Dairy Products Processing Level II

Based on *October, 2019*, Version 2 Occupational standards (OS)

Module: - Applying Sampling Procedure

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Contents

LG #31	LO #1- Prepare for sampling

Instruction sheet

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

- identifying Sampling requirements
- preparing Sampling equipment, containers and labels

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 e ale to:

- Sampling requirements are identified in accordance with the sampling plan
- Sampling equipment, containers and labels are prepared

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
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 to operation sheet.

Information Sheet 1- identifying Sampling requirements

1.1 Introduction

Sampling facilitates comprehensive analysis of any given product for quality assurance. A sample represents the quality of the entire volume of the product under consideration. Assessing the quality of liquid milk is done through performing quality assurance tests, which begin by sampling of the liquid milk. It is important for safety and economic reasons. All dairy products must e tested for quality assurance purposes.

Sample: - A portion of a material collected according to a defined sampling procedure. The size of any sample should be sufficient to allow all anticipated test procedures to e carried out, including all repetitions and retention samples. If the quantity of material available is not sufficient for the intended analyses and for the retention samples, the inspector should record that the sampled material is the available sample and the evaluation of the results should take account of the limitations that arise from the insufficient sample size.

Sampler: - Person responsible for performing the sampling operations.

1.2 Sampling Dairy Products:

Sampling is necessary because it is practically impossible to test the whole batch.

- We will examine some of the reasons why quality assessment is important, especially in the dairy industry and some important things to consider while doing this.
- Sampling of milk and milk products shall be done by an experienced person who is familiar with the techniques and is well acquainted with the knowledge of the subject.
- It is not possible to lay down a single sampling procedure which wills e applicable in all the cases.
- The sampling procedure, therefore, differs according to the nature of the material and the purpose for which it is needed.
- Sampling may be required for chemical or bacteriological examination.

- All precautions shall be taken to prevent contamination and adulteration. For chemical examination, the sampling equipment shall be clean and dry. For bacteriological examination, all equipments including plunger, sample bottles and rubber stoppers shall be sterile and the samples shall be collected under aseptic conditions.
- If subsequent analysis or interpretation is to be of some value, it is very important that sample should be a true representative of the bulk. Since milk fat is of lower density than the other constituents of milk, it tends to rise to the surface. Therefore, thorough mixing of milk with a proper instrument.
- Which will reach the entire depth of the liquid is essential to ensure a representative sample of the entire batch. In small batches, it should be possible to accomplish mixing by pouring the entire quantity of milk from one container to another, three or four times. Larger batches of milk shall be thoroughly agitated by a hand stirrer or by mechanical means. Milk churns easily at 26.5 to 29.5°C and agitation near this temperature shall be avoided.

1.3. Reasons to examine the quality of milk:

- Examination will reveal the chemical composition of milk such as fat, protein, lactose contents and vitamins
- Analysis will help determine the quantity of developed acidity in the milk
- To determine the presence of adulterants or preservatives in the milk
- Examination will help estimate bacterial content and the amount of sediments in the milk

1.4 Things to remember when sampling dairy products

- If you have to transport the milk over long distances, chill and transport it using insulated containers/refrigerated trucks.
- Ensure that you examine the samples as soon as you draw them since chemical and microbiological changes may affect the results obtained
- Avoid violent mixing of the milk since the viscosity of milk will not allow air bubbles to rise to the top Churning of the fat globules will also take place.
- Unfreeze (thaw) milk (in case of frozen milk) before sampling begins
- Ensure you have a uniform mix of the milk from which you intend to draw the sample
- Fat is the most variable constituent of a standing milk sample
- You should only use chemically preserved milk for a chemical analysis

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 II: Short Answer Questions (15%)

1. What is Sampling_____ (5 point)
2. Write down reasons to examine the quality of milk?_____(5 point)
3. Write down at least three things to consider when sampling of dairy product? _____(5 points)

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

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

Information Sheet 2- preparing Sampling equipment, containers and labels

2.1 Equipment for sampling dairy products

I) Stirrer/Planter

This equipment is useful for attaining consistency in the milk/cream for a representative sampling of these dairy products. It is made of stainless steel, aluminum or any other metal that does not adversely affect the milk.

