Meat & Meat Products Processing

Level –III

Module Title: Selecting ingredients by type and Quality

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LG #33	LO #1- Selecting ingredients

Instruction sheet

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

- Selecting ingredients by type and quality
- Selecting dry ingredients
- Handling ingredients hygienically

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- Select ingredients by type and quality
- Select dry ingredients
- Handle ingredients hygienically.

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”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
4. Accomplish the “Self-checks” which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If you earned a satisfactory evaluation proceed to “Operation sheets
7. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,
8. If your performance is satisfactory proceed to the next learning guide,
9. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.

Information sheet -1 Selecting ingredients by type and quality

1.1. Introduction

I**ngredient** is a substance that forms part of a mixture which used in meat processing industry in different systems. The ingredients may be existing in the form of non-meat ingredients and spices types. There are a variety of seasonings (spices and herbs) and nonmeat ingredients that may be used in the formulation of processed meat products.

Spices provide the opportunity to produce unique processed meat products. Some nonmeat ingredients are essential in the production of characteristic flavors, colors, and texture required of processed meat products, while others aid in the developement profiles unique to certain products.

Prior to production, specific time must be given to product formulation. Some nonmeat ingredients are specifically regulated by the countries food and drug admiration authority (FDA). Therefore, In this section selecting quality and safety criteria with accordance of national and international food safety standard and regulations, type and effect of the non-meat ingredients, spices and other additives will be discussed based on the specific meat product processing.

1.2. General food safety and quality requirements

Food safety implies absence or acceptable and safe level of contaminants, adulterants, or any other substances that may make food injurious to persons (WHO, 2004). This means that food safety is related with the absence or acceptable and safe level of harmful substances present in the food and concerned with whether the food has been prepared, handled, and stored under controlled and sanitary conditions in conformance with practice prescribed by government regulations.

Therefore; during selecting the ingredients the following safety standard requirements regarding FAO and WHO, the Codex Alimentarius Commission and Ethiopia's national standard regulations should be into consideration;

- The ingredient should be free from hazard that harm human being health
- The ingredient should be safe and health

- The ingredient should be not out of usable date or in the range of usable period
- The ingredient should be safe and well stored and hygienically handled
- The ingredient should be fulfill food graded requirements
- The ingredient should be categorized in intended lists by safety regulations
- The ingredients should be used in recommended amounts in case of composition
- The ingredient should have recommended moisture contents

1.3. Selecting quality requirement Criteria

The selected non-meat ingredients and spices should be fulfilling the following quality requirement criteria such as:

- Normal flavours
- Light color
- Good aroma
- well smell
- Good texture and
- Standard moisture content of the ingredients

1.4. Selecting procedures

- Identifying the source or origin of the ingredient
- Identify the specific ingredient types used for meat processing
- Listing or recording the types according to the origin or sources categories
- Checking its availabilities according to product processing specifications
- Selecting the appropriate types based on the listed criteria's.

1.5. Types of non-meat Ingredients

Fundamental non-meat ingredients are included in processed meat formulations to impart the uniqueness that is characteristic of processed meat products. They are either chemical substances, of plant origin or animal origin. These ingredients perform specific Functions with meat during and after processing. Therefore; they are selecting based on the safety standard and quality criteria's into their categories or types as follows.

I. Non-meat ingredient types by their sources

As described in the above 1.5.section the non –meat ingredients used for meat product processing is originated from chemical, animal and plants type sources**.**

a) Chemical substances used as ingredients

There are various chemical substances approved for the different kinds of food processing, but in the specific case of meat processing the number of approved chemical substances is rather limited in most countries, but the following is the significances. See the following table.

Table.1. the animal origin non-meat ingredient types and functions

Sources of origin	Non-meat ingredient types	Function
Chemical origin	• Salt	√ improve taste √ effect on meat proteins √ Improve shelf-life
	• Nitrite	√ for curing Colour √ improve Flavour, √ improve shelf-life
	• Ascorbic acid	√ to accelerate curing reaction
	• Phosphates	√ for protein structuring and water binding
	• Chemical preservatives	√ For improving shelf-life
	• Antioxidants	√ Improve flavour and shelf-life
	• Monosodium glutamate MSG	√ Enhancing flavour
	• Food colouring substances (synthetic and of plant origin	√ For coloration

I. Standard of usage

Chemical additives have exclusively functional properties; they are used in small amounts usually;

- All except salt the ingredient types usage should be below 1% (with nitrate as low as 0.05%).
- Only salt is in the range of 2% (with up to 4% in some fermented dried products).

b) Non-meat ingredients of animal origin

Ingredients of animal origin are not commonly applied but may be useful for specific meat preparations. They all have functional properties (except whole milk), in particular improvement of water binding and prevention of fat separation during heat treatment. Apart from their functional properties, some of them can also be considered meat extenders, as mentioned in the table below.

Table.2. Animal origin non-meat ingredient types and function.

Sources of origin	Non-meatingredient types	Function
Animal origin	• Milk casseinate (90% protein; used in small quantities (2%);	• water and fat binding properties
	• Whole milk or non-fat dried milk (=skim milk)	• Sometimes used in indigenous meat preparations as a protein extender
	• Gelatine	• binding properties and meat extender
	• Blood plasma	• predominantly binding properties
	• Eggs	• extender and binding ingredient for meat pieces and fried sausages
	• Transglutaminase*	• exclusively binding properties
	• Milk casseinate (90% protein; used in small quantities (2%);	• water and fat binding properties

c) Ingredients of plant origin

All spices are of plant origin. They are predominantly functional and used in small quantities to provide or add flavour and taste to meat products. The most commonly used types are described as below.

- Isolated soy protein (90% protein)
- wheat gluten (80% protein)
- protein isolates from other legumes
- Meat extenders / Plant products with high protein contents also are;

  √Soy flour (50% protein)

  √Soy concentrate (70% protein)

  √Other food legumes (beans, peas, lentils), used for special products only.
- Fillers / Carbohydrate products with low protein content (usually added in quantities of 2%-15%, some of them – in particular roots and vegetable – up to 50%). ; see in the following figure.

