UNIT 11 WAREHOUSE RECORDS, ACCOUNTING AND CONTROL

Structure

11.0 OBJECTIVES

After going through this Unit, you will be able to:

- discuss the importance of warehouse control function and mechanisms;
- examine the documents and records to be maintained for ensuring the stock accuracy;

- analyze the product traceability using warehouse control; and
- describe about how the control function can reduce the risk of damage and losses.

11.1 INTRODUCTION

The warehouse "Control" function is an essential means to exercise tight control measures such as tracking, periodic counting and monitoring for safeguarding and protecting the stored material until it is dispatched for sale and also defined "Documentation & Record keeping" as one of the major functions essential to facilitate the receipt & inspection of the material, storage & tracking of the material and finally dispatch and shipment of the material to the desired locations. Regardless of the product stored within a warehouse, it is highly essential to ensure inventory accuracy at all times. Proper and accurate control procedures facilitate traceability of the material, reduce damage and losses due to theft and spoilage, and finally aid in ensuring the quality of the product stored. Overseeing activities within the warehouse is essential in order to exercise tight control measures.

This Unit will enable you to understand the importance of warehouse control function in safeguarding the product from point of receipt to the point of dispatch for sale or consumption. It will provide you with a list of records that are essential to ensure smooth flow of material into, within and out of the warehouse.This Unit will also make you knowledgeable about activities that need to be closely monitored in order to ensure inventory accuracy and security at all times. It will also help you understand how the warehouse control function enhances traceability of the product, ensures its quality and reduces the risk of damages or losses to the items stored within.

11.2 IMPORTANCE OF WAREHOUSE CONTROL

The importance of Warehouse Control is that it's a process of monitoring the quantity, location and state of the produce in order to store the produce for future consumption requirements; to fulfill the traceability requirements for timely delivery of the material; to provide assurance for meeting the quality requirements set by the consumer markets and to reduce the risk of damages and losses resulting from spoilage and theft.

1. **Incoming Inspection and Documentation:** To establish standard parameters for acceptance during inspections, ensuring rejected materials are returned with a detailed damage report, and accepted materials are documented with material receipt notes and warehouse receipts.
2. **Identification and Location Coding**: Tag and code accepted materials with specific identification numbers and assign location codes based on room, aisle, shelf, rack, or bin for systematic storage.
3. **Storage and Damage Prevention:** Provide clear instructions for quality assurance and damage prevention during storage, including temperature and atmospheric controls to minimize spoilage.
4. **Security Measures:** Implement proper security measures to prevent losses due to theft and ensure restricted access to storage areas.

5. **Stock Accuracy Maintenance:** Maintain accurate stock records reflecting additions from new receipts, deductions for sales, and spoilage to monitor material availability in real time.
6. **Order Fulfillment Control:** Issue accurate pick lists for timely deliveries, facilitate safe packing and handling of goods, and ensure proper marshalling for shipments.
7. **Alignment with Storage Principles:** Define appropriate locations, handling devices, and sequences for storage, ensuring safety limits and generating codes for identification.
8. **Cleanliness and Orderliness:** Maintain clean, clutter-free environments with well-marked aisles, racks, and storage areas to ensure efficient and controlled operations.
9. **Insulation and Safety Standards:** Ensure optimal insulation, humidity, and ventilation while employing secure stacking, interlocking, and fumigation practices to prevent damage and contamination.
10. **Inspection and Security Compliance:** Conduct regular inspections for spoilage, infestations, or damages and ensure traceability with predefined nomenclature for quick tracking of stored goods.

11.3 CONTROL MECHANISMS

Since a warehouse needs to be operated round the clock, the control mechanisms can be employed through manual and automated processes in order to reduce errors resulting from fatigue. Manual control would require working in shifts and automated control would require the use of monitoring devices to identify and detect deviations from normal conditions.

11.3.1 Manual Systems

Manual Systems are generally employed to meet the control requirements of smaller warehouses and are often employed where a skilled workforce is easily available for employment. Such systems often are faced with human errors resulting from fatigue and negligence. Small warehouses that are not financially capable of adopting automated systems for real time recording of transactions opt for Periodic Inventory Management Systems, wherein all the records related to warehouse transactions (receipts, issues, damages, etc.) occurring within a period (i.e. week, month, quarter or year) are considered at the end of the period to come up with the balance inventory figures. This process needs to be followed by a cycle counting process for Inventory reconciliation and adjustments.

11.3.2 Automated Systems

Automated systems are generally employed to meet the control requirements of larger warehouses where it is difficult to execute tight control with manual processes, considering the large volumes of material flows in and out of the warehouses.