It consists of a perforated disk with a long handle fixed at its center to help in moving the equipment through the milk to achieve effective mixing.

ii) Dipper/Scoop

Consists of a small cup fixed to one end of a long handle. It is mainly used to collect sample from the container. They vary in capacity.

iii) Tue sampler

Consists of an open ended tube with provision for closing one of the ends. It has the following advantages:

- You can obtain a representative sample regardless of how long the milk has stood before sampling
- You can collect a sample from a column of milk representative of the batch (from the top to the bottom of the container).

Sampling of milk and milk products differs in terms of materials you use and the purpose of the sample.

Fig 2.1 collecting sample of milk for quality assessment

The objective of raw milk quality assessment is to ascertain the quality of the finished product. You have to make sure that you are starting off with the best quality raw milk so that you can assure the consumers that the quality of the finished product is the best.

Since you are dealing with large quantities of milk, it is necessary to take a representative sample from which you will be able to determine the quality of the entire batch. This is why you will need to do sampling of liquid milk.

2.2 Sampling from a single container

At the dairy processing plant, you will e receiving milk in single batches, either from individual farmers or from bulking stations. You will need to obtain samples from these single containers

fig 2.2 collecting sample from single container

To do this, mix the milk mechanically and then draw the required quantity of sample. Label the sample container appropriately and follow the general sample handling procedures.

2.3 Composite sample from several containers

A composite sample is the quantity of milk obtained y mixing proportional parts of different milks. A sample is then picked from the composite sample to represent the whole lot.

Fig 2.3.1 Collecting sample from several containers

2.4 Sampling from storage tanks and road tankers

Storage tanks usually have agitators used to mix the milk. Ensure the milk is mixed gently for about 15 minutes in the tank and in case there are no mechanical agitators, mix the milk mechanically using a stirrer and then pick the sample using a dipper.

Fig 2.4.1 collecting sample from storage tankers

Self-check 2	Written test

Name…… ID…… Date…….

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

Test II: Short Answer Questions (20%)

1. Write down Equipments used for sampling of dairy products_____(5 point)
2. _____Used for attaining consistency in the milk/cream for a representative sampling of these dairy products? (5 point)
3. _____Consists of a small cup fixed to one end of a long handle. It is mainly used to collect sample from the container? (5 points)
4. _____Consists of an open ended tube with provision for closing one of the ends. (5point)

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

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

LG #32	LO #2- Collect samples

Instruction sheet

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

- collecting Samples
- handling and preparing Samples
- identifying and reporting Defects or abnormalities
- recording Sample information
- maintaining the work area
- conducting Work

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 e ale to:

- Samples are collected according to sampling procedures and the requirements of the sampling plan
- Samples are handled and prepared to preserve sample and source integrity
- Defects or abnormalities in source material and/or sample are identified and reported
- Sample information is recorded according to workplace sample recording requirements
- The work area is maintained according to housekeeping standards
- Work is conducted in accordance with workplace environmental guidelines

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 to operation

Information Sheet 1- collecting Samples

1.1 Introduction

The Purpose of sampling may be required for different purposes, such as pre qualification; acceptance of consignments; batch release testing; in-process control; special controls; inspection for customs clearance, deterioration or adulteration; or for obtaining a retention sample.

Sampling method: - the part of the sampling procedure dealing with the method prescribed for withdrawing samples.

The tests to be applied to the sample include:

- verifying the identity;
- performing complete pharmacopoeia or analogous testing; and
- performing special or specific tests

1.2 Milk sampling

Accurate sampling is the first pre-requisite for a fair and just quality control system.

Liquid milk in cans and bulk tanks should be thoroughly mixed to disperse the

Milk fat before sampling. Plungers and dippers are used in sampling milk from milk cans