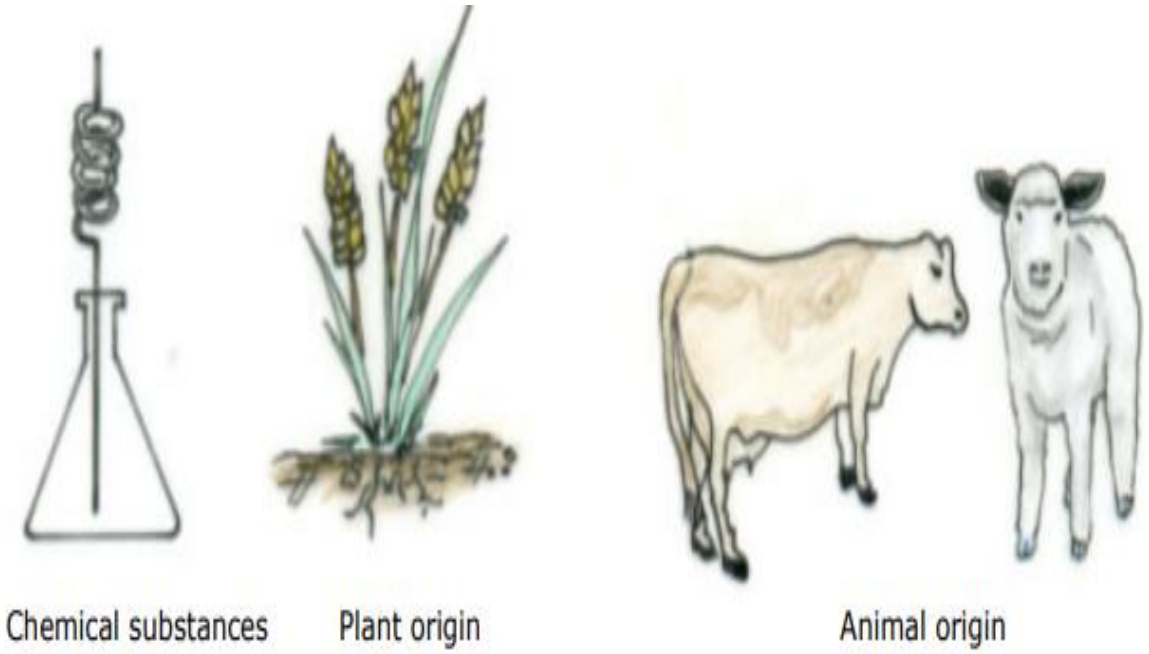

Figure 1. Sources of non-meat ingredients

1.6. General Function of non-meat ingredients

Most non-meat ingredients are has the ability to introduce or improve certain quality characteristics. So the functional properties of ingredients on the meat product processing have impacts on:

- Taste
- Flavour
- Appearance
- Colour
- Texture
- Water binding
- Counteracting fat separation
- Preservation

1.7. Types of seasonings (spices and herbs) ingredients

Seasonings are normally parts of plants which flavour food. Mixtures of seasonings were settled in order to serve as flavouring agents for various meat products. The spices can be found from;

- Flowers or their parts☹ Cloves, Mace)
- Fruits and seeds: (Pepper, Pimento, Paprika, Coriander, Cumin, Nutmeg, Mace, Cardamom)
- Leaves: (Marjoram, Thyme, Basil, Oregano, Celery Bark: Cinnamon)
- Rootstocks: (Ginger Bulbs: Onions, Garlic). They categorized as;

1.7.1. Natural spices source ingredients

The term “natural spices” includes dried rootstocks, barks, flowers or their parts and fruits or seeds of different plants. The most common natural spice used in meat product (examples sausage making) is pepper. Spices are mainly used in the ground form with particle sizes from 0.1 to 1 mm (refer in table 3)

1.7.2. Herbs ingredients

Herbs are dried leaves of plants grown in temperate climates (refer in table 3)

1.7.3. Vegetable bulbs ingredients

The main natural seasonings originating from vegetable bulbs (refer in table 3). For further understanding read from the following table.

Table.3. Seasonings (herbs and vegetable bulbs) ingredient types

S.N.	Natural spices	Herbs	Vegetable bulbs
1	• Pepper • paprika • nutmeg • mace • cloves • ginger • cinnamon • cardamom • chilli • coriander • cumin and pimento	• Basil, • Celery • Marjoram • Oregano • Rosemary and • Thyme	• Onions and • Garlic

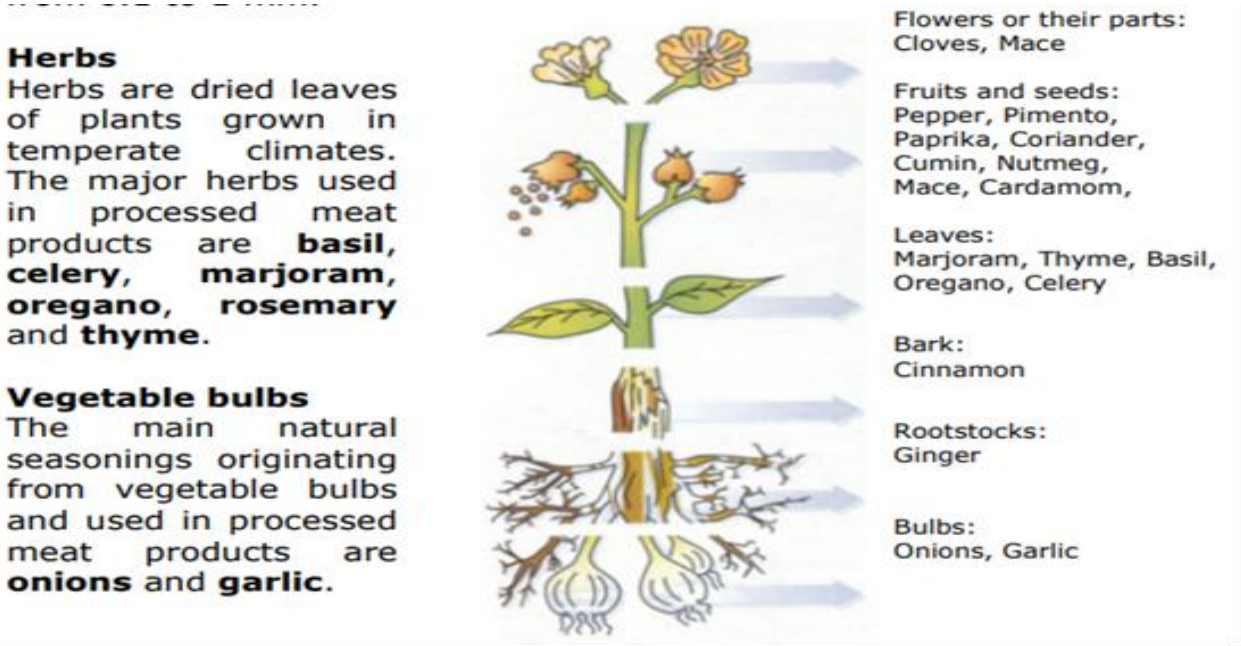

Figure.2. Origin of natural spices

Figure.3. selected spices (seasonings) used in meat processing

Self-Check -1	Written Test

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

1. List the two animal origin non meat ingredient types? (2 points)
2. Write four common spices used in Ethiopia (3 points)

Note: Satisfactory rating – 5 points **Unsatisfactory - below 5 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

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Information sheet -2 Selecting dry ingredients

2.1. Introduction

Definition of drying is the last stage in manufacture process with the final removal of water from the products by heat. Also drying alters the characteristics of vegetable products and leads to loss of juiciness and lignified tissue, both of which result in a harder or chewier product.

Other typical quality-loss attributes include case hardening, wherein the outer layers of the product are over dried in the process of removing moisture from the less accessible inner core of the product along with product shrinkage, both of which are issues associated with convective air-drying.

As a result, the present demand for high quality dehydrated vegetable products in the market requires dried vegetables to be maintained at a very high level to preserve the nutritional and organoleptic (affection of sense organ) properties of the initial fresh product. Therefore; in this section there will be discussed regarding of fresh seasoning (spices) and herbs ingredient drying methods and formulation procedures for selected ingredients among listed (in information sheet one)on specific single spices sample meat products with appropriate guidance.