Such warehouses opt for Perpetual Inventory Management Systems, wherein technological solutions and IT-enabled infrastructure systems such as point of sale scanners, bar code readers, multi-stage computer terminals, etc. are adopted to record transactions in real time. Thus, automated systems can provide real-time inventory balances without waiting for the end of the period cycle counting. But automated systems for managing Inventory may sometimes fail to provide accurate information as the quality of output depends on the quality of input that is fed into these systems. In today's competitive environment most of the warehouses are adopting automotive systems in order to provide real-time data as needed and also to exercise control measures in a dynamic fashion using the real time data for efficient storage of material within the warehouse. Technological advances are increasingly enabling more and more warehouses to adopt the real-time Inventory Management Systems.

11.3.3 Physical Inventory/Cycle Counts

Physical Inventory Process often employs manual methods wherein the complete inventory stored within a warehouse is physically counted at the end of a financial quarter or year to reconcile the physical inventory with the book inventory. This process would result in complete shutdown of warehouse operations at the end of a financial quarter or year to conduct the counts physically for making necessary adjustments to reconcile the physical inventory with the book inventory and also to come up with corrective actions and procedures to reduce the deviations. **Cycle Counting Process** is often employed to avoid complete shutdown of the warehouse operations at the end of the financial quarter or year. A cycle counting program is used to count a certain percentage of inventories each month. Such programs often allow twenty percent of the entire stock to be counted physically per month. These programs would also enable identification of problems at a faster pace compared to the physical inventory, and thus, initiate corrective actions or problem fixes at a faster pace. The control procedures and cycle count frequencies/schedules are based out of inventory classification schemes (ABC, FSN, etc.) as defined in Unit 14.

Activity 11.1:

Visit a nearby storage facility and identify the kind of control mechanisms employed to ensure inventory accuracy for the material stored within the facility.

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Check Your Progress 11.1

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

1. Briefly describe the Perpetual Inventory Management Systems?

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2. Briefly describe the Cycle Counting Process?

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11.4 DOCUMENTATION ESSENTIAL FOR WAREHOUSE INVENTORY MANAGEMENT

Timely recording of data relative to all warehouse transactions (receipts, inspections, storage, damages, issues, etc.) facilitates timely preparation of documentation needed at all pre-defined stages of warehouse operations and also provides updates on the total stock or the stock of a particular stock item within the warehouse at any point of time. Well-maintained records also aid in stock reconciliation and valuation.

"Documentation & Record keeping" was defined one of the major warehouse functions essential to facilitate the receipt & inspection of the material, storage & tracking of the material and finally dispatch and shipment of the material to the desired locations. Real-time data availability would also enable dynamic control measures to be adopted for efficient storage of material within a warehouse.

Documentation Essential for Efficient Control of Inventory

Proper documentation is the backbone of efficient inventory control, ensuring accurate tracking and management of stock levels. Comprehensive records minimize errors, support timely decision-making, and enhance overall operational efficiency. The essential documentation efficient control of Inventory are as follows:

11.4.1 Incoming Inspection Reports

The inspection reports indicate compliance of the material received against the set of acceptance criteria that is pre-defined based on the kind of material received for storage. These reports would help validate the quality and quantity of material received against the quality expectations set out by the end consumer. These reports are prepared after evaluation of the documentation (packing lists, shipping note etc.) received along with the goods and such documentation is used to assure compliance of the material received with the set of criteria (size, quantity, volume, packing, special handling requirements, etc.) defined in the documentation received along with the material. Experienced persons are appointed to grade the quality of the product received to provide acceptance for storage or to reject the receipt if the condition of the goods in not acceptable for storage.

If the material received complies with all the acceptance criteria specified by the warehouse, then the material is received into the warehouse by assigning a code (Bin Cards) for storage and identification. This process is followed by the issue of Warehouse Receipt to the depositor if the incoming material gets accepted for storage. If the material gets rejected for storage, then also the warehouse needs to protect the goods from damage until it is handed over to the supplier. Deviation reports are prepared in case of shipment rejections and good receipt slips (Material Receipt Notes) are prepared in case of shipment acceptance.

11.4.2 Material Deviation Reports

These reports indicate the deviation of the goods received from the pre-defined acceptance criteria and also list the quantities that deviate from the conditions necessary for acceptance. These are sent out to the supplier to facilitate material returns.