Fig 1.2 sampling milk for quality check up

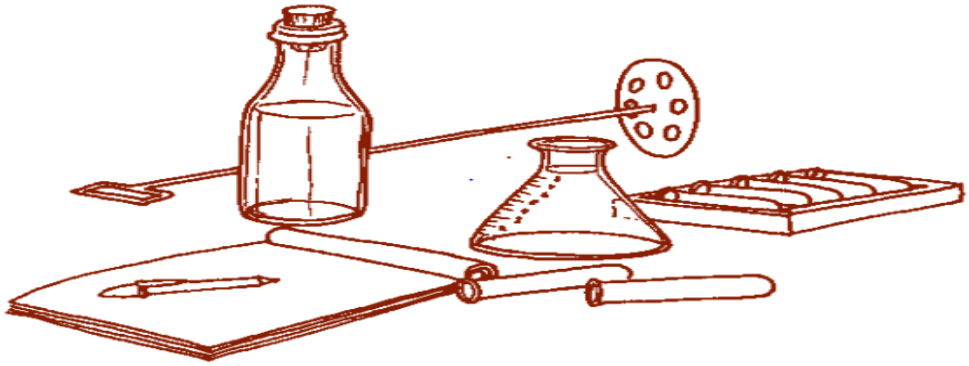

Figure 1: Some equipment used for taking milk samples

1.3 Sampling for bacteriological testing

Sampling milk for bacteriological tests requires a lot of care. Dippers should be

Sterilized in an autoclave or pressure cooker for 15 minutes at 120°C before use in

Order not to contaminate the sample. On-the-spot sterilization with 70% alcohol

Saw and flaming, or scalding in hot steam may also be used.

1.4 Sampling plan

Description of the location, number of units and/or quantity of material that should be collected and associated acceptance criteria.

1.4.1 Common features of a sampling plan:

a) Sample size

Determined by:

- The variations in the populations
- Seriousness of the outcome if a bad sample is not detected
- Cost of analysis
- Variations of the populations

b) Sample location

No problem when dealing with homogenous population; however, heterogeneous population requires

Consideration of the sampling plans e.g.

- Random sampling – random picking of the samples from the population
- Systematic sampling – you pick the samples following a given order.
- Judgment sampling – you pick samples following past experience.

c) Sample collection

State clearly whether the sampling will be manual or by specialized mechanical devices

After looking at the factors to be considered when sampling milk, it is now possible to draft a sampling plan.

The sampling plan has a specific objective of ensuring that the obtained sample will be reflective of the qualities that one is seeking to establish about the group.

The plan will clearly indicate the size of the sample and all the important features for examination under every group.

1.5 Collecting Sample for Different Dairy Products

a) Sampling of ice cream

Cream is thicker than fluid milk; therefore, the tester should use a sampling tube with a wider diameter. It is important to ensure that the cream has been properly mixed before picking the samples. Make sure to examine the samples soon after collection as any delay may lead to deterioration in the sample quality. This is due to the susceptibility of cream to enzymatic degradation given its high utter fat content. This could jeopardize the results.

Fig 1.5.1 sampling of ice cream

b) **Sampling of evaporated milk**

Put the unopened cans in a water bath at 60°C for two hours. You will need to remove the cans from the water bath every 20 minutes for a vigorous shaking.

After the two hours have elapsed, remove the cans and cool to room temperature. Remove the lid and mix the content with a spatula. At this point, you can get a composite sample from different cans.

Depending on the type of tests to be done, you can test the sample the way it is or you can mix with distilled water. The value obtained from the test is adjusted using a correction factor.

c) Sampling of sweetened condensed milk

Temper the unopened cans in a water bath at 35°C for 30 minutes. After the time has elapsed, empty all the contents of the container while still warm and mix to a uniform consistency. Take 100 grams of the sample and mix with 500 grams of distilled water in a water bath. Get a test sample from the diluted mixture for testing and correct using the dilution factor used.

d) Sampling of dried milk

Avoid sampling in a high humidity environment. Take samples from different parts/regions of the mass to be tested using a tubular Trier and then transfer the collected samples to a dry clean container and seal immediately.

Roll and invert the container to make the sample homogeneous. If there are lumps, sieve the sample, grind the residue and sieve again. Test immediately or keep the sample in an airtight container for analysis at a later date.

Under some circumstances, it may be necessary to keep the sample in an opaque container.

e) Sampling of butter

Take samples from a batch of bulk butter using a stainless steel Trier from the different sections, which you will then mix to obtain a homogeneous sample.

You may soften the samples by warming in a water bath at 38°C while checking the sample regularly during this process. After it has obtained the required texture, weigh the required quantity and carry out the tests.

