explaining purpose and process of grinding, crushing, pressing, fermentation, maturation, fining, filtering , bottling and packaging

1.1 The purpose and process some unit operations

Unit operations: are serious operating steps (activities) in processing and manufacturing food products. Most food processing is comprised as a series of physical processes that can be broken down into a number of basic operations. The "unit operations" can stand alone and depend upon coherent physical principles. Some food processing operations may utilize a single unit operation, but most food processing includes a combination of unit operations to achieve the total process. Some common unit operations of food and beverage processing are:

- Grinding,
- Crushing,
- Pressing,
- Fermentation,
- Maturation,
- Fining,
- Filtering,
- Bottling and packaging etc.)

a. Grinding and crushing

Grinding and crushing is the unit operation in which the average size of solid pieces of food is reduced by the application of grinding, compression or impact forces. The reduction or 'comminution' of size helps to,

- Increase in the surface-area-to-volume ratio
- More complete mixing of ingredients
- Facilitate drying time



Grinding: Is the most common form of abrasive machining. It is a material cutting process which engages an abrasive tool whose cutting elements are grains of abrasive material known as grit. These grits are characterized by sharp cutting points, high hot hardness, and chemical stability and wear resistance. The grits are held together by a suitable bonding material to give shape of an abrasive tool.

b. Pressing

Pressing: is a forced expulsion of fluids from semi-fluid or solid materials by the application of pressure.

❖ Applications

- **Removal of oil from seeds:** cocoa butter from cocoa, oil from soya bean, cotton seed, sunflower, palm and olive oil.
- **Sugarcane refining:** removal of soluble sugar by pressing between rollers
- **Pressing of fruits** to produce fruit juice.

c. Fermentation

❖ **Fermentation:** means a metabolic activity of microorganisms carried-out under the condition where oxygen is absent to produce their required energy (ATP). Fermentation could be described as a process in which microorganisms change;

1. The sensory properties of a food (flavor, odor, etc.) and
2. The functional properties of a food to an end product that is desirable to the consumer

❖ Fermentation usually results in various products.

- Organic acids:- lactic, acetic acid
- Alcohol,
- Gases such as CO₂ and H₂

❖ The advantages of fermentation are;

- Presentation of food with better shelf life E.g. lower PH, production of antimicrobial substances such as bacteriocins.
- Creation of new foods e.g., cheese, wine, beer...



- Production of aroma compounds
 - Alteration of texture e.g. yoghurt for instance is semi-solid product
 - Increase palatability e.g. cheese, cultured milk
 - Increased digestibility, e.g. cereal
 - Increased nutritional value.
 - Decrease the toxicity of some foods :- e.g. cassava has cyanide which is reduced after fermentation
 - Fermentation has low energy demands and can often be carried out without sophisticated technology and designated plants.
- ❖ Some Microbial Activities in foods
- Substrate Organisms → Reaction Products
 - Sugar + Saccharomyces Yeast → alcohol + CO₂ (wine)... alcoholic fermentation
 - Alcohol + O₂ + Acetobacter Bacteria → acetic acid + H₂ (Vinegar)
 - Sugar + Lactic acid bacteria → lactic acid (Curd)..... lactic acid fermentation
- ❖ Controlling factors of Fermentations in Various Foods
- Among the many factors that influence microorganisms' growth and metabolism, the most common means of controlling the course of food fermentations include:
 - ✓ Level of acid
 - ✓ Level of alcohol
 - ✓ Temperature
 - ✓ Level of oxygen
 - ✓ Salt
 - ✓ Use of starters
- ❖ **Ways to start fermentation:**
- ✓ Indigenous fermentation, a spontaneous process
 - ✓ Back shuffling (of fermenting substrate)
 - ✓ Use of starter culture

d. Maturation

- **Maturation** is a unit operation that is commonly used in beverage industry, in which storing products in refrigerated cellars for periods of two weeks to several



months, depending on the process being used and the type of beverage desired. The temperature is maintained at 0°C. During storage, unstable proteins, yeast, resin, and other undesirable substances precipitate from the beverage.

- **Application area**

- ✓ beer processing
- ✓ wine processing

e. Fining

Fining treatments involve the addition of a substance or a mixture to wine, and are generally carried out in order to clarify, stabilize or modify the wine's organoleptic characteristics. Usually these fining agents will bind the target compound(s) to form insoluble aggregates that are subsequently removed from the wine.

The main reasons to perform wine fining treatments are to carry out wine clarification, stabilization and to remove phenolic compounds imparting unwanted sensory characteristics on the wine, which is an operation that often relies on the use of animal proteins, such as casein, gelatin, egg and fish proteins.

f. Filtration

❖ **Filtration:** is a unit operation aimed at separating an insoluble solid present in solid-liquid suspension by passing the suspension through a porous membrane that retains the solid particles.

- The porous membrane is termed as the filter medium.
- The retained particles on the filter medium form a layer known as a cake.
- The liquid that passes through the filter is known as filtrate.

❖ **Application of filtration**

1. Refining operation: sugar refining
2. Removal of microorganism: cold pasteurization in beer processing, air sterilization
3. Clarification: fruit juices, vegetable oil, separation of malt hops yeast beer processing.

❖ **Filtration can operate:**

1. **By gravity:** filtration can be assisted by gravitational force of the material to be filtered

• **Gravity filters**

- ✓ Gravity filters is a slow process and finds little application in food industry.
- ✓ No external pressure is applied and separation takes place by the action of gravity only.

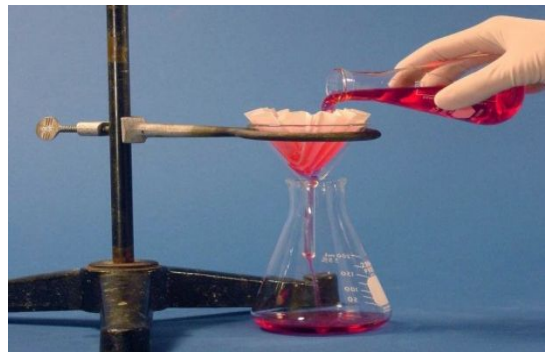


Figure 2 Gravity filter

2. **By application of pressure:** a pressure higher than the atmospheric pressure is applied to suspension to be filtered. The pressure can be applied either to the front part of the filtering medium (pressure filtration) or to the back side of the filtering medium (vacuum filtration).

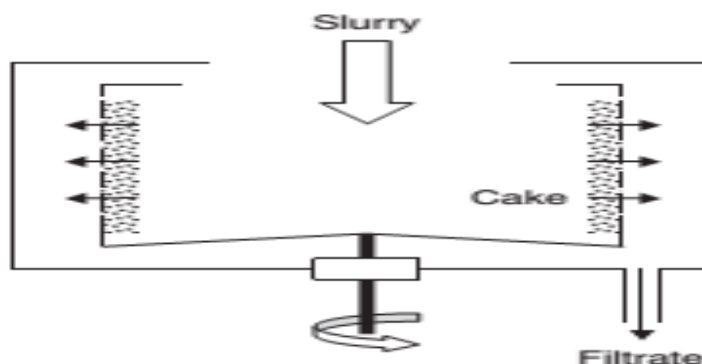


Figure 3 Pressure filter



g. Bottling

Bottling and canning food involves cooking **fruits** or **vegetables**, sealing them in sterile cans or jars, and **boiling** the containers to kill or weaken any remaining bacteria as a form of **pasteurization**. Various foods have varying degrees of natural protection against spoilage and may require that the final step occur in a pressure cooker. High-acid fruits like **strawberries** require no preservatives to can and only a short boiling cycle, whereas marginal fruits such as **tomatoes** require longer **boiling** and addition of other acidic elements. Many **vegetables** require pressure canning. Food preserved by canning or bottling is at immediate risk of spoilage once the can or bottle has been opened.

h. Packaging

Packaging is a unit operation of food processing that offers a contained product protection plus convenience for retailers as well as consumers. Packaging has been with humans for thousands of years in one form or the other. Originally, skins, leaves and bark were used for food transport when peoples moving from place to place.

❖ The purposes of food packaging

- Regardless of the processing or preservation method used, proper packaging of food is essential;
 - ✓ To make sure the food remains wholesome during journey from processor to consumer.
 - ✓ To contains food and makes it easier to handle
 - ✓ To protects food from environmental conditions, such as temperature extremes, during transport.

❖ Packaging performs five main functions:

- **Product containment:** refers to holding goods in a form suitable for transport Liquids, semi liquids, and powders, as well as bulk solids, cannot be marketed without suitable containers.



- **Preservation by maintaining quality:** The second function is to control the local environmental conditions to enhance storage life & safety. Packaging protects the product from surroundings & maintains the quality of the food throughout the product's shelf life.

 - **Presentation and convenience:**
 - ✓ **Presentation:** Effective package is the one that present the product well and does its own publicity. Consumers need to be able to make the necessary decisions about those purchases of food. Food labels are intended by law to provide important information of the product to the potential buyer. Labels help to distinguish products on the shelf, which especially important when marketing low-fat or nutritional products.
 - ✓ **Convenience:** Changes in society, improvements in the quality of life and standard of living as well as and general level of education subject more leisure time that also demand specific function of packaging. Therefore, packaging should provide convenience to the consumers that can also increase consumption.

 - **Protection:** refers to safekeeping goods in a way that prevents significant quality deterioration. The term applied to packaging primarily designed to protect the goods, rather than for appearance or presentation. It should make possible seasonal food products to be more accessible out of their season.

