



# **Animal production Level**

## **NTQF Level -II**

### **Learning Guide 55**

**Unit of Competence: Assist in Handling and Processing of Milk**

**Module Title: Assisting in Handling and Processing of Milk**

**LG Code: AGR APR2 M16 L03 LG55**

**TTLM Code: AGR APR 2 TTLM 0919v1**

**LO3. Clean up on completion of milk**



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

- Storing the processed milk and milk by products properly
- Returning/Disposing off materials
- Cleaning, maintaining and storing tools and equipment
- Reporting Work outcomes

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 –

- Store the processed milk and milk by products properly
- Return/Dispose off waste materials
- Clean, maintain and store tools and equipment
- Report Work outcomes

### Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 1 to 6.
3. Read the information written in the “Information Sheet (1, 2,3, and 4) in page 2,5,7 and 9 respectively
4. Try to understand what are being discussed. Ask you teacher for assistance if you have hard time understanding them.
5. Accomplish the “**Self-check 1, Self-check 2, Self-check 3**” and **Self-check 4** in page, **4, 6,8 and 10** respectively.
6. If you earned a satisfactory evaluation proceed to “the next topic”. However, if your rating is unsatisfactory, see your teacher for further instructions or read back the Learning guide information sheets **1-4**. Submit your accomplished Self-check. This will form part of your training portfolio.



<b>Information sheet-1</b>	<b>Storing the processed milk and milk by products properly</b>
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The processed milk and milk by products are properly stored until transporting. All dairy products have a shelf life that varies according to how an item is processed, packaged, stored, how long a product has been allowed to stand unrefrigerated on a counter or the type of container used can alter the freshness period. Most milk, yogurt, sour cream and similar products are sold in date-coded cartons that indicate a product’s peak freshness. The shelf life of cheese depends on its type (hard or soft) and its form (cut or wax-coated). Milk products should be labeled.

Important points to be considered in storing of milk and processed milk product:

- Avoid heat shock; do not leave milk out of refrigeration for a prolonged period of time.
- Try to keep the refrigerator door closed as much as possible,
- Keep the temperature steady.
- It is recommended that milk or dairy products be placed on refrigerator shelves and not on the door.
- Check the temperature of your refrigerator often.

**Table : 1 Recommended dairy product storage guidelines**

Product	Shelf life	
	After opening T° /Time	Un opened T° /Time
Milk	35° 1 week	35° 10-14 days
Cream	35° 1 week	35° 2 weeks
Butter	35° 2weeks	35° 4 weeks
Processed cheese	35° 5 weeks	35° 24 weeks
Yogurt	35° 3 weeks	35° 4 weeks



**Table: 2: recommended storage time and temperature**

**Recommended Storage Times and Temperatures for Milk and Other Milk Products**

Dairy Food	How To Store	Safe Storage Time	
		On Refrigerator Shelves 35 - 40°F (2 - 4°C)	In Freezer 0 °F (-18°C) or below, properly packaged
Pasteurized Fresh Whole or Skimmed Milk, Sweet Cream, Flavored Milk Drinks	Refrigerate immediately in original container. Keep container closed.	Unopened cartons for 30 days. Opened for 1 week. Check code date.	Do not freeze. (Change of texture, body appearance. Separation of fat.)
Sweetened & Condensed Milk (opened)	Keep covered.	1 week.	Do not freeze.
Whipped Topping	Keep covered.	3 months in aerosol can. 3 days prepared from mix. 2 weeks bought frozen (once thawed).	Do not freeze.
Yogurt	Keep covered.	7 - 10 days.	Do not freeze.
Sour Cream, Butter, Milk, Cultured Milk	Refrigerate immediately in original container. Keep container closed.	2 weeks. Up to 2 months for salted butter (2 weeks for unsalted butter)	6 to 9 months for salted butter; up to 5 months for unsalted butter. Do not freeze others.
Soft Custards, Milk Puddings, Cream and Custard Fillings for Cakes and Pies	Cool cooked dishes quickly and refrigerate within 2 hours. Refrigerate cold dishes immediately after preparation.	5 - 6 days.	Do not freeze.
Ice Cream	Store in original container in freezer or transfer to a moisture-vapor-proof container.	Do not store here.	2 - 3 weeks.
Natural Hard Cheese and Semi-Hard Cheese and Processed (Cheddar, Swiss, Parmesan, Brick, Bleu, etc.)	Refrigerate in original package and over wrap tightly in aluminum foil, plastic wrap or plastic bag tightly closed to avoid drying.	1 month. If mold forms, cut off.	Freezing affects texture (makes it crumbly). Still suitable for cooking. Thaw in refrigerator. Do not freeze soft cheeses.
Soft Cheese (cream, cottage, limburger, camembert)	Refrigerate tightly covered.	1 week.	Do not freeze (Can freeze cream cheese. Texture may change.)
Cheese Spreads	Refrigerate tightly covered.	1 month.	Do not freeze.
Evaporated Milk (opened)	Refrigerate tightly covered.	1 week.	Do not freeze.
Homogenized, Reconstituted Dry Nonfat and Skimmed	Keep containers tightly closed. Do not return unused milk to original containers.	1 week.	Do not freeze.