When you are sampling packaged butter, pick packets from different areas in the storage room. Combine all these samples together to obtain a homogeneous mix from which you will get the test sample.

f) Sampling of cheese

For small pieces of cheese take the entire cheese lock while for the larger cheese locks, obtain samples using tiers that reach into the centre of the cheese lock.

For hand cheese, cut or shred the cheese using a food chopper then mix before getting a representative sample.

g) Sampling of ice cream and other frozen dairy products

Allow the sample to soften to room temperature and then mix for about two minutes in a lender. Obtain the test sample and conduct the required test procedure.

If the ice cream or the frozen dairy product contains fruits and/or nuts, mix in a high speed lender for about seven minutes to make sure that it is fully homogeneous before obtaining the test sample for conducting the required test.

h) Sampling of pasteurized milk

For retail packages, pick a number of packages but for bulk packaging, mix the bulk and take 500 mls as a representative sample.

When sampling from closed systems (e.g. UHT), there will be in built sampling equipment or mechanism on the system for taking the samples aseptically.

Self-check 1	Written test

Name…… ID…… Date…….

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

Test II: Short Answer Questions (25%)

1) Write down the Purpose of sampling_____ (5 point)
2) What is the sampling method?_____(5 point)
3) What is sampling plan? _____(5 points)
4) Write down Common features of a sampling plan:_____(5point)
5) Write down at least four d/f dairy product _____(5point)

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

Note: **Satisfactory rating – 13 points** **Unsatisfactory - below 13 points**

Operation Sheet -1	collecting Samples

Collecting Samples for d/f dairy product during processing

Sampling procedures: - are complete sampling operations to be performed on a defined material for a specific purpose. A detailed written description of the sampling procedure is provided in the sampling protocol.

Step 1:- Apply safety first

Step 2:- Wear personal protective equipment's

Step 3:- prepare appropriate tools $ equipment for sample collection

Step 4; - Identify samples using appropriate sampling techniques(methods).

Step 5:- Identify sample description i.e. what is it? (Whether butter, cheese, ice cream, etc)

Step 6:- Observe products quality.

Step 7:- Record the procedure used for each sample

Step 8:- Identify product variation using various sampling techniques.

Step 9:- Record variation results.

Step 10:- Take a corrective action for the variation.

Step11:- Recommend appropriate solutions.

Lap Test	Demonstration

Name……. ID…… Date

Time started: _____ Time finished: _____

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within **1** hour. The project is expected from each student to do it.

During your work: You can ask all the necessary tools and equipment

Lap Test Title: **collecting samples**

Task Objectives / Demands: in accomplishing activities required for this project the student will be ale to: (**During your work follow these steps :**)

Task 1:- Apply safety first

Task 2:- Wear personal protective equipment's

Task 3: - prepare appropriate tools $ equipment for sample collection

Task 4; - Identify samples using appropriate sampling techniques (method).

Task 5:- Identify sample description i.e. what is it? (Whether butter, cheese, ice cream, etc)

Task 6:- Observe products quality.

Task 7:- Record of the procedure used for each sample

Task 8:- Identify product variation using various sampling techniques.

Task 9:- Record variation results.

Task 10:- Take a corrective action for the variation.

Task 11:- Recommend appropriate solutions

Information Sheet 2- handling and preparing Samples

2.1 Introduction

Appropriate sampling is the primary and basic requirement for monitoring its normal Components. The milk in the containers must e thoroughly mixed to have uniform Distribution of its milk before a septic collection of the milk sample.

There should e Random sampling of the packed milk from shops monitoring its components. Hygienic cleaning and sanitation procedure

A very important item of the milk transport business is the vessel in which the milk is carried. Such vessels should satisfy the requirements. In addition, all milk handling vessels should e washed and disinfected immediately after use as follows:

- Pre-rinse with clean potable water
- thoroughly scrub the container with warm water and detergent/soap using a Suitable rush or scouring pad (do not use steel wool or sand!)
- Rinse the container with clean running water
- Immerse the container in boiling water for at least one minute
- Sundry the container upside down on a drying rack

2.2 Personal hygiene

All persons handling milk should maintain high levels of personal hygiene. Milk Transporter or handler should:

- wash hands and nails with clean water and soap before handling milk
- wear clean overalls/dust coat and gum boots while handling milk
- Not e suffering from a communicable disease or have open sores or abscess on the arms, hands, head or neck
- not cough or sneeze over milk or milk containers
- Bath or shower regularly

Figure 2.1 Wash hands with clean water and soap

2.4 Preparation of samples

These are the steps to follow:

i. Make the sample homogenous

Most samples are heterogeneous due to inter-unit variation or intra-unit variation.