 - **Provide storage history**
- ❖ **Methods of packaging in food & beverage industries are:**
- a) **Modification of Atmosphere can be achieved;**
- **Actively:** by introducing the desired gas mixture (packing gas) before closing is depends on the oxygen sensitivity and metabolic activity of the product to be packaged.
 - **Passively:** by the respiration activity of the product inside the package



b) Controlled-Atmosphere Storage/ Packaging

- In CAP, the altered gas composition inside the package is monitored and maintained at a preset level by means of scrubbers and the inlet of gases. This method closely resembles the practices used in large controlled-atmosphere (CA) storage facilities except in the case of CA the produce is stored essentially unpacked in bulk whereas CAP is used for storage or transport of smaller quantities of produce.

c) Active Packaging

- Active packaging can then provide a solution, by adding materials that absorb or release a specific compound in the gas phase. Compounds that can be absorbed are carbon dioxide, oxygen, water vapor, ethylene, or volatiles that influence taste and aroma.
- ❖ Common packaging materials in the food and beverage industries are metal, glass, plastic, carton/paper and wooden boxes.



Self-Check – 2	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Write True or False (5points)

1. Containment refers to safekeeping goods in a way that prevents significant quality deterioration
2. Grinding is a forced expulsion of fluids from semi-fluid or solid materials by the application of pressure
3. Pressing is the most common form of abrasive machining
4. Protection refers to holding goods in a form suitable for transport Liquids, semi liquids, and powders, as well as bulk solids
5. Gravity filters is a slow process and finds little application in food industry

Test I: Short Answer Questions

1. Write some examples of packaging materials (5points)
2. Mention down the unit operations of food and beverage processing (6points)
3. Write the ways to start fermentation (2points)
4. What are the advantages of fermentation? (2points)

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

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Information sheet - 3	Identifying sequence of unit operations and use key equipment
-----------------------	--

3.1 Identifying sequence of unit operations

The processes used by the food industry can be divided into common operations, called unit operations. Examples of unit operations common to many food products include materials handling, cleaning, separating, disintegrating, pumping, mixing, heat exchange (heating and cooling), evaporating, concentrating, fermentation, drying, forming, coating, and packaging, controlling and overlapping unit operations. These operations are listed in the order of their natural sequence or importance.

Most unit operations are utilized in the making of a variety of food products. Heat exchanging, or heating, for example, is used in the manufacture of liquid and dry food products, in such diverse operations as pasteurizing milk, sterilizing foods in cans, roasting peanuts, and baking bread.

Unit operations may include numerous different activities. The unit operation of mixing, for example, includes agitating, blending, diffusing, dispersing, emulsifying, homogenizing, kneading, stirring, whipping, and working. We may want to mix to beat in air, as in making egg white foam, or to blend dry ingredients, as in preparing a ton of dry cake mix; or we may wish to mix to emulsify, as in the case of mayonnaise, or to homogenize to prevent fat separation in milk.

One of the key elements to food processing is the proper selection and combination of unit operations into more complex integrated processing systems. These operations and processes consume great quantities of energy.

The following are unit operations sequence of food processing:

- **Materials handling** includes such varied operations as hand and mechanical harvesting on the farm, refrigerated trucking of perishable produce, box car transportation of live cattle, and pneumatic conveying of flour from rail car to bakery storage bins.



- **Cleaning** can be accomplished with brushes, high-velocity air, steam, water, vacuum, magnetic attraction of metal contaminants, mechanical separation, and so on, depending on the product and the nature of the dirt.
- **Separating:** The unit operation of separating can involve separating a solid from a solid, as in the peeling of potatoes or the shelling of nuts; separating a solid from a liquid, as in the many types of filtration; or a liquid from a solid, as in pressing juice from a fruit. It might involve the separation of a liquid from a liquid, as in centrifuging oil from water, or removing a gas from a solid or a liquid, as in vacuum removal of air from canned food in vacuum canning.
- **Disintegrating:** Operations which subdivide large pieces of food into smaller units or particles are classified as disintegrating. It may involve cutting, grinding, pulping, homogenizing, and so on.
- **Pumping:** One of the most common operations in the food industry is the moving of liquids and solids from one location or processing step to another by pumping. There are many kinds of pumps and the choice depends on the character of the food to be moved.
- **Mixing:** it is a way of mixing depending on the materials to be mixed. One may wish to mix solids with solids, liquids with liquids, liquids with solids, gases with liquids, and so on.
- **Heat Exchanger** (Heating and cooling)
- **Evaporation:** Evaporation in the food industry is used principally to concentrate foods by the removal of water. It is also used to recover desirable food volatiles and to remove undesirable volatiles.
- **Drying:** is to remove water with minimum damage to the food. Whereas evaporators will concentrate foods twofold or threefold, driers will take foods very close to total dryness in many cases less than 2% or 3% water.
- **Packaging:** Food is packaged for several purposes, including containment for shipping, dispensing, and unitizing into appropriate sizes, and improving the usefulness of the product. A primary reason is to protect it from microbial contamination, physical dirt, insect invasion, light, moisture pickup, flavor pickup, moisture loss, flavor loss, and physical abuse.



- **Controlling:** this is additional unit operations combined into complex processing operations there have to be ways of measuring and controlling them to obtain the desired food product quality. Controlling may be considered a unit operation in itself. Its tools are valves, thermometers, scales, thermostats, and a wide variety of other components and instruments to measure and adjust such essential factors as temperature, pressure, fluid flow, acidity, specific gravity, weight, viscosity, humidity, time, liquid level, and so on.
- ❖ **Overlapping Unit Operations:**
 - The division or grouping of food processing steps into unit operations is not perfect and there can be overlapping. For example, filtering bacteria out of beer might logically be considered cleaning or it might be considered separating. Moving milk to a cheese vat might be viewed as pumping or it might be considered materials handling. Milling grain to yield flour might be considered disintegrating followed by separating.
 - Overlapping does not detract from the value of the unit operations concept. This concept permits one to think in an orderly fashion. What is more, some food texts and most food equipment catalogs are divided by unit operations. One may have the problem of blending fragile stuffed olives into sausage meat emulsion with minimum breakage as in the manufacturer of certain table-ready meats, or of incorporating a whip improver into commercial liquid egg white without foaming the white. Applicable available equipment generally will not be found in reference sources under food commodity headings but will be grouped in the mixing sections of equipment and engineering references.



3.1.1 Different operations and process flow sheet of food and beverage

1. Wheat flour milling flow sheet

- cleaning
- tempering/ conditioning
- Scouring
- Milling

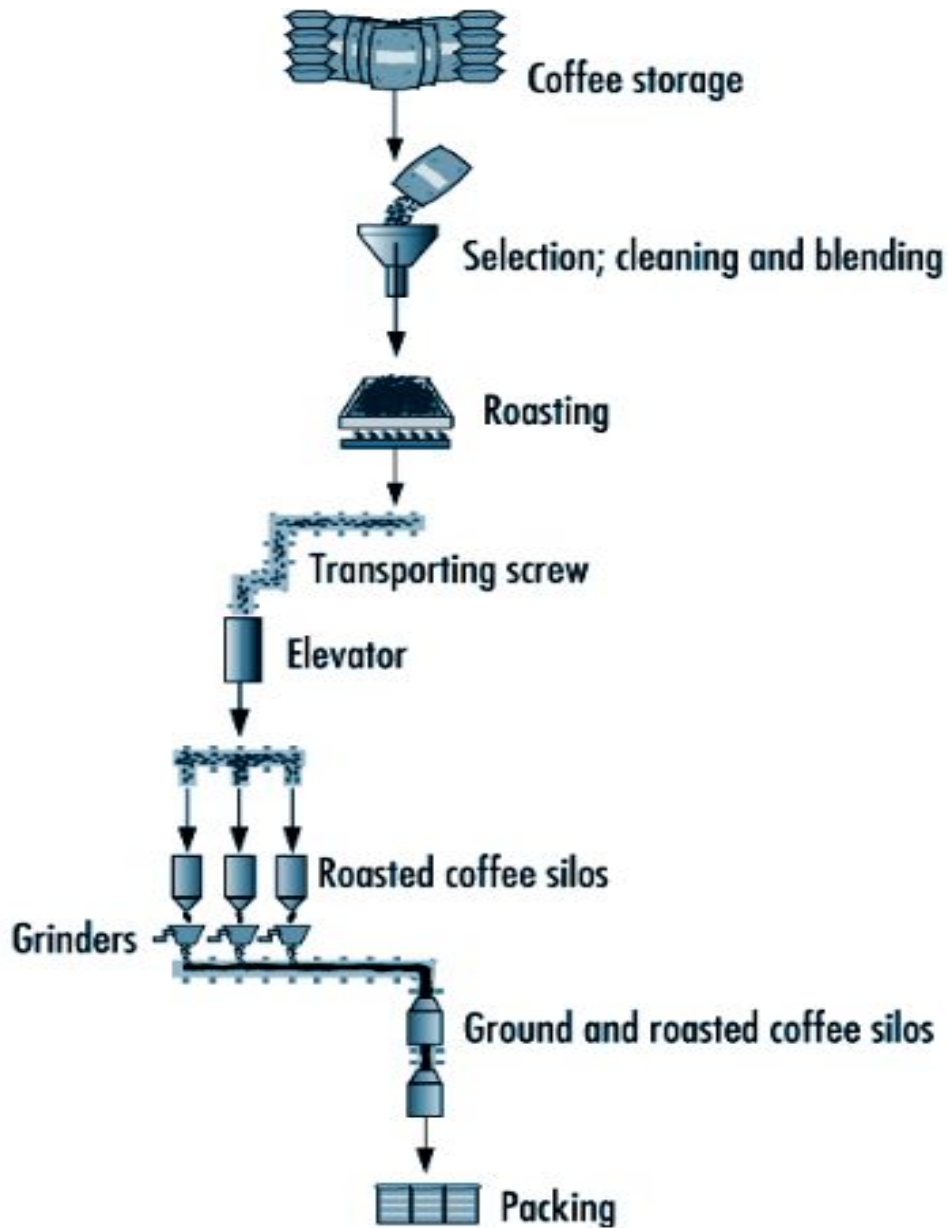
2. Bread baking flow sheet

- Dough mixing(water, flour, salt, yeast)
- Fermentation
- Dough proving
- Bread making/baking