2.2. Selecting ingredients (spices and herbs) types for drying

For the purpose of drying the most commonly used spices and herbs are identified as below. For the selected ingredients also there are different drying methods are available; but for this section there will be used only ginger drying technique among the following lists ;

- Basil
- Bay leaves
- Chives
- Dill
- Onion
- Oregano
- Parsley

- Rosemary
- Sage
- Tarragon
- Thyme
- Garlic
- Ginger

2.3. Work place safety requirements

During and after the operation of the process the personal protective equipment should be mandatory for the processors. These are such as;

- Wearing overall protective safety cloth
- Using foot wear, face mask, glove, hair cover and hard hat
- Washing hand with soap ,sanitizer and dry with towel or fan

2.4. Ingredient (ginger) drying procedures

- Supplying fresh ginger with its container
- Washing the debris by using clean water
- Peeling the coverage
- Cutting as required style
- Adding in the dryer machine
- Operate drying process

2.5.1. Measurements actions consider during drying the ginger

Dehydration is the most common method used to lower moisture content and hence the water activity to a safe limit which prolongs shelf life. However, consumers' demand on processed products with most of the original characteristics of the fresh plants has increased Drying must be executed carefully in the interest of retaining;

- the taste
- aroma
- color
- appearance and
- nutritional value of the plants to maximum possible extent

2.6. Drying technique types

In developing countries, traditional methods of postharvest treatment of spices and herbs are still commonly used as drying on the ground or traditional (and hence in contact with the soil or other substances).However, various drying techniques could be available on the world. Then the drying of the ginger might be as it natural shape or sliced .Therefore; the following techniques are among the commonly used which mainly use according to the interest and demand of the processor and selected techniques for this section .such as;

A, solar drying

i. Drying procedures

- Remind the personal protective equipment rules (PPE)
- Rinse the rhizomes or the ginger roots with cool, clean water.
- Peel all the pieces with your kitchen tool of choice.
- Make thin slices. Try to keep them as similarly sized as possible.
- Clean the drying tray. Then cover it with a clean cloth. This will absorb the moisture during the drying process.
- Put the slices on the drying tray. Again, you need to space them out evenly.
- Cover the tray with clear glass. This will speed up the drying process. This will also keep bugs and other insects away.
- Bring the tray outside. Make sure the ginger gets 6-7 hours of direct sunlight daily. The outside temperature should be 90°F or higher. Do not sun dry when the weather is humid.
- Allow it to dry for 1-2 days. For best results, occasionally check and turn the slices every 2 hours. Bring the try inside at night or whenever it's raining.

Figure.4. 4a .solar drying ginger (in green house) 4b.solar drying (direct on sun drying)

B, Hot air drying dehydrator (dry oven)

During drying processing, the fresh gingers are normally processed using Hot-Air Circulation Dryer, which is a tray dryer whose heating source can be supplied by electricity, steam, and hot water , the hot air is blown into the drying oven by the fan and most of the hot air circulate continuously in the drying oven.

i. Hot air drying procedure

- Remained and appropriately using the personal protective equipment is mandatory
- Thoroughly wash the rhizomes or the ginger roots.
- Remove the skin with a knife or peeler.
- Make thin slices that are roughly of the same size.
- Arrange the slices on the oven tray. For even drying, make sure that there is enough space between the slices.
- Set the oven to lowest possible temperature.
- Leave the oven door slightly open. Place a fan in front of the oven to improve air circulation.
- Bake the ginger for 10 to 15 hours, turning slices over every 3 hours.
- Check if they are ready. Take one out and break it. If it breaks easily, it is ready. See the following figure

Figure.5. a, band c; Hot air drying oven /Honglian

Figure 6. well dried slice ginger by hot air oven technique

Refer the video (Shttps://www.youtube.com/watch?v=7ZSbNT0HncQ)

Self-Check -2	Written Test

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

1. write the hot air drying technique procedures? (5 points)

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

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

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Information sheet -3- Handling ingredients hygienically

3.1. Hygienically handling and safety standard requirements

Hygiene is a word used to describe sanitary principles for the preservation of health. Personal hygiene refers to the cleanliness of a person's body. Parts of the body that contribute to the contamination of the products include the skin, hands, hair, eyes, mouth, nose and respiratory tract. These parts are contamination sources as carriers, through direct or indirect transmission, of detrimental microorganisms. So basic (dry ingredient) hygienically handling conditions and safety standard practice which called 'prerequisites' must be found in workplace.

3.1.1. Food (meat ingredient) handlers' personal hygiene requirements

During handling the ingredients the handlers should fulfill the following personal hygiene requirements in any food industry**;**

- washing and dry hands thoroughly before handling food, and wash and dry them again frequently during work
- dry your hands with a clean towel, disposable paper towel or under an air dryer
- Avoid smoke, chew gum, spit, change a baby's nappy or eat in a food handling or food storage area
- never cough or sneeze over food, or where food is being prepared or stored
- wear clean protective clothing, such as an apron
- keep clothes and other personal items (including mobile phones) away from where food is stored and prepared
- Tie back or cover long hair
- keep fingernails short so they are easy to clean, and don't wear nail polish because it can chip into the food
- Avoid wearing jewelry, or only wear plain-banded rings and sleeper earrings
- Completely cover all cuts and wounds with a wound strip or bandage (brightly coloured waterproof bandages are recommended)

- wear disposable gloves over the top of the wound strip when hands wounded
- change disposable gloves regularly
- Advising supervisor if feel unwell, and don't handle food or ingredient products.

3.2. Advantages of hygienically handling

- Improves the quality and health of ingredients
- Avoid the cross contaminations
- Improve the health of the consumers
- Retain the customer of the product for long

See the following pictures to understand the personal hygiene keeping practices

Figure .7 .The pictures display the personal hygiene of food product handlers practices.

Self-Check -3	Written Test

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

1. Write three advantages of hygienically handling ingredients? (5 points)
2. Which of the following the personal protective equipment? (2 points)

   a, safety boots b, smart phone c, jewelry, c , all are answers

Note: Satisfactory rating – 5 points **Unsatisfactory - below 5 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

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Operation sheet - 1 Selecting ingredients by type and quality

Procedures

Step 1. Wear personal protective cloth

Step 2. Identify the source or origin of the ingredient

Step 3. Select ingredients by type and quality

Step 4. Identify the specific ingredient types

Step 5. List or record their origin or sources categories

Step 6. Check its availabilities as of specifications

Step 7. Select the appropriate types based on the criteria's.

Step 8. Report your finding

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 2 hours.

Task 1. Conduct Selection of ingredients by type and quality.

LG #34	LO #2- Weigh and batch ingredients

Instruction sheet

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

- Calibrating scales
- Placing ingredients in specific containers for weighing
- Weighing ingredients
- Sorting ingredients and weighing into batch quantities
- Mixing spices

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:

- Calibrate Scales are correctly for precise measurement.
- Place ingredients in specific containers for weighing.
- Weigh ingredients according to daily production requirements.
- Sort and weigh ingredients into batch quantities according to recipes and product requirements.
- Mix Spices according to recipe

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described below.
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4. Accomplish the “Self-checks” which are placed following all information sheets.
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9. If your performance is unsatisfactory, see your trainer for further instructions

Information Sheet 1 Calibrating scales

1.1. Introduction

Calibration is a process of ensuring and maintaining the accuracy of a weighing instrument in alignment with a standard or accepted range of results. Therefore weighing scale calibration is considered the process of correcting, determining and checking the scale is meeting its known or assigned accuracy.

Even though; the comparison between the output of a scale or balance against a standard value. Usually done with a standard known weight and adjusted so the instrument gives a reading in agreement**.**

Then scales are practically used everywhere for very day consumer transactions are based on weight measurements. Weighing scales are used also in the medical and pharmaceutical industries, in the building sector and in the food as well as meat industry. There are many reasons (health, safety, invoicing, etc.) that require a proper calibration of weighing scales. Some weighing instruments are small laboratory instruments measuring a few grams and are very accurate.

While some industrial weighing instruments are very large ones that measure, for example, mass of trucks. Then; scale calibration is a procedure that ensures a weighing scale or balance delivers correct, accurate weighing results to the degree specified on the scale. The accuracy of weighing scales can diminish over time through regular use, dust build-up or age; a process often referred to as 'drift'.