- Inter-unit variation – variation of properties in different units e.g. milk fat content variations that occur in different milk cans
- Intra-unit variation – variation within individual units, e.g. fat content variation in one milk can.

ii) Reduce the sample size

Smaller sample sizes are easier to manage during analysis, which reduces the chances of sample contamination and cross-contamination.

iii) Prevent changes in the milk sample

Ensure the sample does not undergo physical, chemical, or enzymatic changes. Enzymatic changes should e countered y elimination or inactivation of the enzyme, which can e achieved through:

- Adding chemical preservatives

- Freezing the sample
- Heat treating the sample

Fat oxidation is the most likely chemical change to occur on fat based dairy products such as cream, ghee (products with unsaturated fatty acids). To reduce oxidation, limit such samples to light exposure, elevated temperature, oxygen, or from co-oxidants.

Prevent microbial growth through freezing, cold storage, heat treatment, and use of preservatives. Physical changes likely to occur may include loss or gain of moisture, which can affect utter analysis.

Another serious physical change may also include crystallization (as in the case of ice cream samples).

You will e ale to control most of the physical changes y monitoring the storage temperature and relative humidity.

iv) Sample identification

Carefully label all the laboratory samples so that in case of any problem, it is easy to trace the origin. The information that is usually used for the identification of laboratory samples includes:

- Sample description, i.e. what is it? (whether butter, cheese, ice cream, etc)
- Note the time of sampling
- The location of sampling
- Identity of the person who took the sample
- Method used to select the sample
- Record of the procedure used for each sample

Fig 2.1 preparing samples for milk quality assurance

Fig 2.2 sample Preparation

test tue

Self-check 2	Written test

Name…… ID…… Date…….

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

Test II: Short Answer Questions (20)

1) Write down steps for preparation of sample _____ (5 point)
2) Differentiate inter-unit variation and intra-unit variation._____(5 point)
3) Write down ways of Prevent microbial growth _____(5point)
4) Write down information that is usually used for the identification of laboratory samples. (5point)

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

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

Information Sheet3 –identifying and reporting defects or abnormalities

3.1 Defects due to change presence of abnormal milk

These are colostral milks or pathological milks which normally should not e collected or marketed. These milks have an abnormal mineral and protein composition (high chloride content - low casein content) which gives them a characteristic salty taste. Their presence in low concentrations in the collected milk does not change the organoleptic characteristics of the mixture and therefore cannot e detected y sensory analysis.

The adulteration cans only e detected by specific instrument methods which are chemically or physically assed.

3.2 Defects due to change in milk consistency

The main alterations in milk taste are due to bacteriological, chemical and physical changes in the milk constituents. These three aspects are.

- Defects of microbial origin
- Defects due to fat oxidation
- Defects due to heat treatment

3.3 Defects due to Transmitted flavors

The following abnormal colours, appearances, smells and flavours can e, however, detected:

A). Abnormal color/consistency

- Pink color: Polluted with blood;
- Yellowish creamy color: Colostrums or late milk;
- blue thin colour: Adulterated y adding water;
- Large clots or flakes: Sour milk or mastitis milk;
- Small white clots or grains: Mastitis milk or adulterated with flour and skim milk powder;
- Visible dirt and impurities: Produced under unhygienic conditions.

B) . Abnormal smell and/or taste

Souring: Lactose fermenting, acid producing bacteria

Malt: Streptococcus lactic ar. malt genes bitter: Peptonising of milk y Streptococcus liquefactions

Blue souring: Unpleasant sweet and sour smell, thin and waterish appearance caused by bacterial activity and storage in a closed container without ventilation

Fruit aroma: Pseudomonas fragi producing esters

Slimy milk: Capsule forming bacteria, e.g. aerobatic aero genes and Alcaligenes viscous, coagulation and whey separation: Fermentation by yeast.