3. Flow sheet for biscuit processing

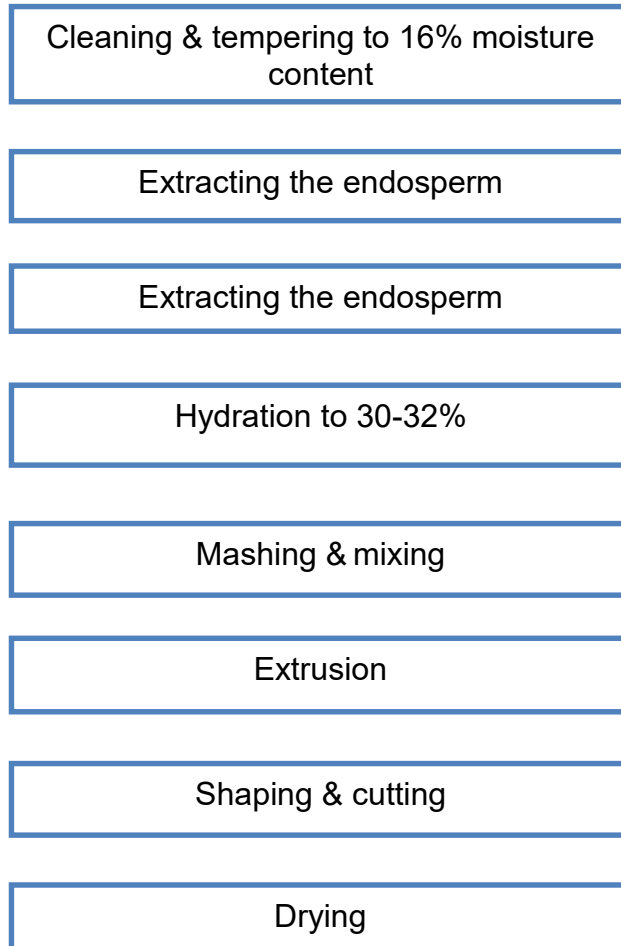
1. Flour soft wheat
2. Sieve using fine sieve 1 mm aperture.
3. Mix flour, margarine, baking powder, salt together by hand or electric mixer.
4. Mix the egg, sugar, milk/water in separate container.
5. Knead add the liquid mix to the flour based mixture and use a small mixing machine/hand.
6. Roll using a rolling stick/pan and board thinly (5 mm).
7. Cut to any required size e.g. Round or square shape, use a hand cutter.
8. Bake at 200-250⁰C for 5 to 20 minute until golden brown.
9. Cool on a wire rack to room temperature.
10. Pack in sealed plastic packets.
11. Store in dry and cool place.

4. Flow chart of coffee manufacturing





5. Pasta processing flow sheet



6. Tomato paste processing steps

❖ Fully matured tomato

- washing
- sorting
- crushing
- pre-heating
- refining
- evaporation(concentration)
- pasteurization
- filling
- cooling

7. Flow chart of beer brewing process

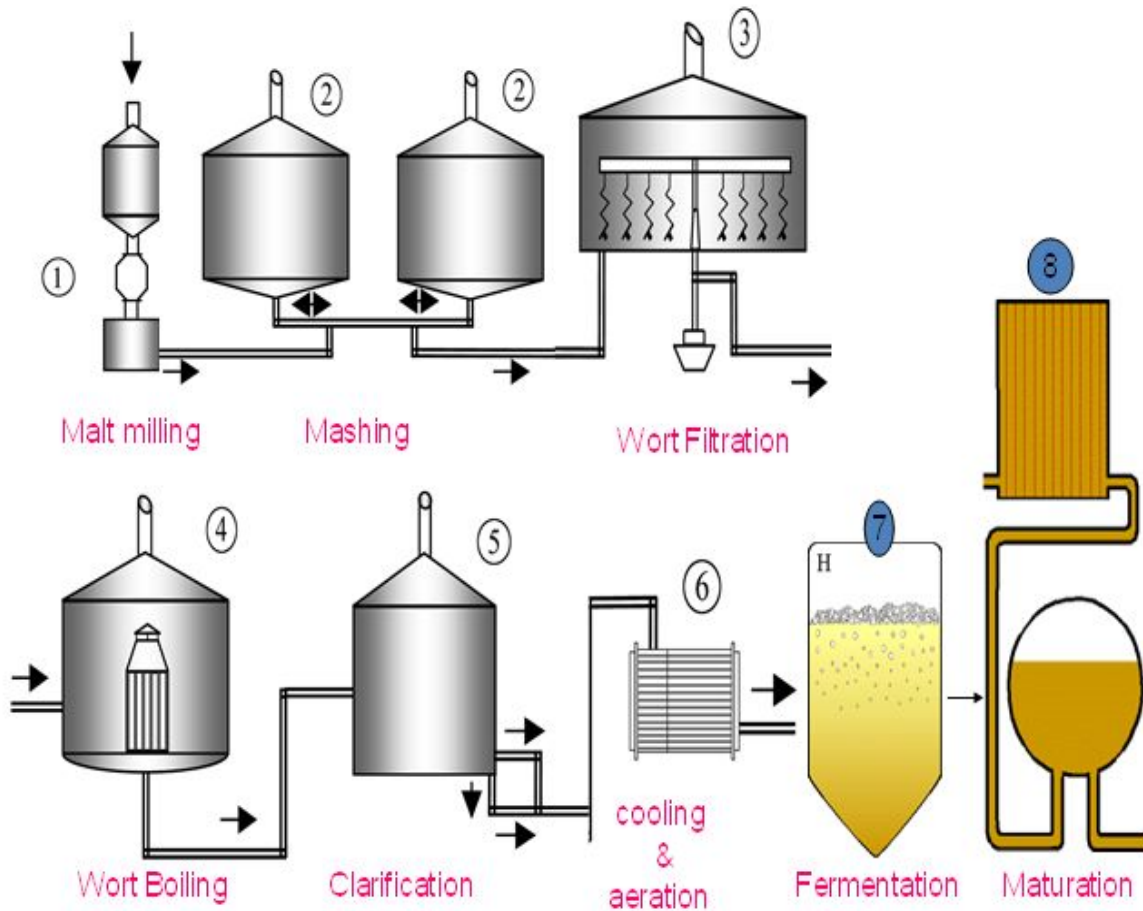


Figure 4 Flow chart of beer brewing process

1. Peanut butter processing procedure

❖ Clean the peanut

- Roast in low heat until done (6-8 minutes) until golden color and good flavor comes.
- It is good to roast at medium heat for longer time so it is roasted slowly
- High heat and short time burns it.
- Grind to fine powder mixing the salt



- ❖ Cook it to make a smooth paste
 - Clean and sterilize the bottle
 - Pack the paste in sterilized bottle
 - Tight cover and seal
 - Store in cool dry place

2. Wine process flow sheets

- Harvesting
- Crushing
- Pressing
- Fermentation
- Aging/ maturation
- Racking
- Finishing
- Bottling
- Packing

3.1.2 Identifying key equipment

❖ Key equipment used in food and beverage processing

- a. grinder
- b. Mixer
- c. Extruder
- d. Pressing machine
- e. Dryer
- f. Crushing machine
- g. Heat exchanger
- h. fermentation vessels
- i. stills and retorts
- j. separators
- k. barrels
- l. bottling and packaging equipment

a. **Grinder:** the term grinder refers to a variety of size reduction machines for intermediate duty. Product from a crusher is often fed to a grinder for further reduction. Some of the commercial grinders are hammer mills, impactors, rolling compression machines, attrition mills and tumbling mills.

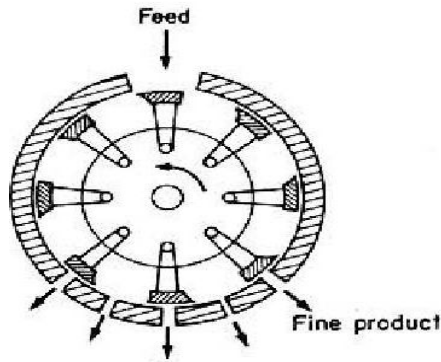


Figure 5 Hammer mills

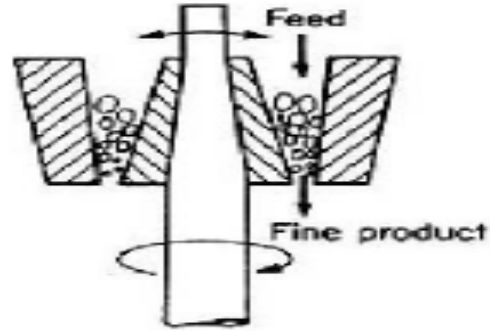


Figure 6 Gyratory crusher:

b. **Mixing machine:** a machine used to dispersing one within the other, when a uniform mixture is obtained from two or more components

❖ Mixer are classed into different types that are used for

1. Low or medium viscosity liquid
2. High viscosity liquid and pastes
3. Dry powder or particulate solids

❖ **Mixer for low to medium viscosity liquid:** used paddle agitator which have wide flat blade

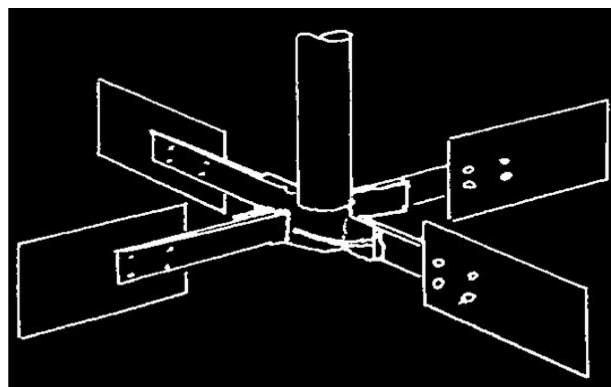


Figure 7 Paddle agitator

- ❖ **Mixer for high viscosity liquid and pastes:** Use multiple paddle agitators which develop high shearing force.