From the National Food Safety Database: <http://www.foodsafety.org/he/he517b.htm>



<b>Self-Check -1</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. List down factors that make shelf life of dairy products to vary (5pts)

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

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

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_

**Handling Waste materials produced during work**

There are different waste materials or product which will be produced in work place but the common waste material which produced during handling and processing of milk are the following

- Animal dung
- Plant debris
- Plastic,
- Metal and paper-based
- Dusty feeds or bedding materials
- Contaminated milk/Adulterated milk

These waste materials which are produced during handling and processing of milk have to be removed from the site on regular manner/ properly;

Disposable materials properly buried in deep enough trench and should be covered with quicklime and then with soil or use Burning. But Burning is the most difficult because the Fumes and smoke may be a problem to the surrounding environment. Mud holes should be frequently filled or exclude the animals away from it quickly.

❖ **N.B. Never dispose waste materials everywhere.**

**Important points in handling and disposal of waste materials in dairy farm**

- Treating, reusing, and disposing of waste water using different methods
- Safe and proper disposal of non-hazardous farm waste
- Handle, collect, segregate, store, label and dispose of Human waste
- Preventing the contingency site from being polluted
- Storing, segregating, treating, disposing of farm waste
- Store, secure, utilize and dispose of pesticides/equipment
- Spill prevention, response, containment, and cleanup



<b>Self-Check -2</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the waste materials produced during handling and processing of milk.(5pts)

**Note: Satisfactory rating – 5 points**

**Unsatisfactory - below 5 points**

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

**Answer Sheet**

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

Name: \_\_\_\_\_

Date \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

4. \_\_\_\_\_

5. \_\_\_\_\_



### 1.1. Cleaning materials, tools and equipment

After each step during handling and processing of milk and by products the materials should be thoroughly washed and cleaned. If not thoroughly washed they become a source of microbial contamination and shorten the life span of the materials.

Materials used in milk handling and processing have to be handled and transported safely. Any milk handler and processor have to do this task safely because any damage will create inconvenience on the next use of the equipment, and also it will cause damage on the products.

The routine cleaning process of all this equipment is as follows: -

- Rinse with cold water; -
- Wash and brush in hot water containing a detergent in an 1% solution, e.g. washing soda or teepol; -
- Rinse in hot distilled water and examine for cleanliness; -
- Allow to dry upside down in a dust-free surrounding;
- After use pipettes should be placed vertically in a cylinder, which contains a mild solution of hypochlorite in a concentration of 1.5 ml per liter water.
- This eases cleaning and minimizes the risk of contamination.

### 1.2. Separator maintenance

- The gears must be well lubricated. Follow the directions of the manufacturer.
- The level of the lubricant must be kept constant; observe the oil level through the sight glass.
- The bowl must be perfectly balanced.

The bowl should be cleaned thoroughly immediately after use to ensure proper functioning of the separator and for hygiene





<b>Self-Check -3</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Write the advantages of cleaning and maintaining materials, tools and equipment.(4pts)

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

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

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

**Information sheet-4****Reporting Work outcomes**

There are many work outcomes in dairy farm while handling and processing of milk and milk products. The work out comes should be reported to the supervisor.

Some of them are:

- The amount of product produced. e.g milk yield, composition and quality
- Disease out breaks/ disease transmission
- Human labor attendance
- Mastitis
- Insufficiency of working facilities eg. electricity
- Contaminations (feed, water and feeding and watering trough)
- Malfunctions of machines and equipment like cream separator, churner, milking machine etc
- Suspected and dead animals and the others should be properly reported.



<b>Self-Check -4</b>	<b>Written Test</b>
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**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

1. Mention 4 points that are reported to the supervisor (4pts)

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

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

**Answer Sheet**

Score = _____
Rating: _____

Name: \_\_\_\_\_

Date \_\_\_\_\_

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



## References

- Wolters G.M.V.H. and J.A.M. Boerekamp, 1996. Comparison of different cleaning systems for milking equipment. Proc. IDF-symp. Bacteriological Quality of raw milk, Wolfpassing, Austria.
- Slaghuis, B.A., G.M.V.H Wolters, H.J. Soede and J.A.M. Boerekamp, 1994. Effect of different rinsing steps on cleaning of milking equipment. Proc. Fouling and cleaning in Food Processing, Cambridge, March 1994