3.4 Way of reporting defects /abnormalities in d/f products

	Defect breakdown	Critical	Major	Minor
1	Accessible sharp edges / points.	X		
2	Removable dirt, dust, oil or other contamination on item			X
3	Product with color variation (compare with approved sample)		X	X
4	Deformity, damage, scratch, dirt, chip, crack, dent		X	X
5	Unit wobbles	X		
6	Poor fitting with accessories		X	X
7	Missing or damaged parts / components / instruction manual / warrantee card / instruction leaflet / supply cord / others		X	

Self-check 3	Written test

Name…… ID…… Date…….

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

Test II: Short Answer Questions (15)

1) Write down defects due to transmitted flavours _____ (5 point)
2) Write down defects due to change in milk consistency._____(5 point)
3) Write down defects due to Abnormal smell and/or taste_____(5point)

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

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

Information Sheet 4- recording Sample information

4.1 Sampling record: - Written record of the sampling operations carried out on a particular material for a defined purpose.

The sampling record should contain the batch number, date and place of sampling, reference to the sampling protocol used, and a description of the containers and of the materials sampled, notes on possible abnormalities, together with any other relevant observations, and the name and signature of the inspector.

Records enable small-scale operators of milk businesses to keep track of all transactions carried out y the business.

These include the amount of milk supplied, payments made, suppliers, creditors, debtors, and so on. Dairy farmers' records help them keep track of the costs of inputs used in milk production (animal feeds, drugs, veterinary services, labor, milk cans, etc.) and how much income they are getting from the sales of milk, heifers, cull cows, nulls, etc. Milk producer groups need to keep records of their members, how much milk is supplied y individual members, raw milk quality, quantities of milk sold and how much is wasted, and payments received for milk sold to processors, transporters or traders.

Similarly, milk traders or transporters who up milk from individual farmers for sale to processors or consumers need accurate records of the quantities of milk traded and associated costs. Milk processing plants need to keep accurate records of the quantity and quality of each consignment of milk received from suppliers.

Additionally, specific records have to e kept for each product and process in the Processing hall. Such records are required not only for business transactions ut also for quality assurance, food safety and traceability. Indeed, modern quality assurance Systems such as HACCP (Hazard Analysis Critical Control Point) require keeping of detailed records at each step of food processing.

4.2 Sample supply records

Daily milk supply records should indicate the name of supplier, volume of milk supplied, date and time the milk was supplied and the price paid for the milk. Apart from these basic records, it is in the interest of the transporters and suppliers to assess and record the quality of the raw milk transported. Records of these quality tests are useful in deciding who ears the cost of milk spoilage in cases where milk is found to e spoilt at the time of delivery to the point of sale or processing factory.

The following measurements and basic quality tests may e carried out and the

Results recorded by the transporter:

- Temperature of milk
- Density of the milk
- Organoleptic test
- Alcohol test

4.1.3 Product sales/delivery record

Upon delivery of milk to the point of sale or processing factory the following should be recorded:

- Name of customer
- Date and time of delivery
- Price of milk delivered
- Temperature of milk
- Density of milk
- Organoleptic quality
- Results of alcohol test

4.1.4 Labeling and record keeping

Samples must e clearly labeled with the name or code number of farmer, date of Sampling and the place where the sample was collected.

This information should also e included in standard data sheets. Records must e kept neat and stored in a dry place. Milk producers should e present at the time of sampling and the records should e availed to them if they so require.

Labeling of samples should provide appropriate details, including the batch number and, if known, the container number from which the sample was taken, the amount taken and for what purpose.

Labels should be applied at the time of sampling. The container used to store the sample should also be properly labeled with appropriate details such as sample type, name of material, identification code, batch/lot number, code, quantity, date of sampling, storage conditions, handling precautions and container number.