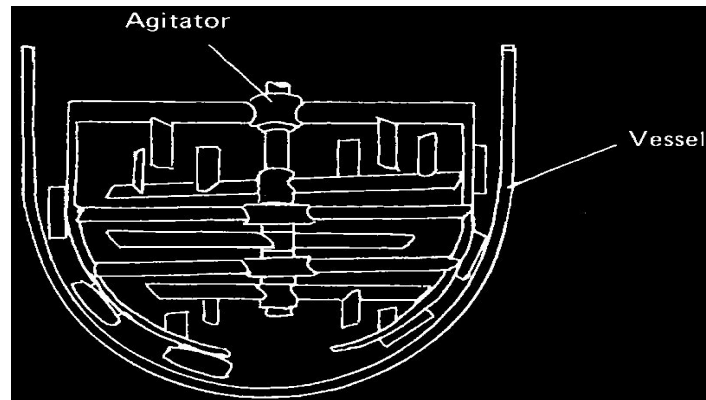


Figure 8 Vertical shaft impellers

- ❖ **Mixer for dry powder or particulate solids:** use ribbon mixer in which one or more thin narrow metal blades (ribbons) are formed into helices which counter-rotate in a hemi-spherical trough.

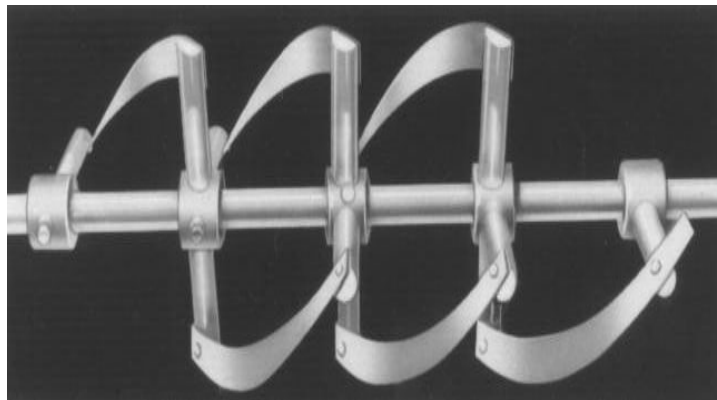


Figure 9 Ribbon mixers

- c. **Extruder:** Extruder is a machine used to form, texturize and shape food products under conditions that favor high quality retention.
- ❖ **Application of extruder** Production of pasta, ready-to-eat cereals, snack products and confectionary products.

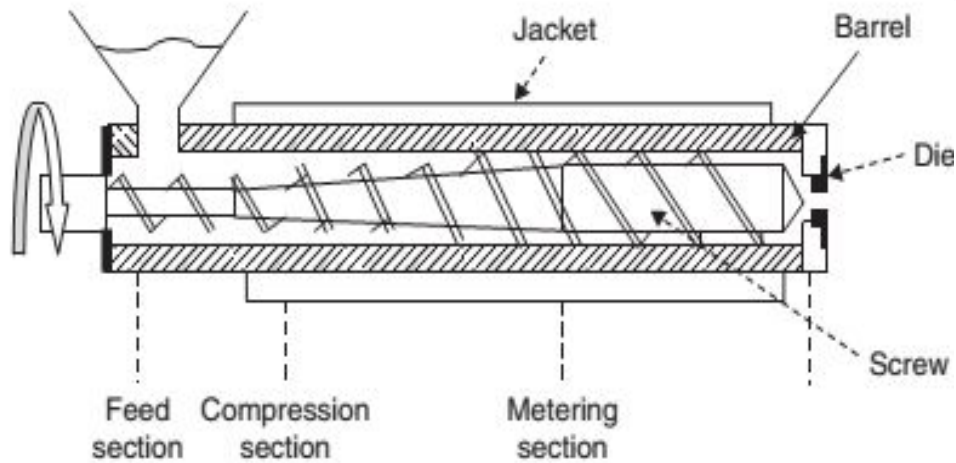


Figure 9 single screw extruder

d. Pressing machine:

- **Tank press:** This consists of horizontal cylinder, which is divided internally by membrane
- **Hydraulic ram press:** The pulp or seed is placed in to the cylinder and the pressure plate is lowered on the top of the stacked pulp/seed with a gradual increase of pressure by hydraulic system. Liquid flows though the perforated or slatted cage and is collected at the base of the press.

e. Crusher: in a jaw crusher the feed is admitted between two jaws, set to form a V open at the top

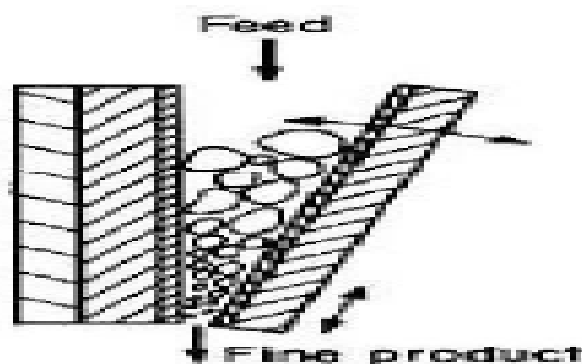


Figure 10 crusher

f. Dryer: helps to remove relatively small amount of moisture from a solid or nearly solid material by evaporation, assures microbial stability. Dryers can be divided:

1. Solar cabinet air dryer

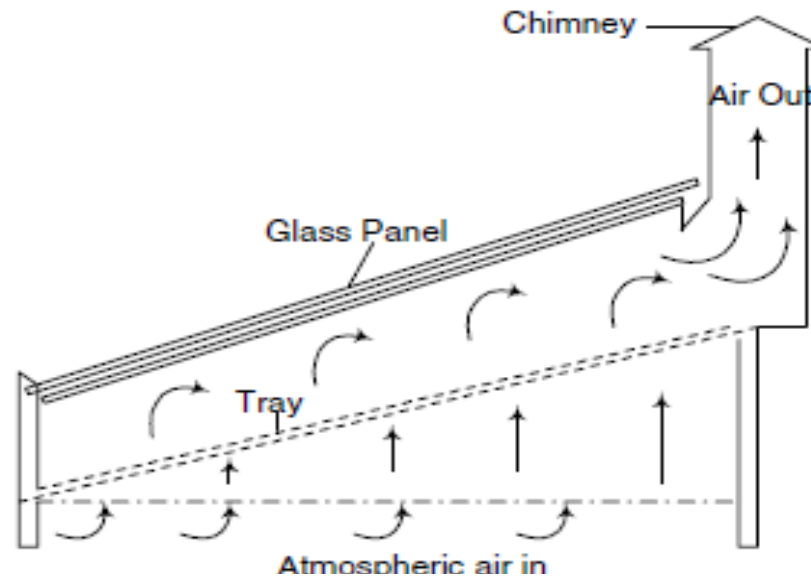


Figure 11 Solar cabinet air dryer

- ❖ The entire drying process was achieved during the day between **10 am** and **1 pm** when the intensity of the solar radiation was maximal.

2. Fluidized bed dryer:

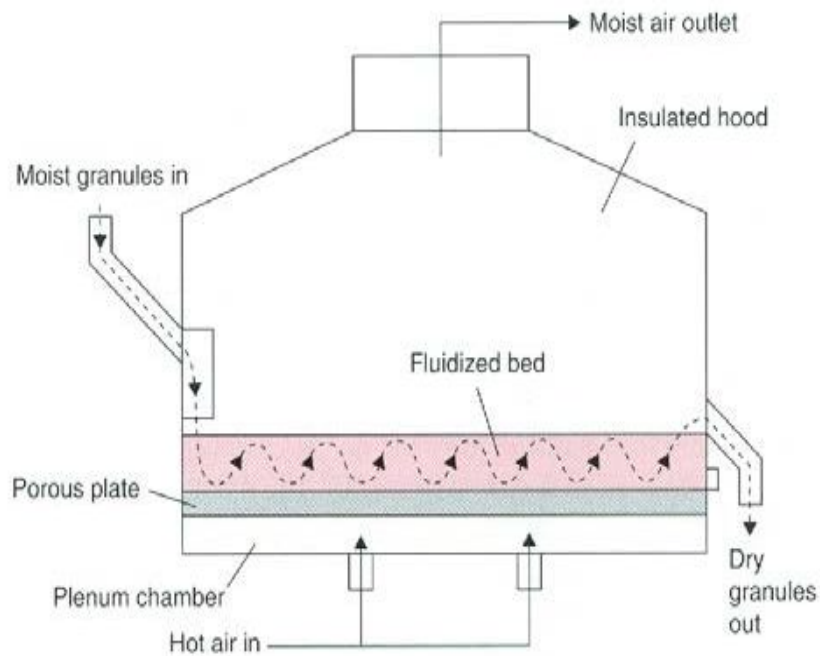


Figure 12 Fluidized bed dryer



- ❖ The movement of product through the system is enhanced by the change in mass of individual particles as moisture is evaporated. Fluidized-bed drying is dependent on the size of particles (Limitation). The weight loss of the sample is determined every 5 min.