11.4.3 Material Receipt Notes

These reports indicate acceptance of the material for storageand include:

- Receipt serial number;
- Name & location of the warehouse where the material is deposited;
- Bin card details indicating the location of storage within the warehouse;
- Date on which the material gets accepted for storage;
- Type of commodity stored;
- Quantity of commodity stored;
- Quality of the commodity in terms of grade and certifications provided by standardized authorities;
- The valuation of goods based on the market value on the day of the issue of the receipt; and
- Details of insurance in cases where the goods are insured.

11.4.4 Warehouse Receipts

Receipt is also a kind of legal documentation that is received in response to a deposit made in some form. A warehouse receipt is a document issued to declare or state the ownership of an asset or commodity stored in a warehouse. It serves as a warranty issued by the warehouse to the person depositing the material for storage. It is a legal document issued as proof of ownership of the goods deposited. Warehouse receipts are the title documents issued by the warehouses to the depositor against agricultural goods deposited for storage within the warehouse.

The Warehouse receipts need to provide certain basic information such as:

- Receipt serial number;
- Name & location of the warehouse where the material is deposited;
- License number of the warehouse to assure legal authenticity for storage;
- Date of issue of the receipt;
- Type of commodity stored;
- Quantity of commodity Stored;
- Quality of the commodity in terms of grade and certifications provided by standardized authorities;
- Storage and additional charges as applicable;
- The valuation of goods based on the market value on the day of the issue of the receipt;
- Details of Insurance in cases where the goods are insured; and
- Form of receipt (Negotiable or Non-Negotiable).

11.4.5 Bin Cards

A bin card is a quantitative record indicating the receipts, issues and balances of each and every kind of material stored within the warehouse. It also lists the unique identification code of the material along with the clear description of the material. It is physically attached to the bin/tote/rack/shelf in which the material is stored. To facilitate systematic storage and traceability each kind of material stored is assigned with a unique bin card.

Two bin cards are maintained for each kind of material stored, one of the cards is maintained by the store keeper and the other is attached to the bin used for storage. It is highly useful during the cycle counting processes wherein the book quantities are reconciled with the physical quantities. It enables the user to have knowledge of on hand quantities at a glance. It not only enables in recording the receipts and issues but also would assist the store keeper in controlling the stock. Entries in the bin card are made on real-time basis.

11.4.6 Inventory Control Cards

These are summary cards of all the bin cards of same type of goods stored at multiple locations in a warehouse. An Inventory control card lists the quantities of the same type of material available at multiple locations along with the location identification to enable traceability and facilitate the issue of material for shipment.

11.4.7 Store Ledgers

This is a record indicating receipts, issues and balances of material in both quantities and values. It is maintained by the costing department and is not under the control of the store manager. It facilitates a check on the quantities recorded in the bin cards. Entries in the store ledger are made periodically using the quantities listed in the material receipt and shipment documentation. After entries are made in the bin cards, the receipt and issue documentation are handed over to the ledger clerk for posting periodic entries into the ledger.

11.4.8 Material Damage Reports

Material that gets damaged during storage needs to be segregated from good material to avoid contamination and a damage report needs to be filled out, listing the quantity of material damaged, kind of damage incurred and if possible, the report also needs to list out the possible causes of the damage to facilitate corrective actions. These reports are often used to facilitate inventory adjustments relating to damages that occur during the storage of materials. The reports are also used for periodic review of damages in order to take up necessary corrective actions such as changes in storage conditions or developing specialized training if trends are discovered.

11.4.9 Material Transfer Notes

These are prepared when material is transferred from one warehouse to the another. It lists the quantities transferred along with the details of the warehouse where the material needs to be transferred to. The transfer notes also list all the packing and handling requirements to be followed during transit to ensure the quality of the produce.

11.4.10 Shipping Documents

A store issue requisition listing the material and quantities to be shipped is essential to initiate the issue process. Then pick lists that define the type of materials to be picked along with the quantities and locations from which the pick has to be made are prepared to facilitate the material issue from the stores. Packing lists are also prepared indicating the list of items with respective quantities to enable shipments. Shipping notes are prepared to indicate the handling requirements to be followed to ensure the quality of the produce.

11.4.11 Stock Verification Reports

These reports are used during the cycle counting/physical inventory process; these reports indicate a list of items along with their book quantities and also provide a slot for entry of the actual quantities based on physical counts. These reports enable reconciliation between the book and physical values to ensure stock accuracy.

Activity 11.2:

Visit a nearby agricultural storage facility and identify the list of documentation prepared for efficient control of inventory stored within the facility.

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Check Your Progress 11.2

Note: a) Use the spaces given below for your answers.

b) Check your answers with those given at the end of the unit.

1. Briefly explain the Material Receipt Notes?

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2. Differentiate between Bin Cards and Store Ledgers?