Labeling and packaging

Bramblestone Farm Milk Production Barn Record

Date	Tinker Bell			Jewel Box			Bit 'O' Honey			Combined	
	AM (lbs.)	PM (lbs.)	Total (cups)	AM (lbs.)	PM (lbs.)	Total (cups)	AM (lbs.)	PM (lbs.)	Total (cups)	Total Production (lbs.)	Total Production (cups)
6/9/2012	1.1	1.9	6	0	1.2	2.4	0	0	0	4.2	8.4
6/10/2012	1.1	1.7	5.6	0	1.1	2.2	0	0	0	3.9	7.8
6/11/2012	1.4	1.3	5.4	0	1.3	2.6	0	0	0	4	8
6/12/2012	1.1	1.1	4.4	0	1.1	2.2	0	0	0	3.3	6.6
6/13/2012	1.1	1.6	5.4	0	1.1	2.2	0	0	0	3.8	7.6
6/14/2012			0			0			0	0	0
6/15/2012			0			0			0	0	0
6/16/2012			0			0			0	0	0
6/17/2012			0			0			0	0	0
6/18/2012			0			0			0	0	0

record keeping

The general labeling requirements are:

- The name of the product
- List of ingredients
- Quantitative ingredients declaration (where indicated)
- Net contents and drained weights
- Name and address
- The country of origin
- Lot identification
- Date marking and storage instructions
- Instructions for use and special storage requirement
- General script
- Nutrition labeling

Self-check 4	Written test

Name…… ID…… Date…….

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

Test II: Short Answer Questions (25 %)

1) What is sampling record_____ (5 point)
2) Write down sampling record what should contain?__(5 point)
3) Write down measurements and basic quality tests? _____(5points)
4) What is Labeling_____ (5point)
5) Write down the points to e recorded during Upon delivery of milk to the point of sale or processing the factory _____(5point)

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

Note: **Satisfactory rating - 13 points** **Unsatisfactory - below 13 points**

Information Sheet 5- maintaining the work area

5.1 introductions

The workplace may be permanently fixed, mobile or even temporary based on one off work (promotional activities), seasonal work types, work involving one off situation with different duration (hours, days or weeks). The layout of the workplace is required to allow persons to enter and exit the workplace and move within safely, oth under normal work conditions and in an emergency.

5.2 Maintaining work area

The work environment and facilities are required to e maintained in a safe and healthy condition, and need to e hygienic, secure and in a service able condition. This includes replenishment of consumables, repair of broken or damaged furnishings and equipment and ensuing cleanliness of these areas.

The layout of the work area should e designed to provide sufficient clear space between machines, equipment and fittings so workers can move freely without strain or injury also evacuate quickly in case of an emergency.

In determining how much space is required, the following should e considered:

- The physical actions needed to perform the task
- The need to move around while working
- Whether the task is to e performed from a sitting or standing position
- Access to workstations
- The equipment to e handled and the personal protective equipment that may e worn to perform the work.
- Environmental factors including heat or noise may require an increase to the space, as will work activities that involve manual tasks or the use of equipment.

5.2.1 Work area entry and exit

Entries and exits are required to e safe to allow impeded access and egress for all workers and visitors including those with special needs.

Generally the work place entry and exit should have:

- Entries and exits should e slip resistant under wet and dry conditions.
- Any walkways, boundaries or pathways shall e marked with 50mm wide with a contrasting color e.g. white or yellow
- Handrail should e provided on or at least one side of every staircase
- Separate entry and exits for mobile equipment.
- Power operated doors and gates should have safety features to prevent people from being stuck or trapped.
- Location of exits should e clearly marked and signs posted to show direction.

5.2.2 Floors and Other Surfaces

Floor surfaces shall e suitable for the work area and e chosen based on the type of work being carried out at the workplace, as well as the materials used during the work process, the likelihood of spills and other contaminants, including dust, chemicals, and the need for cleaning. In general, work area floor should e;

- Floors shall e free from slip hazards e.g. cables, uneven edges, & broken surfaces.
- Floor surfaces shall have sufficient grip to prevent slipping, especially in areas that may become wet or contaminated.
- Anti-fatigue matting, carpet, shock absorbent underlay, cushion backed vinyl shall e provided for workers where static standing occurs.
- Carpet shall e properly laid without loose edges or ripples and should e well maintained.
- Floors should e strong enough to support loads placed on them.

5.2.3 Workstations

Workstations should e designed so workers are comfortable undertaking their task and allow for a combination of sit and standing tasks. For tasks undertaken in a seated position, workers should e provided with seating that:

- Provides good body support, especially for the lower ack.
- Provides foot support, preferable with both feet flat on the floor, otherwise a footrest shall e provided.
- Allows adequate space for leg clearance and freedom of movement.
- Is fully adjustable to accommodate different size.