3. Microwave oven drier:

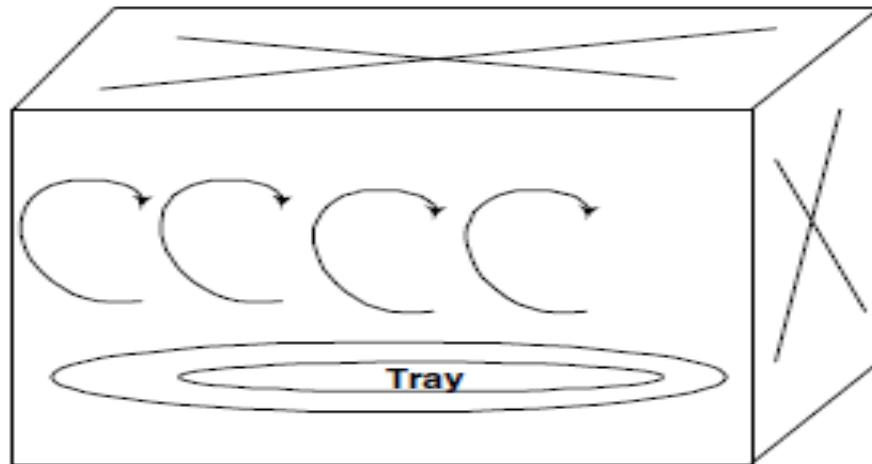


Figure 13 Microwave oven drier

g. Heat exchanger

- ❖ A variety of heat exchanges are utilized in the food industry, which include:
 - ✓ **Plate** heat exchanges,
 - ✓ **Tubular** heat exchanges



Self-Check –3	Written test
----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: write True or False

1. Grinder is a machine used to form, texturize and shape food products under conditions that favor high quality retention (1point)
2. Extruder refers to a size reduction machines for intermediate duty (1point)
3. Pumping is one of the most common operations in the food industry (1point)
4. Mixing is a way of mixing depending on the materials to be mixed. (1point)

Test II: Short Answer Questions

1. Write the wheat flour milling flow sheet(2points)
2. Write the bread baking flow sheet(2points)
3. Write the wine process flow sheets(2points)
4. What are the equipment used in food and beverage processing? (6points)

Note: Satisfactory rating - ≥ 8 points Unsatisfactory - below 8 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____

Procedure

1. Select coffee sample
2. Sort and clean through a multistep process



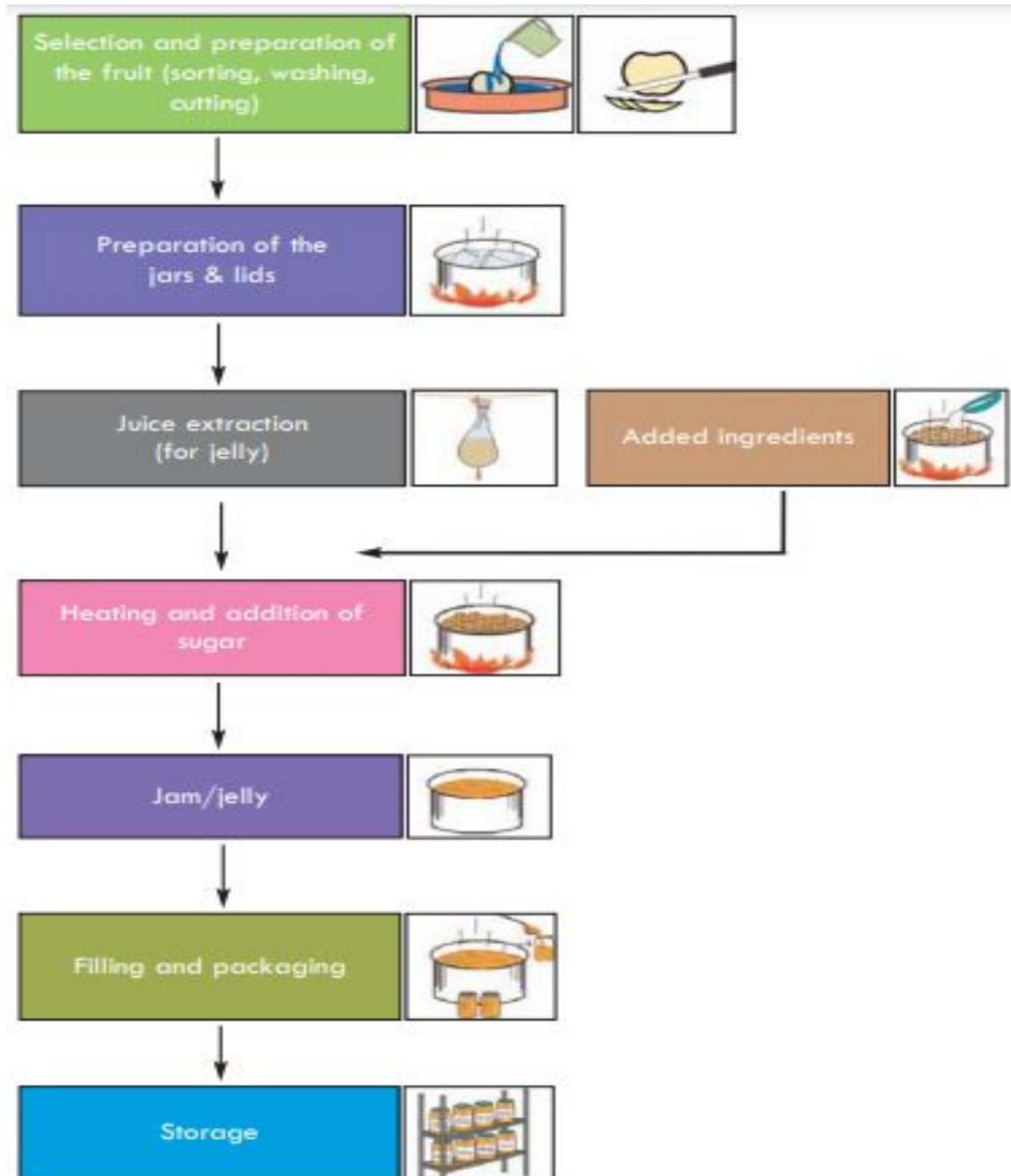
3. grade based on size
4. Roasting gradually raises the temperature of the beans to between 180°C and 230°C.



5. Grind roasted coffee
6. Finally, pack the coffee

Operation -2	Jam/jelly making
---------------------	-------------------------

Procedure





Operation sheet –3

Preparation of the dried tomatoes

Procedure

Step 1 Select firm, ripe tomatoes.

Step 2 Reject any tomatoes that are over-ripe, rotten or damaged.

Step 3 Leave the skin on, or remove it from the tomatoes. Plunge the tomatoes in boiling water to loosen the skins. Remove from the hot water, cool in cold water and peel the skin.

Step 4 Cut the tomatoes. You can choose whether to leave them in half or quarters, or to cut them into slices (20mm thick).

Step 5 Place the cut pieces of tomato on the drying tray.

Step 6 Place the trays of fruit into the dryer, or outside in a well-ventilated area protected from dust.

Step 7 Place the trays or dryer in the shade, as direct sunlight will cause the red colour to fade.

Step 8 Dry until the pieces are soft and leathery.



LAP TEST

Performance Test

Name..... ID.....

Date.....

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following task within **8hour**. The project is expected from each student to do it.

Task-1 Coffee processing

Task-2 Jam/jelly processing

Task-3 Preparation of the dried tomatoes



Information Sheet - 4 Identifying basic differences between various industrial food products and beverages processing

4.1 Industrial food products and beverages processing

4.1.1 Industrial food products processing

Food Processing is the set of methods and techniques used to transform raw ingredients into finished and semi-finished products. Food processing requires good quality raw materials from either plant or animal source to be converted into attractive, marketable and often long shelf-life food products. Many food processing operations are designed to extend the shelf life of the food products. The concepts associated with food processing are reducing/eliminating microbial activity and other factors that influence food spoilage. Basic concepts in food processing methods to prevent food spoilage are:

- Application of heat,
- Removal of water moisture,
- Lowering of temperature
- during storage,
- Reduction of pH,
- Controlling the availability of oxygen.

4.1.2 Industrial beverages processing

Beverages can be defined as “any fluid which is consumed by drinking”. It consists of diverse group of food products, usually liquids that include the most essential drink water to wide range of commercially available fluids like fruit beverage, synthetic drinks, alcoholic beverage, milk, dairy beverages, tea, coffee, chocolate drinks etc. The beverages are rarely consumed for its food value but it is vital for life. Although their prime role is to fulfill the human need but these are part of our culture. However there are important pre-requisite for beverages:-

- All are made from food ingredients

- All are subject to pure food law
- Consumed in enormous quantities - sometimes safer than potable supply

Beverages are essential for growth, development as well for carrying out various physiological processes that are critical for living a healthy life. The following are the flowcharts of beer and wine processing

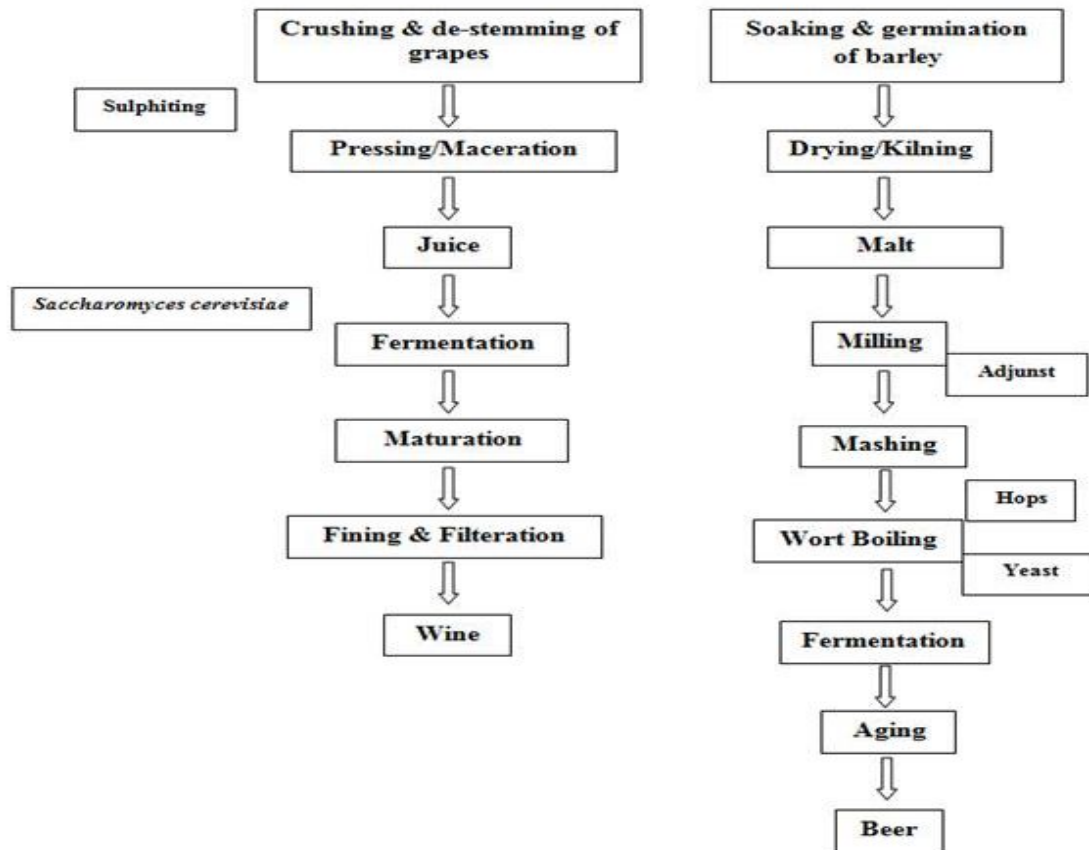


Figure 14 Manufacture technologies for beer and wine

4.1.3 Differences between various industrial food and beverages processing

Difference between food and drink is that food is (uncountable) any substance that can be consumed by living organisms, especially by eating, in order to sustain life while drink is a beverage. Beverage (drink) is to consume (a liquid) through the mouth.



