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# EXPERIMENT 12 PREPARATION OF CHECK-LIST FOR EVALUATION OF PERFORMANCE OF A DAIRY PLANT

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## 12.1 INTRODUCTION

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Performance of a dairy plant is evaluated by its capability in meeting requirement of core objectives of processing and manufacturing the products effectively. The evaluation process describes how balance are the various unit operations of dairy plant in resulting cost effective manufacture of milks and milk products to meet the market demand. Here product supply time and quality need to be addressed. Existence of dairy plant mainly depends on its capability in producing cost effective products to satisfy market and attract proper return to protect the interest of stakeholders (milk producers/owners). Therefore, periodical assessment of its performance gives timely indication to concerned personnel and executives for necessary operational and management control. Thus identification of strength and weakness provides a managerial tool for continual improvement of dairy plant.

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## 12.2 OBJECTIVES

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- 1 to acquaint with various performance indicators of dairy plant; and
- 1 to prepare a necessary checklist for periodical evaluation.

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## 12.3 EXPERIMENT

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### i. Principle

Dairy processing involves various unit operations such as chilling, heating, reconstitution, separation, homogenization, packing, storage and distribution etc. These operations involve number of resources such as manpower, raw materials,

chemicals and plant equipments and required infrastructures. A balance use of all these provides timely outcome of desired quality at reasonable expense. Hence, the evaluation is an assessment of these processes individually and /or combined with respect to productivity in terms of physical and financial performance.

## **ii. Requirements**

- i) Plant and machinery: A dairy plant with required machinery and utilities
- ii) Chemicals /Materials: Milk and conserved commodities, fuel and chemicals for testing, cleaning & sanitization.

## **iii. Procedure**

Dairy plant performance could be evaluated in following two ways:

- A) Physical plant performance: Physical performance is an indicator of efficiency of resource utilization and effectiveness in meeting the desirable standards. For this type of evaluation, identify the critical processes/ equipments and materials used for production. Record the status of various attributes of inputs and outputs to each of them along with operational conditions.
- B) Financial Performance: Good health of a dairy plant in monetary terms is indicated through financial performance which is evaluated in terms of: 1) economy in sourcing of right resources, 2) optimum inventory cost of raw and finished products, 3) minimum manufacturing and packing costs, and 4) maximum contribution from the milk products. Therefore, the evaluation procedure should incorporate preparing a detail list of cost centers and recording revenue expenses for each of them.

## **iv. Observations**

- A) For Physical performance observe and record followings:
  - a) Quantity and cost of each resource including milk.
  - b) Running hours of all major equipments.
  - c) Quantity of each finished product
  - d) Opening and closing balance and the use of each resource in production process
  - e) Production facilities and their maintenance
- B) For financial performance record following aspects:
  - a) All items mentioned above.
  - b) The maintenance cost of each product section.
  - c) Cost of all inputs and resources
  - d) Cost incurred during each operation from procurement through processing/ packing to distribution to market.

- e) Sale volume and price of each product.

#### **v. Results**

Based on the above observations determine the dairy plant performance and include in the evaluation checklist as follows:

- a) Resource utilization in terms of recovery of milk solids, use of fuel, electricity and packing materials for each product.
  - (i) Handling losses: MFat loss%= MSNF Loss %=
  - (ii) Capacity utilization of dairy plant %=
  - (iii) Pasteurizer throughput/hour:, LPH=
  - (iv) Packing throughput /hour:= LPH
- b) Cost of cleaning and sanitization, cost of testing material, cost of packaging, cost of various utilities and cost of raw materials used in manufacture.
- c) Overhead charges required for each milk products in dairy plant.
- d) Contribution from each milk products. Overall contribution and profit per Kgs milk.
- e) Compare the result with standards (national/international/past result/target set for the period).
- f) Status of meeting legal standard.
- g) Status of plant maintenance.
- h) Status of hygiene in and around the production premises.
- i) Status of use of productivity enhancement techniques.

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### **12.4 PRECAUTIONS**

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1. Stock position should be recorded carefully in the beginning and end of evaluation period.
2. Some times same resource /utility is used for many products and dairy do not have separate measuring device. In such cases it becomes very difficult to apportion them. Proper care in separating resources for each product is required.
3. Cost of resources to be based on actual consumption basis, hence for FIFO system update stock book is maintained after each receipt and issue.