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11.5 TRACEABILITY WITH WAREHOUSE CONTROL

Traceability of material within the warehouse is highly essential to facilitate on-time delivery of goods by speeding up the picking and issue processes. It also enables real-time accounting of the on-hand balance of each and every item stored within the warehouse. Traceability systems can be employed by introducing proper location and product identification systems such as bar codes and Radio-frequency identification (RFID) tags. Warehouse control enables material traceability. to avoid shipment, storage and material handling errors. ERP (Enterprise Resource Planning) Systems are also employed to track material movements (inventory transactions) efficiently. Material Identification systems are also employed in coordination with the ERP systems to accelerate the identification processes and reduce the occurrence of errors.

11.6 ASSURANCE OF QUALITY WITH WAREHOUSE CONTROL

Spoilage/Damage reduction can only be facilitated through efficient control measures such as:

Quality Maintenance: The produce that gets accepted for storage has to be maintained for quality by providing proper storage conditions.The store manager has to ensure reliable operation of storage equipment essential for maintaining the needed storage conditions to prevent spoilage of the produce. The reliability and performance of equipment can only be achieved through planned preventive maintenance schedules. In addition, the store manager has to develop a schedule for routine inspection of the goods stored to separate out damaged or inferior products to curb spoilage from contamination. Temperature alarms and state-of-the-art temperature monitoring systems have to be put in place to provide warning signals for detection of deviations in temperature to prevent undetected losses in refrigeration and also for facilitating maintenance of standard temperatures required for storage. Storage temperatures are to be continually tracked for continuous improvements and corrective actions.

- **Inventory Control & Tracking:** State-of-the-art inventory control and tracking systems have to be put in place by issuing unique identification codes and lot numbers for shelf-life monitoring, stock rotation, stock placement and positioning of goods.
- **House Keeping Practices:** The spoiled goods need to be separated out in a timely fashion and cleaning schedules have to be implemented effectively to avoid contamination and deterioration of goods.No single process will aid in curbing the spoilage losses, but the risk of spoilage can be predominantly reduced by continuous application of the above control measures.

Check Your Progress 11.3

Note: a) Use the spaces given below for your answers.

b) Check your answer with those given at the end of the unit.

1. Explain how warehouse control enables traceability of material stored within the warehouse?

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2. Mention the control measures adapted for assuring the quality of the produce?

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11.7 SECURITY WITH WAREHOUSE CONTROL

The store has to be secured from merchandize theft and illegal entry with a criminal intent. There are two possible risks associated with intrusion, one is theft and the other is the criminal intent to intentionally set fire and damage the property, goods and image. The degree of risk associated with theft is dependent on the market value of goods stored and ease of transferability of the goods stored. Control measures have to be implemented based on the degree of risk associated and to provide the storage with the appropriate level of protection.The kinds of control measures include passive control and active control.

- **Passive Control Measures:** These emphasize on delaying the entry into the warehouse for as long as possible. Usage of sturdy door locks; secured access to keys; sliding metal shutters over doors; installation of window bars made of steel and reinforced safety glasses for windows are few of the measures that facilitate in delaying the entry into the storage area.
- **Active Control Measures:** These emphasize on intruder detection and initiation of alarms in case of intrusion. Installation of presence detectors (passive infrared detectors that sense intrusion in the event of temperature differences) in rooms, corridors and transit areas near the doors, gates and windows; magnetic contact sensors on doors and windows; breakage sensors. These systems trigger alarms that are connected to alarm reception centers via Global System for Mobile Communications (GSM) or Switched Telephone Network systems.

Formal surveillance systems can be used by employing security staff and installing closed circuit television cameras (CCTV) for securing images. The organizations can also implement informal surveillance systems by operating 24/7 in three shifts, providing adequate external lighting and ensuring clear visibility around the warehouse to eliminate hiding spots for intruders

Safety programs can also be designed to define internal safety control policies and procedures in accordance with the Occupational Health and Safety Administration (OSHA) guidelines. Control measures such as pre-employment background checks and credit checks aid in ensuring a safe work environment. Also, identification policies and procedures such as usage of employee badges, time clocks and recognition systems aid in safeguarding access to company buildings, systems and property.

11.8 LET US SUM UP

Control encompasses all the major warehouse activities as it is highly desirable to monitor and oversee all the warehouse operations for safeguarding the produce from point of receipt to the point of dispatch for sale or consumption. Control measures are essential to ensure safe handling of the material from point of receipt to the point of storage; to monitor and provide temperatures/atmospheric conditions essential for controlling spoilage during the storage processes & to reduce the risk of losses due to theft by employing proper security measures. Control is exercised to manage the goods stored within the facility to ensure quantity accuracies and quality assurance. The inventory held for storage is controlled through perpetual inventory management systems, periodic inventory management systems, physical inventory procedures or cycle counting procedures. These procedures enable the store manager to become knowledgeable about quantity and quality of each of the material stored within the warehouse on real-time basis.