Self-Check – 3	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions (2points)

1. Alcoholic beverages are produced by the process of natural or controlled fermentation.
2. The beverages are rarely consumed for its food value but it is vital for life.

Test II: Short Answer Questions

1. Define the following terms (2points)
 - a. Beverages
 - b. Food Processing
2. Write the difference between food and beverages processing (2points)
3. Write the food processing methods to prevent food spoilage (4points)

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

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Information Sheet – 5 Using food and beverage industry terminology

5.1 Using food and beverage industry terminology

Some key terms used in Food Processing

- **Acid:** Substance with a pH of less than 7.0.
- **Acidified food:** Product with a natural pH of 4.6 or below.
- **Active packaging:** Contains active component allowing a controlled interaction between the food, package and internal gaseous environment, thus extends shelf life, improves fruit & vegetable safety or provides superior sensory quality.
- **Additives:** Natural and man-made substances added to a food for an intended purpose (such as preservatives and colours) or unintentionally (such as pesticides and lubricants).
- **Adulteration:** Deliberate contamination of foods with materials of low quality.
- **Anaerobe:** Organism, especially a bacterium that does not require oxygen or free oxygen to live.
- **Anaerobic:** Does not require oxygen.
- **Ambient temperature:** Temperature of the immediately surrounding environment. Ambient room temperature ranges from 19-23°C (68 to 77°F).
- **Aseptic packaging:** System wherein the food product and the container are sterilized separately and the containers are filled and sealed in a sterile environment.
- **Aseptic:** Without contamination by micro-organisms, i.e. sterile.
- **Blancher:** Lidded pot designed with a fitted perforated basket to hold food in boiling water, or with a fitted rack to steam foods. Useful for loosening skins on fruits to be peeled or for heating foods to be hot packed.
- **Blanching:** Process of immersing in hot water or heating in steam at 95°C for 1-5 minutes to reduce enzyme activity
- **Bleaching:** Treatment to reduce natural pigments (carotenoids, chlorophylls & xanthophylls) and other impurities such as cations of iron, copper and zinc
- **Bleaching agents:** Used to artificially whiten flour.



- **Buffer:** Mixture containing both a weak acid and a weak base capable of absorbing additions of either strong acid or strong base with little corresponding change in pH. Buffers are used for calibrating pH meters.
- **Calibrate:** Determine and verify the scale of a measuring instrument with a standard, known instrument. Thermometers used in food establishments are commonly calibrated using an ice slush method 0°C (32°F) or a boiling point method 100°C (212°F).
- **Canning:** Process by which a food product is enclosed in a sterilized container totally impervious to microbes and heated until all microorganisms inside the container are killed.
- **Clean:** Free of visible soil including food particles and dirt.
- **Consumer:** Any person who uses goods and services.
- **Contamination:** Process by which harmful or unpleasant substances (such as metal or plastic material, strong odours, bacteria or poisons) get into or onto food.
- **Convenience foods:** Food items that have been purchased pre-processed and that may or may not require additional preparation before serving.
- **Detergent:** Chemical that removes soils but does not sterilise equipment
- **Disinfect:** Clean something so as to destroy disease-carrying microorganisms and prevent infection.
- **Enzymes:** Chemical substances that act as catalysts in chemical reactions.
- **Extrusion:** Forcing a viscous solution through a spinneret-like machine (similar to a shower head).
- **Fermentation:** Changes in food caused by intentional growth of bacteria, yeast or mold.
- **Filtration:** Process of passing a liquid through a filter to remove any solid particles.
- **Flavour:** Description of the sensation aroused by taste testing.
- **Food acids:** Citric acid, tartaric acid, or malic acid used for adjusting the pH value in food.



- **Food intolerance:** Adverse reaction to a food or food component that does not involve the body's immune system.
- **Food processing:** Using food as a raw material and changing it in some way to make a food product.
- **Food safety:** Protecting the food supply from microbial, chemical (i.e. rancidity, browning) and physical (i.e. drying out, infestation) hazards or contamination that may occur during all stages of food production and handling-growing, harvesting, processing, transporting, preparing, distributing and storing.
- **Food safety hazards:** Include all microbiological, chemical, and foreign materials that, if consumed, could cause injury or harm.
- **Food spoilage:** Food that has decayed or decomposed. Rate of spoilage depends on surrounding environmental factors such as temperature, atmosphere and moisture. Spoiled food does not cause foodborne illness.
- **Foodborne illness/disease/poisoning:** Illnesses which result from ingestion of contaminating microbial pathogens (i.e., bacteria, mold, viruses), chemicals, parasites, viruses or from naturally occurring toxins or poisons.
- **Foodborne intoxication:** Illness caused by ingestion of food containing a toxin (metabolic byproduct) that was formed and excreted into the food as a result of pathogenic microbial growth
- **Fortified:** Addition of nutrients to food.
- **Fortification:** Addition of nutrients that is not naturally present in the food or the addition of amounts greater than those naturally present.



Self-Check – 4	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: write True or False (4points)

1. Detergent is chemical substances that act as catalysts in chemical reactions.
2. Enzymes is chemical that removes soils but does not sterilize equipment
3. Ambient temperature is temperature of the immediately surrounding environment.
4. Adulteration is deliberate contamination of foods with materials of low quality.

Test I: Short Answer Questions

1. Define the following terms (10points)

f. Acid	a. Clean
g. Anaerobic	b. Consumer
h. Aseptic	c. Contamination
i. Blanching	d. Filtration
j. Calibrate	e. Fortified

Note: Satisfactory rating - ≥ 7 points Unsatisfactory - below 7 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



LG #49

LO #2- Identify food and beverages sales and marketing strategies and processes

Instruction sheet

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

- Identify standard forms of food and beverages packaging and labeling
- Identifying range and purpose of labeling information
- Identifying scope and purpose of different types of cellar door operations
- Identify major Agro-food Processing regions and Agro-food Processing types in Ethiopia
- Describing key features and market expectations of food and beverages products
- Identifying difference between domestic and export markets and marketing strategy

This guide will also assist you to attain the learning outcomes stated in the cover page.

Specifically, upon completion of this learning guide, you will be able to:

- Identify standard forms of food and beverages packaging and labeling
- Identify range and purpose of labeling information
- Identify scope and purpose of different types of cellar door operations
- Identify major Agro-food Processing regions and Agro-food Processing types in Ethiopia
- Describe key features and market expectations of food and beverages products
- Identify difference between domestic and export markets and marketing strategy



Learning Instructions:

- | |
|---|
| <ol style="list-style-type: none">2 Read the specific objectives of this Learning Guide.3 Follow the instructions described below.4 Read the information written in the information Sheets5 Accomplish the Self-checks |
|---|



Information sheet 1	Identify standard forms of food and beverages packaging and labeling
----------------------------	---

1. Food and beverages packaging and labeling

1.1 Food and beverages packaging

❖ **Packaging:**

- Packaging is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use.
- A means of ensuring safe delivery to the ultimate consumer in sound condition at optimum cost.

❖ **Basic Function of packaging**

A. Containment: Packaging must contain the product offered for sale.

- portion control (profitability)
- consistency
- company reputation (character)
- consumer expectation
- consumer convenience

B. Protection: Packaging protects the product ensuring that it does not become contaminated.

- Contamination
- maintain quality
- legislation (codex, local legislation)
- product consistency
- company reputation

C. Inform (labeling): Gives information for users.

- Nature of the contents
- Legislation, codex, and other codes
- Nutrition
- Instructions for use
- Elimination of fraud
- Storage requirements



D. Attract: The label is also designed to attract consumers.

- Advertise that this product is satisfying and fun and healthy
- ❖ **Other function of packaging:** packaging control the product exposure to the effects of oxygen, light, water vapor, bacterial and other contaminants.
- ❖ The primary function of food packaging is:
 - Minimize the transfer of heat and light energy
 - Prevent gas transfer from outside to inside and vice versa
 - Prevent the physical damage by external force or pressure and the contamination of dust and foreign elements
- ❖ The secondary function is to facilitate distribution of the product to the consumer.
- ❖ **Other functions** are communication, dispersing and dispensing and utilization

1.2 Standard forms of food and beverages labeling

- ❖ The Food Standards Code includes the general labeling and information requirements that are relevant to all foods, and sets out which requirements apply in different situations (for example food for retail sale, food for catering purposes, or an intra-company transfer). The Code also includes specific labeling and information requirements that apply to certain food products only.
- ❖ More information on a range of labeling topics is available below.
 - Country of origin labeling
 - Fish names
 - Food allergies and intolerances
 - Ingredients list and percentage labeling
 - Labeling Review
 - Nutrition, health and related claims
 - Pregnancy warning labels
 - Truth in labeling, weights and measures and legibility
 - Warning and advisory statements



Self-Check – 5	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Write True or False

1. Label is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use (1point)
2. The secondary function is to facilitate distribution of the product to the consumer (1point)
3. Product name refers to the unique name of an individual product (1point)

Test II: Short Answer Questions

1. Write the basic function of packaging (4point)
2. What are the primary function of food packaging (3point)

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

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Information Sheet- 2 Identifying range and purpose of labeling information

2.1 Range and purpose of labeling information

Food labeling information is legally regulated and food regulatory authorities are using the information to protect consumers by ensuring provision of clear, honest and correct information to consumers.