Therefore; as any accurate measuring instruments, also weighing scales needs to be calibrated regularly using reference weights that are accurate, calibrated and traceable. In case of scales, there are a few standards specifying the calibration procedures (such as EURAMET Calibration Guide, NIST Handbook 44, OIML guides, Ethiopian Conformity Assessment Enterprise)

1.2. **Calibrating preconditions**

Typically, the whole measurement range is calibrated and the calibration is performed in the location where the instrument is being used.

Even though there so many weighing scales for different measuring purposes. But, for these information sheet there only discussed common weighing scales or measurement. Before calibrating the weighing scale or instruments different groundwork and tests were discussed as below.

1.2.1. Calibration steps before preparations

- The whole measurement range is calibrated and the calibration is performed in the location where the instrument is being used
- The weighing instrument should be switched on at least 30 minutes before the calibration
- The temperature of the weights should be stabilized to the same temperature where the calibration is to be done
- The weighing instrument should be at a horizontal level, especially for small and accurate weighing instruments.
- Perform a few pre-tests by placing weights close to the maximum of the range on the instrument and to ensure it works normally

1.2.2. Pre-tests

1.2.2.1. Eccentricity (Abnormality) test

In the eccentricity test, the reference load is placed in a few different specified locations on the load receptor. First, the load is placed in the center of the load receptor (the load's center of gravity) and the result is observed. Next, the load is placed in four different sectors of the load receptor, as illustrated in the picture below.

i. Procedure for the eccentricity test

- The indication is zeroed before the test
- The test load is placed to location 1 and indication is recorded
- The test load is then moved to location 2 to 5 and indication is recorded in each location
- Finally, the test load is placed again to location 1 to check that the indication has not drifted from the earlier indication in location 1.

1.2.2.2 Repeatability test

- The same load is measured several times
- It performed by replacing the same load on the same place on load receptor (to avoid any eccentricity error) multiple times
- The test should be done in identical and constant conditions and with identical handling
- The instrument is first zeroed, then the load is placed on load receptor and indication is recorded once it is stabilized

1.2.2.3. Weighing test

The purpose of the weighing test is to test the accuracy (calibrate) of the weighing instrument throughout its whole range in several steps, with increasing and decreasing weight**.** To test the accuracy of the weighing the most common practice of the following will be applied;

- Start with zeroing the instrument without any load
- Set the loads of the first test point, wait for stabilization, and record the indication
- Continue increasing the loads through all the increasing test points.
- Once the maximum load is recorded, start decreasing the loads through the decreasing test points.

1.2.2.4. Minimum weight test

Minimum weight test is a test that is not always required to be done. This test is anyhow required within some industries, like the pharmaceutical industry.

The purpose of the minimum weight test is to find the smallest load that can be measured while still achieving reliable measurement results and fulfilling the accuracy requirements. When the measured value gets smaller, typically the relative error of the reading becomes higher. The weighing instrument should not be used to measure any loads smaller than the minimum load. See the following diagram.

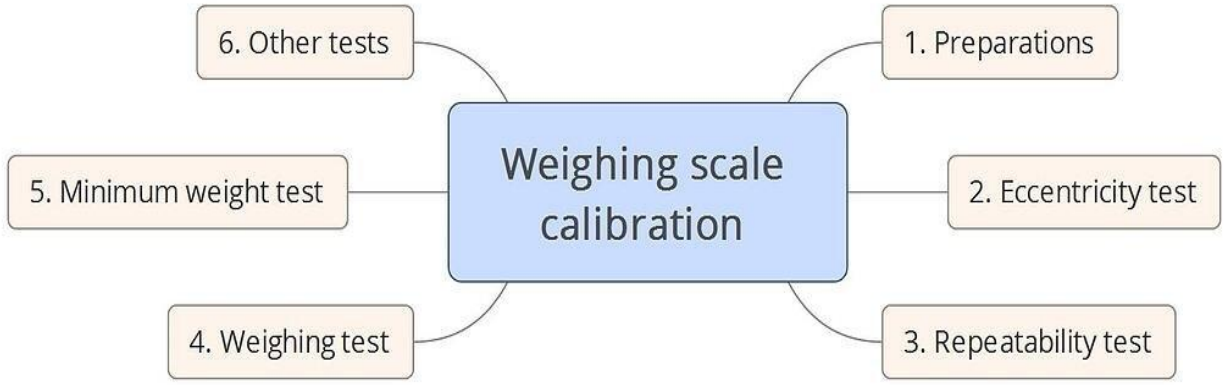

Figure.8. Weighing scale calibration steps showing diagram

1.3. Tools used for calibrating weighing scales

- **Strain gauge**

Strain gauge is a sensor whose resistance varies with applied force; It converts force, pressure, tension, weight, etc., into a change in electrical resistance which can then be measured. When external forces are applied to a stationary object, stress and strain are the result.

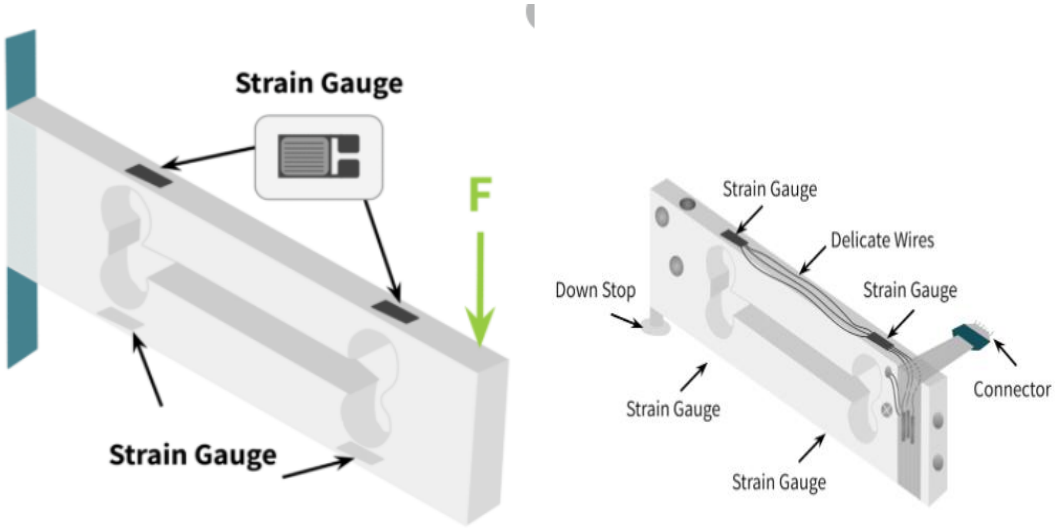

Figure 9. weighing scale calibrating tool

1.4. Procedures of calibrating weighing scales

- Set up the scale in a location away from drafts or excessive air movement.
- Level the scale, and if weighing under water, observe that the apparatus is free of any obstruction that may affect its movement.
- Perform Span Check: Place the verification weights in the center of the scale. Record the weight to readability of the scale. Confirm repeatability by placing one of the weights on the scale a second time to obtain the same weight. Confirm that the reading returns to zero when the weights are removed.
  - √ For weighing devices with a capacity of up to 1,000 grams, the suggested verification weights are 100g and 200g. External scale calibration weight shall be 200g.
  - √ For 12kg weighing devices, suggested verification weights of 5kg and 10kg. External scale calibration weight shall be 10kg.
  - √ For 30kg weighing devices, suggested verification weights of 10kg, and 20kg. External scale calibration weight shall be 20kg.
  - √ For platform weighing devices used for standard density determination, the suggested verification weights are 10kg and 20kg. Note: It is desirable to

perform additional checks on scales for accuracy after they have been installed in construction field lab. Not all verification weights are required for additional field checks.