Control is also exercised through information management *i.e.* timely recording of information relative to all warehouse transactions (receipts, inspections, storage, damages, issues *etc.*). This enables the store manager to accurately control the quality of the produce by initiating corrective actions to control damages from spoilage and contamination and also accurately control the quantities of the produce stored by incorporating the essential security measures to prevent quantity losses from theft. Also warehouse control enables material traceability through adoption of bar code, RFID tags, ERP systems etc. to avoid shipment, storage and material handling errors. Also, the control function enables smooth flow of operations within the warehouse like quality receipts into the warehouse through inspection of the material, storage and tracking of the material and finally dispatch and shipment of the material to the desired locations. Real-time data availability would also enable dynamic control measures to be adopted for efficient storage of material within a warehouse.

11.9 KEYWORDS

ABC Classification : A type of inventory classification where inventory is categorized based on unit costs and material usage over a given period.

Bar Code : A representation of data pertaining to an object in an optical machine-readable format.

Deterioration : Reduction in value or quality.

Enterprise Resource Planning (ERP) System : An information management system that integrates multiple functions within an organization.

Fatigue : A state of feeling tired or exhausted.

FSN Classification : A type of inventory classification where inventory is categorized based on the frequency of material movement in and out of the storage facility.

Fumigation	: A process of pest control where an area is filled with smoke or fumes to exterminate pests.
Germination	: A process that involves the growth of a plant from a seed.
Maneuverability	: The ability to skillfully change movement or direction.
Marshalling	: Arranging things in a proper order.
Nomenclature	: The system or procedure of assigning names for classification or identification of materials.
RFID (Radio Frequency Identification)	: A wireless technology that uses electromagnetic fields for the transfer of data.
Traceability	: The ability to identify the location of goods within a warehouse.

11.10 SUGGESTED FURTHER READINGS/ REFERENCES

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11.11 ANSWERS TO CHECK YOUR PROGRESS

Check Your Progress 11.1

1. Perpetual Inventory Management Systems are automated systems wherein technological solutions and IT enabled infrastructure systems such as point of sale scanners, bar code readers, RFID tags, multi-stage computer terminals etc. are adopted to record transactions in real-time. So, automated systems can provide real-time inventory balances without waiting for the end of the period cycle counting.

2. Cycle counting process is often employed to avoid complete shutdown of the warehouse operations at the end of the financial quarter or year. A cycle counting program is used to count a certain percentage of inventories each month. Such programs often enable twenty percent of the entire stock to be counted physically per month. These programs would also enable identification of problems at a faster pace compared to the physical inventories, so would also initiate corrective actions or problem fixes at a faster pace. The control procedures and cycle count frequencies/schedules are based oninventory classification schemes (ABC, FSN, etc.).

Check Your Progress 11.2

1. Material Receipt Notes indicate acceptance of the material for storage. These also list the

   - Receipt serial number.
   - Name and Location of the warehouse where the material is deposited.
   - Bin card details indicating the location of storage within the warehouse.
   - Date on which the material gets accepted for storage.
   - Storage duration, *i.e.* the time limit for storage expressed in the form of weeks.
   - Type of Commodity Stored, Quantity of Commodity Stored, Quality of the Commodity in terms of grade and certifications provided by standardized authorities.
   - The valuation of goods based on the market value on the day of the issue of the receipt.
   - Details of Insurance in cases where the goods are insured.

2. Following are the main differences between bin card and store ledger.

   User: Bin card is maintained by the storekeeper. Store ledger is prepared by cost accounting department.

   Content: Bin card is a record of quantities only. Store ledger is a record of quantities and values.

Period of Recording: In bin card, entries are made immediately after each transaction. In storeledger, entries are made periodically.

Responsible Department: Bin card is kept inside the store. Store ledger is kept outside the store.

Check Your Progress 11.3

1. Warehouse control enables traceability by using location and product identification systems like barcodes and RFID tags, ensuring real-time tracking of inventory, speeding up picking and issuing processes, and reducing errors through ERP system integration.
2. Quality of stored produce is assured by maintaining proper storage conditions, regular equipment maintenance, routine inspections, temperature monitoring, and quick removal of damaged goods. Inventory control using identification codes and strong housekeeping practices further help reduce spoilage and contamination risks.