- **Labeling requirements**

The new labeling requirements allow consumers to make informed choices about the food they buy. Change such as allergen labeling which is vital to those with allergies to foods and mandatory nutrition information which provides important nutritional information to consumers. The customers have the right to know what the ingredients are in a particular food.

The main general labeling requirements cover:

1. Prescribed name

- Name of the food product or where no name is known, a name or description of the food that clearly states the true nature of the food.
- Labels must tell the truth.

2. Legibility requirements

- Labels must be clear, in full view and in English. The type size of warning statements must be no less than 3mm high or not less than 1.5mm for small packages.

3. Food recall information

- In the event of a food recall labels must have the name and business address in the manufacturer or importer. Also, the lot and batch number of the food, and where the food was packed or prepared.

4. Ingredient listing

- Ingredients, additives and compound ingredients used in the manufacture of the food must be listed from greatest to smallest order of ingoing weight.



5. Date marking

- Packaged foods that have a shelf life of two years or less must have a 'use by' or 'best before' date. 'Best before' may still be safe to eat though may have lost quality and nutritional value. Foods that must be consumed within a certain time for health and safety reasons must have a 'use by' date. Food labeled with a 'use by' date cannot be sold after the given date.

6. Nutrition labeling

- Nutrition labeling is generally required and must be displayed as a nutrition information panel, in a certain format, that sets out the energy, protein, fat, saturated fat, carbohydrate, sugars and sodium content of the food.

7. Percentage labeling

- Packaged foods will require labels that show the percentages of the main or key ingredients of the food product. ie the amount of meat in a meat pie.

8. Direction for use and storage

- Where, due to the nature of the food and reasons of health or safety, consumers need directions about the use or storage of the food. This information is mandatory for the product to remain safe until its 'use by date'. E.g. refrigerate after opening or store away from sunlight.

9. Country of origin

- A statement is required that identifies the country in which the food was made or produced

10. Mandatory warning and advisory statements and declarations

- This information may be in the form of:
 - ✓ a mandatory prescribed statement (which includes warning statements);
 - ✓ a mandatory advisory statement; or a mandatory declaration.
- Warning statements are required on:
 - ✓ condensed milk, modified milk and
 - ✓ skim milk;
 - ✓ infant formula products;
 - ✓ food for infants;
 - ✓ formulated supplementary sports foods; and



- ✓ royal jelly presented as a food and
- ✓ Food containing royal jelly.
- For examples,
 - ✓ Food for infants: 'Not recommended for infants under the age of 4 months'.
 - ✓ Genetically modified foods require a prescribed statement on the label that the food or ingredient is 'genetically modified'.
- These statements must always be written on the food label or, in the case of foods exempt from having a label, on the food package or in connection with the display of the food.
- **Mandatory advisory statements:** Where there is a possible health risk caused by certain foods or substances found in food that people may be unaware of, a mandatory advisory statement must be placed on the label to let people know. Mandatory Advisory statements are required for foods or substances present in foods such as:
 - ✓ irradiated foods;
 - ✓ formulated meal replacements;
 - ✓ formulated supplementary foods;
 - ✓ formulated supplementary sports foods;
 - ✓ unpasteurized milk and liquid milk products;
 - ✓ food containing aspartame;
 - ✓ unpasteurized egg products;
 - ✓ food containing quinine;
 - ✓ kola beverages containing added caffeine
 - ✓ foods containing polyols or
 - ✓ polydextrose above certain levels (sweeteners).
 - Examples
 - ✓ Unpasteurized products - Statement to the effect that the product has not been pasteurized.
 - ✓ Kola beverages containing added caffeine - Statement to the effect that the product contains caffeine.



- **Mandatory declarations:** The most common foods, ingredients or main part of an ingredient that can cause some people serious harmful reactions must be declared on the label however small the amount. This declaration is usually in the ingredient list.
- **Mandatory declarations** are required when certain substances are present in food as:
 - ✓ an ingredient;
 - ✓ part of a compound ingredient;
 - ✓ food additive or main part of a food additive; or
 - ✓ processing aid or main part of a processing aid
- And includes:
 - ✓ cereals and cereal products
 - ✓ containing gluten namely; wheat, rye, barley, oats, spelt and their hybridized strains;
 - ✓ crustacea (shellfish) and their products;
 - ✓ egg and egg products;
 - ✓ fish and fish products;
 - ✓ milk and milk products;
 - ✓ nuts and sesame seeds and their products;
 - ✓ peanuts and soybeans and their products;
 - ✓ added sulphites in concentrations of 10mg/kg or more;
 - ✓ royal jelly presented as a food or royal jelly present in a food;
 - ✓ bee pollen; and
 - ✓ propolis (bee products).
 - In addition to the core requirements, there are requirements that cover health claims, nutrition claims, labeling in relation to the vitamin and mineral content, labeling of irradiated food or food containing ingredients that have been irradiated; and novel foods.



Self-Check – 6	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Write True or False (4 points)

1. Packaged foods that have a shelf life of two years or less must have a ‘use by’ or ‘best before’ date.
2. The customers have the right to know what the ingredients are in a particular food.
3. Packaged foods will not require labels that show the percentages of the main or key ingredients of the food product.
4. This declaration is usually in the ingredient list.

Test II: Fill in the black space (4 points)

- 1 _____ The most common foods, ingredients or main part of an ingredient that can cause some people serious harmful reactions must be declared on the label however small the amount.
- 2 _____ Name of the food product or where no name is known, a name or description of the food that clearly states the true nature of the food.

Note: Satisfactory rating - ≥ 4 points Unsatisfactory - below 4points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____



Name: _____

Date: _____

Information Sheet- 3 Identifying scope and purpose of different types of cellar door operations

3.1 Identifying scope and Purpose of different types of cellar door operations

3.1.1 Definition of Cellar door:

Cellar door: is the term used to describe manufacturers, producers and distributors of wine, who offer alcohol for sale from their premises.

Cellar door: are referring to the place where a winery sells their wine direct to the consumer via a retail store. These stores are often onsite, or in a nearby town. A Cellar door usually provides wine tastings and attracts tourists and wine lovers alike!

3.1.2 Purpose of Cellar door

A cellar door does not include breweries who manufacture, produce and distribute beer, as these are considered as ‘other’ types of premises under the fees regulations. In order to sell alcohol from a cellar door to take away, an off-licence must be held.

In a highly competitive domestic wine market, direct-to-consumer sales through cellar doors are a critical channel for Western Australian wine producers to engage with and sell to wine consumers. Intra-regional competition is also high, with cellar doors competing against one another as well as with the high-growth brewery market.

The cellar door is crucial to the ongoing profitability of the wine sector as well as being a key cog to exports in the form of international visitation. Investment into cellar door operations is capital intensive and having insights into the effectiveness of specific service offerings will mitigate risk. Cellar door contributions of direct-to-consumer sales to overall sales as well as identifying the prevalence of different tasting activities undertaken by wine producers across differing production capacities.



Self-Check 7	Written Test
---------------------	---------------------

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

Test I: short answer

1. What is cellar door? (2 points)
2. Why is cellar door important? (4 points)

Note: Satisfactory rating - > 3 points

Unsatisfactory - below 3 points

Answer Sheet

Score = _____
Rating: _____

Name: _____

Date: _____



Information Sheet - 4 Identify major Agro-food Processing regions and Agro-food Processing types in Ethiopia

4.1 Definition of agro food processing

Agro food processing refers to the subset of manufacturing industry that processes raw materials and intermediate products derived from the agricultural sector. Agro processing industry thus means transforming products originating from agriculture and fisheries to finished product. The potential for agro-industrial development in the developing countries is largely linked to the relative abundance of agricultural raw materials and low-cost labor in most of them.

4.2 Major agro-food Processing regions

Through the Ministry of Trade and Industry (MOTI) and the Industrial Parks Development Corporation (IPDC), 17 agro-industrial growth corridors (AIGC) are planned for development, with coverage in all nine regional states. The four industrial parks are situated in strategic locations throughout Ethiopia and were selected based on the area's agricultural potential, infrastructure facilities (water, electricity, etc.), and regional market potential. The four IAIPs are at various stages of planning and development, located in:

- Humera (Tigray),
- Bure (Amhara),
- Yirgalem (SNNP) and
- Bulbula (Oromia).

Commodities intended for processing include coffee, sorghum, maize, sesame, horticulture, meat and dairy, and cereals, among others. The IAIPs will include companies that export value-added agricultural products as well as those producing products for domestic consumption. Major agriculture processing potential includes cattle fattening and processing, chicken production and processing, livestock feed manufacturing, wheat-based food production (e.g. pasta, biscuits), sesame processing (e.g. tahini), soybean crushing (e.g. soybean oil and feed), sugar



production and processing, juice and dairy manufacturing, as well as garments and leather goods.

Addis ababa

Some key features of the national Agro-Industry If by agro-industry we mean manufacturing industry, the key features of the national (Ethiopia's) manufacturing industries are:

- More than 40% of the manufacturing industries are located in Addis.
- More than 31% of the manufacturing industries fell in the category of Food and Beverages.
- Well over 175,000 persons were engaged in the manufacturing industries.
- More than 38% of these persons engaged were reported to be in the Food and Beverages Industry Group.
- Almost 33% of the value added to the national accounts by manufacturing industries was contributed by Food and Beverages Industry.

4.3 Agro-food Processing types in Ethiopia

- Ethiopia is indeed endowed with more favorable agro-climatic ecology which enables it to produce a variety of crops either for food or as raw material inputs for various industries.
- Traditional Ethiopian agricultural export products include: coffee, livestock products such as skins and hides, leather, live animals and meat as well as oil seeds and pulses, fruits, vegetables and flowers, textiles, natural gum, spices and mineral products.
- Agro processing can be classified into three major commodity groups:
 - ✓ Crop processing,
 - ✓ Livestock processing
 - ✓ Fish processing.