- Perform Corner load Check: Place the weight in the center of the scale and re-zero the scale. Place the weight in the four locations (Front/Back, Left/Right) as indicated on the Calibration Sheet. Record the weight of each reading.
  - √ For 12kg and 30kg weighing devices use verification weight of 5kg.
- If any readings indicate out of tolerance, perform external scale calibration, if applicable, as per scale instruction Manual and repeat steps 3 and 4, or remove the scale from service until it can be recalibrated.
- Record results on Balance or Scale Calibration Sheet.

Figure. 10. Weighing scales Calibrating process showing images

Self-Check -1	Written Test

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

1. Write the list four pre-test of calibrating scale tests? (2 points)

Note: Satisfactory rating – 4 points **Unsatisfactory - below 4 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

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Information Sheet 2 Placing ingredients in specific containers for weighing

2.1. Placing ingredients in containers

The perquisite steps towards weighing activity should be placing or filling each ingredient type in appropriate and recommended containers to be ready for weighing. Thus the containers may be varying in terms of:

- Holding capacity
- Manufacturing materials
- Ingredient type and objects,
- Size and types of weighing scales.

2.2. Types of ingredient containers

Generally, the specific containers used for pacing the ingredients are different in types. However; the containers which full fill the following criteria can be desirable.

- Glass type
- Stainless steels,
- Recommended plastic manufactured containers
- Silicone, or ceramic which are free of toxin sources.
- Food graded containers
- Easily cleanable containers

Figure. 11. Placing Ingredient in containers of plastic types

2.3. Ingredient placing in the specific containers procedures

Placing ingredients into specific containers can be covers the following procedures

- Identify the important containers having good sealed
- Emptying the containers
- Cleaning and sanitizing the with recommendable materials
- Place the empty containers in the storage room
- Identify the ingredients in type or item
- Use filling equipment's (spoon or others)
- Fill each container with specific ingredient types at maximum level.
- Ready to weighing

Figure 12 Placed ingredients in specific container

Self-Check -2	Written Test

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

1. List three recommended ingredient containers sources? (3 points)

Note: Satisfactory rating – 3points **Unsatisfactory - below 3 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

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Information Sheet 3 Weighing ingredients

3.1. Weighing

People use ingredients for processing different meat products throughout the world. Hence; using the products it needs knowing the amount and paying price as well. Although to enable the demands whatever it is measuring the amount should be necessary. So there are many different reasons to use a scale to measure ingredients like; herbs, spices and other additives.

First and foremost, consumers and sellers alike want to get what they pay for. It's also important to know how much of an ingredient is in processing products, whether it's to ensure recipe consistency, adjust the recipe or to prevent health problems. Some are common enough to be bought in unpackaged at the grocery store whether they're being packaged in bulk or used in a recipe, they must be weighed accurately. Therefore; in this information sheet, we'll discuss which scales and balances are best for weighing ingredients with procedures.

.

3.2. weighing scale types of ingredients

The weight or mass weighing tools which routinely function beyond human beings are in number whether it is traditional and modern one. Also the cups and measuring spoons seem handy, compared to measurements based on weight or mass, they're very inaccurate. A scale keeps measurement accurate, which reduces variance and ensures the consistency of recipes. That the consistent taste allows consumers to know what to expect and could ensure a customer chooses one product over the other. Today there are a number of weighing scales are available for measuring from the very minor mass to huge all over the world. Therefore ; regards to this section discussed on the meat product processing ingredient weighing scale as the followings.

3.2.1. Balance scales

The balance scale is probably one of the earliest types of weighing scales to have come into existence. Also it helps to measure the weight of an object by comparing it with the weight of an already set known masses .

In case you are on the lookout for known weights, you can easily get them separately from a market. The reason why they are still so popular is that they are easy to use and can help measure any kind of weight quite easily. That being said, balance scales are relatively out-dated as they do not provide an accurate weight measurement.

One of the cons of these scales is that they only report whether the ingredient being measured is lesser or greater than the known weights. For instance, a cup of sugar is placed on one side of the balance while known mass is placed on the other side. Mass is added on the other side until the balance is equal. It is likely that the overall mass that is calculated is not accurate.

Figure.13. balance scale type weighing

3.2.2. Mechanical scales

Mechanical scales are also known as the spring scale because of the way it works. Mechanical kitchen scales gauge weight with the help of springs when an object is placed on top of the mounted platform. When the force is applied to the scale, the spring compresses in the right proportions and give the right estimation.

However, the concerning aspect is that the springs do not always provide precise measurements. These scales can prove to be erroneous as it is likely for compression rates to change over time on their own or do not return to their original length, or sometimes they may even break. Another disadvantage of mechanical scales is that they may create problems in reading small quantities as compared to larger ones. For instance, if a mechanical scale is designed to measure 10 lbs. then it will be hard to measure one ounce rather than one pound. This is because a small amount creates a slight movement in the spring that can be hard to read as compared to the visible movement caused by a bigger object.

But not all mechanical scales are inaccurate; there are excellent quality mechanical scales that measure ingredients quite precisely. But such mechanical scales come with an expensive price tag. For people that can't afford such costly kitchen scales can consider purchasing dry measuring cups. When properly used, dry measuring cups can be more precise.

These simple devices are also easy to clean as they are not sensitive to water damage as most digital gadgets can be; so much so some models are dishwasher safe as well. The fact that they don't require batteries or outlets or any sort of power for operation, they are more portable than electrical scales.

Figure.14. mechanical scale type weighing

3.2.3. Digital scales

This modern invention is a breath of fresh air after an extensive-years use of slightly imprecise weight scale – balance scale. Digital kitchen scales are undoubtedly an innovative creation which is popularly found in every modern American kitchen. A critical factor that makes a digital food scale so much better than a balance scale is its ability to measure the accurate weight of the placed object. This comes handy when baking as it requires the use of precisely measured ingredients. This is why a digital scale is a top preference for bakers.

However, a good digital scale isn't just the one that provides high precision weight. It also has to be the one that operates finely and is easy to clean and store. The scale should also have the spacious weighing capacity, for those times when one has to weigh a large fish or a winter melon. Hence, it is important to look for features like a generous weighing platform and effective backlit display for proper visibility. The digital display should also be wide and lit enough so that it is easy to read the measurement.

Many models of digital scales come with multi-functional purposes which make baking and cooking more convenient. For example, some models have an automatic shutoff feature which remembers the last weight for 30 to 45 minutes so that one doesn't lose sight of things if the machine shuts off before they are done. Most of them also come in a slim and smart profile, making it easier to store in a kitchen cabinet. A stainless steel weighing platform is always ideal as the best feature of stainless steel is easy cleaning without the possibility of the accumulation of rust.

While digital food scales may sound the perfect option, and to some extent they are, they can have a few cons to them as well. For example, digital scales are sensitive to the dishwasher. When put through a dishwasher, the scale can stop working entirely. Plus, they work via batteries. In case of a low battery scenario where there is no power to recharge the scale, one can face inconvenience for the time being.

Figure. 15. Digital scale weighing types

3.2.4. Large scale capacity

These scales can either be mechanical or digital; what makes them distinctive is that they come with a large removable bowl. According to the need, the bowl can be changed to a larger size or a smaller one as well. Since they are originally available with a large bowl, they are ideally known as large capacity scales. That being said, there are large-capacity scales that have a fixed countertop. Typically, digital large-capacity kitchen scales boast permanent countertops.

Generally, these kitchen scales are best for commercial kitchens in restaurants and industries. Smaller scales can only measure up to 5 lbs. But that's not the case with large-capacity kitchen scales. Apparently, these scales can measure large weights very easily. Whether it is a large fish that needs to be measured or kilos of spices, larger items can easily be weighed. Since they have a generous weighing platform and visible digital screen, it is easy to weigh the object. With a large amount of space, it will also be easier to clean and handle the scale.