5.2.5 Air Quality

Workplaces are to e adequately ventilated which includes provision of fresh, clean air drawn from outside the workplace, uncontaminated from flues or other outlets and e circulated through the workplace. Workplace inside buildings may have natural ventilation, mechanical ventilation or air conditioning.

5.2.6 An air-conditioning system should:

- Provide a comfortable environment in relation to air temperature & air movement.
- Prevent the excessive accumulation of odours.
- Reduce the levels of respiratory y-products, especially carbon dioxide, and other indoor contaminants that may arise from work activities.
- Supply an amount of fresh air to the workplace, exhaust some of the stale air as well as filter and re circulate some of the indoor air.

Natural ventilation should consist of permanent openings, including windows and doors. Natural ventilation may e assisted y mechanical ventilation. Air-conditioning and other ventilation systems should e regularly serviced and maintained in accordance with manufacturer's instructions.

5.2.7 Welfare Facilities

Workers, including those who have particular needs or disabilities, must have access to the facilities provided.

Workers are to e provided with:

- Adequate breaks to use the facilities.
- Facilities which are within a reasonable distance from the work area.
- Shift workers have similar access to those who work during the day.
- A means of access which is safe.
-

Self-Check -5	Written test

Name…… ID…… Date……

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

Instruction: Short Answer Questions (15 %)

1) Write factors to e considered in determining how much space is required. (5 points)
2) Mention points the work place entry and exit should have. (5 points)
3) Mention welfare facilities should e fulfilled in the work area? (5 points)

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

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

Information Sheet 6- Conducting work

6.1 Conducting work in accordance with workplace guideline

Having a safe and healthy physical work environment, including amenities and facilities, is critical to eliminating and controlling risk in the workplace. This includes ensuring the work environment, facilities and amenities are compliant with legislative and other identified requirements. A safe work environment including:

- Facilities,
- Amenities or services and,
- Accommodations.

Facilities refer to toilets, washrooms, showers, lockers, dining areas, drinking water, etc. These facilities must e in good working order, clean, safe and accessible.

During conducting work, a person should ensure the following requirements;

- Legislative Requirements,
- Responsibilities,
- Need assessment,
- work environment,
  - ✓ Welfare Facilities
  - ✓ Inspect and Monitoring.

a) **Legislative Requirements**

A person conducting a business or undertaking at a workplace must ensure so far as is reasonably feasible, the following:

- The layout of the workplace allows, and the workplace is maintained, ,
- Work areas have space for work to e carried out without risk to health & safety,
- Floors and other surfaces are designed, installed and maintained to allow work to be carried out without risk to health and safety, Workers carrying out work in extremes of heat or cold are ale to carry out work without risk to health and safety,

- Work in relation to or near essential services does not give rise to a risk.

b) **Responsibilities**

The Facilities Management Division is responsible for ensuring that workplace amenities and facilities:

- Are designed and installed according to company legislative and requirements
- Are inspected and maintained to ensure a safe level of hygiene.

Company Management and Supervisors: Management and supervisors of faculties, divisions and units are to ensure that amenities and facilities in the workplace do not expose workers, or visitors to health and safety risks.

c) **Employees**

Employees are responsible for reporting any identified hazard in the work environment, facilities or Amenities that they become aware of in accordance with factory or company guidelines.

d) **Nature of Work Performed**

The requirements of amenities and facilities will depend on the type of work eing performed and the equipment being used. For example, persons handling chemicals or conducting hot and arduous activities may need to access shower and change room facilities.

e) **Size and Location of the Work Area**

Consideration should e given to the location such as the work area being in a building, remote area or outdoors. The work area may e multiple locations/sites over an extensive area.

f) **The Composition of the Workforce**

The workforce may e comprised of people of different sexes, religious eliefs and those people with special needs. This will influence the provision of amenities and facilities to accommodate the various needs.

Self-Check -6	Written test

Name…… ID…… Date…….

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

Instruction: Short Answer Questions (15 %)

1) Write down things fulfilled in a safe working environment? (5 points)
2) Write down work place requirements that the worker should e ensure when conducting the work? (5 points)
3) Write down the requirements that an employee's full fill during conducting work, (5 points)

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

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

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