Self-Check – 8	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Short Answer Questions

1. What are three major classifications of agro food processing? (3points)
2. Define Agro food processing (1point)

Note: Satisfactory rating - ≥ 2 points Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Information sheet – 5 Describing key features and market expectations of food and beverages products

5.1 Definition of terms

- **Features** are characteristics that set a product or service apart from other similar items. A product feature is an actual **physical property** or **function**.
- **Market** refers to a place where buyer and sellers can come in contact with each other either directly or indirectly, so as to trade goods and services for value. Its main function is to determine the price of the commodity, with the help of demand and supply factors.
- **Marketing** can be *defined* as the process of managing the efficient and effective utilization resources with the aim of understanding and meeting the opportunities and the satisfaction of consumers' needs and wants so that the objectives of the enterprise, the consumer and society are achieved.“
 - Marketing means simply the art of selling company's product in the best possible way.

5.1.1 Key features of marketing

❖ Some of the most important features of marketing are as follows:

1. **Customer focus:** The marketing function of a business is customer-centered. It makes an attempt to study the customer needs, and goods are produced accordingly. Every activity of a business is customer-oriented.
2. **Customer satisfaction:** Customer satisfaction can be enhanced by providing value-added services, which includes providing additional facilities at little or no extra cost.
3. **Objective-oriented:** All marketing activities are objective-oriented. Different objectives are fixed at different levels, but the main objective is to earn profit from business along with the satisfaction of human wants.
4. **Marketing is both art and science:** Art refers to a specific skill that is required in marketing activities of any type of business. Science refers to a systematic body



of knowledge, based on facts and principles. Hence, marketing is an art as well as a science.

5. **Continuous and regular activity:** Marketing is an activity designed to plan, price, promote and distribute products. At the same time, it also addresses both the current and future consumers. Thus, it is a continuous process.
6. **Exchange process:** Marketing involves exchange of goods, services and ideas with the medium of money. Exchange takes place between sellers and buyers.
7. **Marketing environment:** Economic policies, market conditions, and environmental factors, such as political, technological, demographic and international are influencing marketing activities.
8. **Marketing mix:** A combination of four inputs constitutes the core of a company's marketing system product, price, place, and promotion. They are influenced by consumer behavior, trade factors, competition and government regulatory measures.
9. **Integrated approach:** The marketing activities must be coordinated with other functional areas of an organization. Functions such as production, finance, research, purchasing, storekeeping and public relations (PR) are to be integrated with marketing.
10. **Commercial and non-commercial organizations:** Commercial organizations are also adopting cause-related marketing to strike long-term relations with consumers.
11. **Precedes and follows production:** Identifying consumer needs and wants is the primary task of a marketing manager. Production activities are adapted to these consumer needs. Thus, marketing precedes production. Marketing helps in the distribution of the goods which follows production. Hence, production and marketing activities are closely related to each other.



Self-Check – 9	Written test
-----------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Write True or False

1. A product feature is an actual physical property or function.
2. Every activity of a business is customer-oriented.
3. Exchange takes place between sellers and buyers.
4. Art refers to a systematic body of knowledge, based on facts and principles.
5. Science refers to a specific skill that is required in marketing activities of any type of business.

Test II: Short Answer Questions

1. Write the most important features of marketing. (6points)
2. Define market, feature and marketing? (3points)

Note: Satisfactory rating - ≥ 7 points Unsatisfactory - below 7 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Information sheet – 6 Identifying difference between domestic and export markets and marketing strategy

1.1 Identifying difference between domestic and export markets and marketing strategy

1.1.1 Definition of domestic and export markets

❖ Domestic marketing

- Domestic marketing is about doing all of the above tasks within the confines of the local or domestic/home market.

❖ Export marketing?

- Export marketing is about marketing across national borders.
- All the basic principles of marketing can be applied to both domestic and export marketing the latter is far more challenging because when entering a new country/market, the marketer will have to deal with a different kind of customer in a foreign environment with laws and regulations that may differ radically from those of the domestic market.
- Even in a world that is moving towards increasing similarities in consumer tastes, marketing methods, production processes and business practices, there are still a significant number of differences between international markets.

1.1.2 The difference between domestic and export marketing

The main distinguishing feature between export marketing and domestic marketing are:

a. Export marketing

- Export marketing is more challenging, complex, risky and expensive.
- export marketing takes more effort and more time, and requires greater financial resources than domestic marketing.
- it requires at least the same level of commitment that companies give to their local operations.



b. Domestic marketing

A domestic market, also referred to as an internal market or domestic trading, is the supply and demand of goods, services, and securities within a single country. In domestic trading, a firm faces only one set of competitive, economic, and market issues and essentially must deal with only one set of customers, although the company may have several segments in a market. The term is also used to refer to the customers of a single business who live in the country where the business operates.

There are certain limitations when competing in a domestic market, many of which encourage firms to expand abroad. The main reasons why a business would decide to expand abroad are limited market size and limited growth within the domestic market.

Domestic marketing refers to the **marketing** activities carried out by a company within its national borders. **International marketing** extends to **different** countries across the world, i.e. the **marketing** activities are carried out at a **global** level.

Domestic marketing VS Export marketing	
Meaning	
Carrying out marketing activities within the local market	Carrying out marketing activities in different countries all over the world
Scope	
Limited	Wide
Area covered	
Single countries	Multiple countries
Government intervention	
Low	High



Technology use	
Limited	Using and sharing latest technologies of different countries
Research required	
Less research needed	Extensive research of the foreign markets is required
Customer characteristics	
Similar customer characteristics	Different features, requirements and preferences of customers
Financial resources	
Few financial resources required	High financial resources required
Limitations	
Very few	Several limitations faced: communication barriers; currency rates; different customer characteristics; high risk; different laws, customs, traditions, etc.



1.1.3 Marketing Strategy

A Marketing Strategy is the long term planning of business objectives that the company wants to achieve. For these to be achieved it is important to choose well the specific actions to consolidate the reputation of products and services or increase sales in the market. Utilizing opportunities is vital to find the target market and to be able to make customers loyal to the organization so that the positioning of the company gets stronger. It is important to define how you want to position the product/service in the market in order to achieve positioning among customers and fulfill customer and organization relationship loyalty.

There are four elements that make up the marketing mix, in which the 4ps of marketing are found to shape the crucial strategies to generate profits in the company and boost sales:

- ✓ Product strategies
- ✓ Pricing strategies
- ✓ Distribution strategies
- ✓ Promotion strategies



Self-Check – 10	Written test
------------------------	---------------------

Name..... ID..... Date.....

Directions: Answer all the questions listed below. Examples may be necessary to aid some explanations/answers.

Test I: Write True or False (3 points)

1. Domestic marketing is about doing all of the above tasks within the confines of the local or domestic market.
2. Domestic marketing is about marketing across national borders.
3. Export marketing is more challenging, complex, risky and expensive.

Test II: Short Answer Questions

1. Write the importance of Marketing Strategy (5 points)
2. Write the 4ps of marketing (4 points)
3. Write the different between domestic and export marketing (6 points)

Note: Satisfactory rating - ≥ 9 points Unsatisfactory - below 9 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Name: _____ Date: _____



Reference

- <http://ecoursesonline.iasri.res.in/mod/resource/view.php?id=5852>
- <http://www.cellardoormetrics.com/Doc/UserGuideInternational.pdf>
- https://www.alcohol.org.nz/sites/default/files/documents/AL1131B%20HPA Wineries%20and%20Cellar%20Doors_Infosheet.pdf
- <https://www.wineaustralia.com/getmedia/a1e77aac-6b33-4e9f-85970c041fb4eaad/Incubator-2019-WA2.pdf>
- <https://www.foodstandards.gov.au/industry/labelling/Pages/default.aspx>
- <http://ecoursesonline.iasri.res.in/mod/page/view.php?id=793>
- <https://www.agriculturenigeria.com/manuals/processing/agro-processing/>
- <https://www.yourarticlelibrary.com/marketing/marketing-features-top-11-important-features-of-marketing-explained/32290>
- <https://afghanag.ucdavis.edu/other-topics/files/postharvest/home-based-processing.pdf>
- https://www.researchgate.net/publication/333681132_Wine_Fining_with_Plant_Proteins
- <https://www.termscompared.com/domestic-marketing-vs-international-marketing/>
- <https://www.toolshero.com/marketing/marketing-strategy/>
- <https://www.trade.gov/knowledge-product/ethiopia-agroprocessing>
- http://www.fao.org/fileadmin/templates/ess/documents/meetings_and_workshops/faounido/2a_Assessment_on_the_availability_of_Complete_Agro-food_industry_data



AKNOWLEDGEMENT

We would like also to express our appreciation to the TVET instructors and respective Regional TVET Bureau, TVET College/ Institutes, UNESCO Project (best education for African rise (BEAR)) and Federal Technical and Vocational Education and Training Agency (FTVET) who made the development of this this Teaching, Training and Learning Materials (TTLM). With required standards and quality possible.

This Teaching, Training and Learning Materials (TTLM) was developed on September 2020 at Bishoftu, Federal management institute ETHIOPIA

Page 69 of 70	Federal TVET Agency Author/Copyright	TVET program title- Basic Agro food processing Level -1	Version -1 October 2020
---------------	---	--	----------------------------



The trainers who developed this learning guide

No	Name	Edu. Level	Field of study	Region		E -mail address	College
1	Gedefa Yadasa	A	Postharvest management	Addis Ababa	0922944326	gedefayadasa@gmail.com	Yeka Industrial college
2	Alemu Abate	A	Animal production	Amhara	0912355539	Abatealemu690@gmail.com	Bure PTC
3	Tewodros Kassahun	B	Hotel management	Amhara	0925750057	tkassahun989@gmail.com	D/Tabor PTC
4	Zelalem Taye	A	Leadership and management	Amhara	0918021238	Tayezelalem22@gmail.com	Amhara TVED Bureau Coordinator