Before investing in large-capacity scales, it is important to note the requirements for which the scale is needed. If big items have to be measured on a daily basis, it is best to go for large-capacity kitchen scales. Or else, go for the one that has a removable top.

Figure. 16. Large scale capacity weighing types

3.2.5. Hanging scales

Hanging scales happen to be an old tool for measuring weight. Generally, these gadgets come with a hook on its bottom side from where the item that needs to be weighed is attached. When the weighing item is attached to the hook, it faces toward the downward position and measures the total amount with high precision. But that's not the only type of hanging scales available; luckily, there is a diverse range of hanging scales present on the market. For example, not all hanging scales come with a bottom hook. Some of them have an empty steel dish chained in which a weighing item is placed.

Different hanging scales have different sizes of dishes. Typically, they come with a weighing size best for measuring small quantities. Please note that it is easier to measure the weight of small quantities in hanging scales. But when it comes to hanging scales with a bottom hook, not every item can be measured. Mostly it is used by fishermen for weighing big fish. Owing to their portability, lifting ability, and high

precision, hanging scales are valued in several workspaces ranging from medical labs to industries to outdoor works.

Typically, hanging scales are divided into types – analog hanging scales and digital hanging scales. Both analog and digital scales have common parts such as hooks, face, a scoop/pan, and housing (aluminum, steel, plastic). Sometimes, they also boast two hooks, rings, and loops. While they share common features, there are some apparent differences as well**.**

- **Analog hanging scales**
- **Digital hanging scales**

Figure.17. Types of hanging scale

3.2.6. Top –loading dial scales

As the name suggests, top-loading dial scales refer to those scales where the items can be piled over one another and can be weighed together. This type of scale is used for weighing stacks of laundry, fruits, and vegetables, portions of meat, or packaged food. Many restaurants have these scales for weighing accurate food portions. They are also

used during the construction of products which include ingredients according to the overall weight.

They boast plenty of features like strong and sturdy construction usually in stainless steel, easy weight viewing angle for accurate readability, and temperature compensation for precise measurements in pronto. They happen to be available at an affordable price range so they are the perfect option for people with a medium budget. Top-loading dial scales also occupy less space and therefore are ideal for limited space.

Below the movable bowl is the dial which gives the exact reading once the weight is placed on top. Usually, these scales come with weight measurement for up to ¼ lb. However, the item is versatile and can be found with varying weight increments.

Figure. 18. Top-loading scale type

3.2.7. Metric system scale

Metric system scales come with some basic, yet essential units for weight including the gram, liter, and meter. This means that with the help of these units, both liquid and non-liquid ingredients can be weighed. This is the reason why they are essential equipment for cooking and baking. By investing in good quality of kitchen scales and using them for measuring purposes, the user will instantly feel a great deal of ease and convenience.

Figure.19. Metric system weighing scales

3.4. weighing ingredients advantages

- Creating easiest condition to use the relative accurate composition of ingredients
- Supportng to balance the ingredient ratio for speciefic products
- Initiate good environment for inventory purposes
- Improve the accuracy of the ingredient composition for certain products
- Enabling for transportation, storage and using activity

3.3. Weighing procedures

- Identifying and preparing the type and size of weighing balances
- Arranging the weighing balance on the perfect ground
- Check ing and arranging the scale reading on zero accuracy
- Loading the ingredients on the balance as necessery
- Reading the accurate scales
- Recording the accurete scale reader

See the following figure .20……

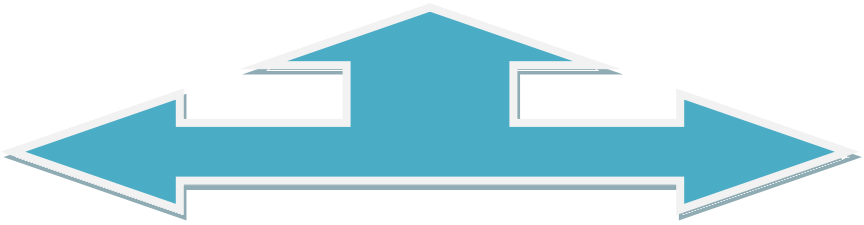

Figure.20. shows weighing ingredients on different weighing scales

Self-Check -3	Written Test

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

1. List the ingredients weighing procedures ? (5 points)

Note: Satisfactory rating – 3points **Unsatisfactory - below 3 points**

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

Answer Sheet

Information Sheet 4 Sorting ingredients and weighing into batch quantities

4.1. Introduction

Basically the term **sorting** ingredients can be describes that separating,segrigating categorizing and placing each the required ingredients in type, quantity , quality and processed from non prossed ingredients and also unnecssary foreign subasatnces from the ingredients . Also batching and weighing operations in this learning guide explains keeping the period of igredients between the first accessed one from the second intering ingredients twowards weighing. So during sorting and setting and batching the types of ingredients with specific containers there should be desired applying food safety guide lines and regulations to avoid the encountered problems will be occurred. Therefore; before the sorting operation the following food safety directions should be considered:

- Ingredient s contact surfaces or containers should be non-corrosive, non-toxic, non-pitted and non-cracks or crevices. which should also be built to facilitate and withstand repeated cleaning and sanitizing
- Non-food chemicals (including cleaning solutions and lubricants used for ingredient contact surfaces) should be appropriate for the intended use and should be used in accordance with the manufacturer's instructions
- The personal safety (gloves, complete cloth, head cover, etc) should be mandatory
- The personal hygiene (Hand wash with appropriate soap or detergents , clean dress, etc) should be considered
- Using materials, tools and equipment should be well cleaned hygienically handled and sanitized.
- Sorting ingredients should be need highly Concentration and intention

4.1.1. Ingredients sorting procedure

- Delivering the sorting equipment/tools on appropriate place
- Identifying the types of ingredient to be sorting
- Provide the ingredients around the sorting areas or room
- Using appropriate sorting tools based on the portion of the ingredients
- Sorting properly and storing in the right conatianers

4.1.1. Ingredients sorting procedure

- Idnetifying the selected ingredient from the unsellected one
- Placing together the sellected material on appropriate place,container or area
- Applying the identification color or card on each selected and unwanted ingredientsin quality,quantity,batch and color.
- Removing the un wanted ingredients from the area
- Properly store the selected ingredient product

4.1.2. Batching ingredient techniques

Batching system in food or food ingredient processing factory has the principle of first in first out (FIFO). So based on that the batch system is done according to the following techniques.

- Prearranging ingredient or Product Lists
- Sorting ingredients or Products/Categories Manually on sheet based on their properties, types, colors, entering and exiting orders.

4.1.3. Ingredients weighing procedures

- Allocate the sorted ingredients for weighing and packaging activities
- Weighing the ingredients based on their sorting order by appropriate weight balance scales
- Make batch for the weighing ingredients with batch content criteria
- Weighing with customer demand or as required amounts in (gram, kg….)

4.1.4. Ingredients Batch techniques

In this information sheet the term batch refers to the inflowing and departing of finished ingredient products chorological order or arrangements. Therefore; batching will have the following contents to access the technique well.

- The item of product names
- The date of manufactured
- The date of expired
- The ingredient content descriptions and
- The product batch number with Legal and Labeling Requirements should be applicable.

Figure.22. sorted, batched and weighed ingredients

Self-Check -4	**Written Test**

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

1. Explain the ingredient sorting procedures? (3 points)

Note: Satisfactory rating – 3 points **Unsatisfactory - below 3 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

_____

_____

_____

_____

Information Sheet 5 Mixing spices

5.1. Introduction

Spice mix is a blend of different herbs, spices, and condiments like salt, pepper, mustard, relish, or a similar substance added in small amounts to meats, usually at the table, to improve or adjust its flavor). Spices provide a wonderful flavor to food or meat products when used in the right manner. Here are some time-tested guidelines on how to use spices and herbs properly. However; the mixing of spices needed it may be not uniform in all round industries and as well as countries. So in many meats processing activities the spices can be added before cooking, during cooking or post cooking based on the condition of the spices. Then it can be mixed before adding to products or at spices manufacturing industries as it's required. Therefore, the mixing equipment, procedures and safety requirements are discussed in this section as bellows.

5.1.1. Spices mixing equipment

The mixer might be manual or automatic which depend on the capacity of the industry .see the following figure.

Figure. 23. Grinding, Mixing, drying, and coating spice products machines

5.1.2. Spices mixing Procedures

- Place the different types of spices in a mixing room or a separate location.
- Make a list of the spices in the room and their names and varieties.
- Provide each spice with its own container or box.
- Set up the mixing equipment.
- On a piece of paper or a spices display board, write down the spice ratios that are needed for specific meat products
- Using a blender or mixer, combine the spices according to the instructions

5.1.3. Spices mixing specification or formulation

Depending on the product and the country's food interests, the spices mixing specification or formulation ratio can differ. The various countries' spice mixing formulations will be described in this information sheet and learning guide. so forfurther understanding refer (**Seasoning Cook Book).**

For example the ingredients used to prepare mortadella the following are mixed together as the following formulations;

- 1/2 kg ground pork or beef
- 1/2 kg pork back fat
- 1/3 cup powdered non fat dry milk
- Tablespoon salt
- 1 teaspoon garlic powder
- 1 teaspoon white pepper
- 1 teaspoon mace
- 1 teaspoon nutmeg
- 1 teaspoon mustard powder
- 1 teaspoon ground ginger
- 1/4 teaspoon pink salt (curing salt #1)
- 1/2 cup ice water

Figure .24. shows Specific ingredient formulation for spcific meat product processing

Self-Check -5	Written Test

Directions:

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

1. Mention the 4 spices mixing procedures? (3 points)
2. Preparing 1kg mortodella using the above procedure and spices formulation? (5% points)

Note: Satisfactory rating – 7 points **Unsatisfactory - below 7 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

_____

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_____

Operation sheet – 1 Ingredient (ginger) drying procedures

I. Procedures/ steps to be followed

Step 1. Wear/ put on the appropriate personal protective cloth

Step 2. Supply fresh ginger with its container

Step 3. Wash the debris by using clean water

Step 4. Peel the coverage

Step 5. Cut as required style

Step 6. Add in the dryer machine

Step 7. Operate drying

Step 8. Report your finding

Operation sheet - 2 Weighing test

Step 1. Wear/ put on the appropriate personal protective cloth & prepare the Necessary tools and equipment's

Step 2. Start with zeroing the instrument without any load/Tare the instrument

Step 3. Set the loads of the first test point, wait for stabilization

Step 4. Record the indication

Step 5. Continue increasing the loads through all the increasing test points

Step 6. Once the maximum load is recorded, start decreasing the loads through the decreasing test points

Step 8. Record and Report your finding

.

Operation sheet - 3	calibrating weighing scales

Procedures of calibration

Step 1. Wear/ put on the appropriate personal protective cloth & prepare the Necessary tools and equipment

Step 2. Set up the scale

Step 3. Level the scale, and if weighing under water, observe that the apparatus is free of any obstruction that may affect its movement.

Step 4. Perform Span Check: Place the verification weights in the center of the scale.

Step 5. Record the weight to readability of the scale. Confirm that the reading returns to zero when the weights are removed

Step 6. Perform Corner load Check: Place the weight in the center of the scale and re-zero the scale. Place the weight in the four locations (Front/Back, Left/Right) as indicated on the Calibration Sheet. Record the weight of each reading.

Step 7. If any readings indicate out of tolerance, perform external scale calibration, if applicable, as per scale instruction Manual and repeat steps 3 and 4, or remove the scale from service until it can be recalibrated.

Step 8. Record results on Balance or Scale Calibration Sheet

Step 9. Report your finding to your instructor or supervisor

LAP Test	Practical Demonstration

Name: _____ Date: _____

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 6 hours.

Task 1. Perform ingredient (ginger) drying.

Task 2. Perform Weighing test.

Task 3. Perform calibration weighing scales

LG #35	LO #3- Record usage

Instruction sheet

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

- Storing ingredients in a safe and hygienic manner
- Recording usage of ingredients
- Reconciling usage of ingredients to production specifications

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:

- Store ingredients in a safe and hygienic manner
- Record usage of ingredients
- Reconcile usage of ingredients to production specifications

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”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them
4. Accomplish the “Self-checks” which are placed following all information sheets.
5. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
6. If you earned a satisfactory evaluation proceed to “Operation sheets
7. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,
8. If your performance is satisfactory proceed to the next learning guide,
9. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.

Information Sheet 1 Storing ingredients in a safe and hygienic manner

1.1. Introduction

The proper storing of dry ingredients a critical part of maintaining high supplying standards and of reducing the risk of product or ingredient harming. Ingredient storage handling is an important aspect of many industries including food manufacturing, catering and hospitality.

1.2. storing safety guidelines

Many items of dry ingredients or other food products should be hold safely in dry storage areas. To be storing products the following guidelines should be followed:

- Keep dry storage areas clean with good ventilation to control humidity and prevent the growth of mold and bacteria.
- Don't laying the dry under the wet (if necessary separate) laying dry top and wet bottom.
- Store dry foods or ingredients at 50°F for maximum shelf life. However, 70°F is adequate for dry storage of most products.
- Place a thermometer on the wall in the dry storage area.
- Check the temperature of the storeroom daily.
- Store foods away from sources of heat and light, which decrease shelf life.
- Store foods off the floor and away from walls to allow for adequate air circulation.

1.3. Storing procedures and instructions

The ingredient storage can be required procedures and instructions to keep the product safety and qulatity which enhances the customer retention and improves the properties of the ingredient at all. So the should icludes the following procedure and instructions;

- Store the ingredient at cool and dry place.
- Store the ingredients in air tight jars and zippers.
- You can keep ingredients in dry cabinet or spice shelf.
- You can store larger backup supplies in the freeze or freezer.

- Avoid the direct contact with light, air, moisture and heat.

1.4. Storing place room temprature

The store room for dry ingredient or foods should be located near the receiving area and close to the main processing area. Unfortunately, the storeroom for dry foods or the ingredient is often an afterthought in food service facility designs, and the area designated for storage is sometimes in an inconvenient location.

- No matter where the location, there are several essential points to be observed in the care and control of the dry storeroom.
- The area should be dry and cool to prevent spoilage and the swelling of canned goods. The ideal temperature range is 10°C to 15°C (50°F to 59°F)
- The storeroom should be easy to keep clean and free from rodents and vermin. This means all wall, ceiling, and floor openings should be sealed and protected to prevent access
- It should be designed so it is easy to arrange and rearrange supplies to facilitate stock rotation. The best arrangement is to have shelves situated in the middle of the room so they can be stocked from both sides. This allows you to rotate stock by simply pushing out old stock by sliding new stock in from the other side of the shelf.
- Shelving must be at least 15 cm (6 in.) above the floor. Do not store items right on the floor
- Passageways should be wide enough to allow room for easily motion, which should be used to prevent possible injuries from lifting
- Food and supply storage areas should be kept under lock and key to prevent pilferage. Food storage control is an important step in the overall control of food costs. All storerooms should be considered to be like bank safes where the assets of the operation are being stored.

1.5. Personal hygiene requirements

To prevent products harm using good personal hygiene by following these points are necessary:

- Washing and dry hands thoroughly before handling food, and wash and dry them again frequently during work
- Drying hands with a clean towel, disposable paper towel or under an air dryer
- Never smoke, chew gum, spit, change a baby's nappy or eat in a food handling or food input or product storage area
- Never coughing or sneeze over food, or where the ingredient is being prepared or stored
- Wear clean protective clothing, such as an apron
- Keep your spare clothes and other personal items (including mobile phones) away from where food is stored and prepared
- Tie back or cover long hair
- Keep fingernails short so they are easy to clean, and don't wear nail polish because it can chip into the food
- avoid wearing jewellery, or only wear plain-banded rings and sleeper earrings
- Completely cover all cuts and wounds with a wound strip or bandage (brightly coloured waterproof bandages are recommended)
- Wear disposable gloves over the top of the wound strip if you have wounds on your hands
- Change disposable gloves regularly
- Advise your supervisor if you feel unwell, and don't handle ingredients.

1.6. Storing facility items and safety

- Maintaining Proper Temperature
- Rotating Dry Food Items
- Keep the Humidity Low
- Keep the Critters Out
- Avoid Direct Sunlight
- Keep Dry Goods Off the Ground
- Have Enough Storage Space

Figure.25. ingredient racket from steel and plastics

Figure 26.Four-Tier Spice Rack Organizer

Figure.27.Test Tube Spice Rack (shelf)

Figure 28.Reclaimed Wood Spice Rack

https://www.youtube.com/watch?v=Ya8m34WeDdg

Self-Check -1	Written Test

Directions:

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

1. -----? (10 points)

Note: Satisfactory rating – 8 points **Unsatisfactory - below 8 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

_____

_____

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_____

Information sheet -2 -Recording usage of ingredients

2.1. Introduction

Ingredient usage recording is the mechanism that used to balance and control the daily, monthly and yearly consumption capacity. It also helps to use as inventory activities for identifying and taking corrective action before the shortage is occurred in terms of type and amount. The recording may be displaying on chart board or piece of papers. The recording activity will be performing by succeeding the following procedures.

2.2. Recording procedures

- Prepare the display board or paper with necessary format
- Check the storage and list all ingredient types
- Identify the required amount and types of ingredients for the time
- List on the board the type and amounts of the required ingredients
- After used recheck for auditing the performance aligning with the pre-planned one.

2.3. The advantages of recording

- Used for inventory purposes.
- Allows for early detection and correction of shortage incidents
- Enhancing forwards properly use of the ingredients in type and amount
- Facilitates the cooking activity of the products
- Avoiding over or below standard usage of the ingredients composition
- Helps to identify and avoid the faulted ingredients in the storage in case of quality and out of date.

Self-Check -2	Written Test

Directions:

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

1. List the advantage of recording usage for ingredients? (5 points)

Note: Satisfactory rating – 4points **Unsatisfactory - below 4 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

_____

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_____

_____

Information sheet -3 - Reconciling usage of ingredients to production specifications

3.1. Introduction

The term "**reconciling**" can be extended to a number of multidisciplinary practices and behavior structures which can vary in understanding and concept based on the activity that will reconciled. In this case, it can be used as a component in the manufacturing of a product that used ingredient specifications.

Also in simple terms, reconciliation is the comparing of two or more collections of records to make sure they are accurate and in agreement with one another As a consequence, the process of reconciliation can differ from one operation to the next. The reconciliation method, measures, and strategies, on the other hand, will be addressed further below.

3.2. Reconciling with the following steps

- Understanding
- Identification
- Preparation
- Activation.

3.3. Reconciling procedures

- Planning the final usage of ingredients reconciling result
- Identifying and listing the recorded types of ingredients
- Identify the specification of ingredients required for particular products
- Re-unite each specification of ingredients together
- Check the final reconciled results of the ingredients belongs to the specifications
- Comparing the planned and actual result of ingredients reconciliation
- Take correction action for again reconciliation result if any fault.

Self-Check -3	Written Test

Directions:

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

1. Write the step of reconciling ? (5 points)

Note: Satisfactory rating – 4points **Unsatisfactory - below 4 points**

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

Score = _____

Rating: _____

Answer Sheet

Name: _____ Date: _____

_____

_____

_____

_____

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Answer she key

Lo1

Self check 1

1≠.Egg and skimmed milk

1≠.Thyme, ginger, cinnamon, cardamom

Self check 2

1≠.

- Remained and appropriately using the personal protective equipment is mandatory
- Thoroughly wash the rhizomes or the ginger roots.
- Remove the skin with a knife or peeler.
- Make thin slices that are roughly of the same size.
- Arrange the slices on the oven tray. For even drying, make sure that there is enough space between the slices.
- Set the oven to lowest possible temperature.
- Leave the oven door slightly open. Place a fan in front of the oven to improve air circulation.
- Bake the ginger for 10 to 15 hours, turning slices over every 3 hours.

Self check 3.

1≠.

- Improves the quality and health of ingredients
- Avoid the cross contaminations
- Improve the health of the consumers
- Retain the customer of the product for long

LO2.

Self che1

1≠.

- Minimum weight test
- Weighing test
- Repeatability test
- Eccentricity test

Self check2.

1≠.

- Stainless steel
- Plastic manufactured containers
- Silcon item

Selfcheck 3

1≠.

- Identifying and preparing the type and size of weighing balances
- Arranging the weighing balance on the perfect ground
- Check ing and arranging the scale reading on zero accuracy
- Loading the ingredients on the balance as necessery
- Reading the accurate scales
- Recording the accurete scale reader

Self check 4.

1≠

- Delivering the sorting equipment/tools on appropriate place
- Identifying the types of ingredient to be sorting
- Provide the ingredients around the sorting areas or room
- Using appropriate sorting tools based on the portion of the ingredients
- Sorting properly and storing in the right conatianers

Self check 5.

1≠

- Place the different types of spices in a mixing room or a separate location.
- Make a list of the spices in the room and their names and varieties.
- Provide each spice with its own container or box.
- Set up the mixing equipment.
- On a piece of paper or a spices display board, write down the spice ratios that are needed for specific meat products
- Using a blender or mixer, combine the spices according to the instructions

2≠.

- 1/2 kg ground pork or beef
- 1/2 kg pork back fat
- 1/3 cup powdered non fat dry milk
- Tablespoon salt
- 1 teaspoon garlic powder
- 1 teaspoon white pepper
- 1 teaspoon mace
- 1 teaspoon nutmeg
- 1 teaspoon mustard powder
- 1 teaspoon ground ginger
- 1/4 teaspoon pink salt (curing salt #1)
- 1/2 cup ice water

Lo3.

Self check1≠. 1

- Maintaining Proper Temperature
- Rotating Dry Food Items
- Keep the Humidity Low
- Keep the Critters Out
- Avoid Direct Sunlight
- Keep Dry Goods Off the Ground
- Have Enough Storage Space

Self chec2. . 1≠

- Used for inventory purposes.
- Allows for early detection and correction of shortage incidents
- Enhancing forwards properly use of the ingredients in type and amount
- Facilitates the cooking activity of the products
- Avoiding over or below standard usage of the ingredients composition
- Helps to identify and avoid the faulted ingredients in the storage in case of quality and out of date.

Self check3. 1≠.

- Understanding
- Identification
- Preparation
- Activation