Lesson B4–6

Inventorying Products and Supplies

Unit B. Starting and Operating the Agribusiness

Problem Area 4. Operating the Agribusiness

Lesson 6. Inventorying Products and Supplies

New Mexico Content Standard:

Pathway Strand: Agribusiness Systems

Standard: **IV:** Employ AFNR industry concepts and practices to manage inventory.

Benchmark: **IV-A:** Monitor inventory levels to accomplish practical inventory control.

Performance Standard: **1.** Maintain optimum inventory levels. **2.** Apply just-in-time concept. **3.** Calculate cost of carrying inventory. **4.** Perform logistics management.

Student Learning Objectives. Instruction in this lesson should result in students achieving the following objectives:

1. Identify costs associated with maintaining an inventory.
2. Describe the relationship between inventory and lost sales.
3. Discuss the importance of inventory records.
4. Identify the methods of determining the cost of inventory.

List of Resources. The following resources may be useful in teaching this lesson:

Recommended Resources. One of the following resources should be selected to accompany the lesson:

Gibson, Jerry D., et al. *Agribusiness: Management, Marketing, Human Resource Development, Communication, and Technology.* Danville, Illinois: Interstate Publishers, Inc., 2001. (Textbook, Chapter 9)

Newman, Michael E. and Walter J. Wills. *Agribusiness Management and Entrepreneurship.* Danville, Illinois: Interstate Publishers, Inc., 1994. (Chapter 12)

Other Resources. The following resources will be useful to students and teachers:

VAS 6010, *Inventory Management and Control,* Urbana, Illinois: Vocational Agriculture.

List of Equipment, Tools, Supplies, and Facilities

Writing surface
Overhead projector
Transparencies from attached master

Terms. The following terms are presented in this lesson (shown in bold italics):

Back order
Cost price
Finished goods
First-in, first-out
Inventory reconciliation
Last-in, last-out
Product obsolescence
Shrinkage
Weighted average method

Interest Approach. Use an interest approach that will prepare the students for the lesson. Teachers often develop approaches for their unique class and student situations. A possible approach is included here.

Begin this lesson by asking the student where they would rather go look for a new car, a dealership with only two cars or a dealership with a hundred cars. Ask them why they chose the one they did. What advantages does the bigger dealer have? What additional costs does he have? Lead discussion to the idea of the differing inventories of the dealership.

Summary of Content and Teaching Strategies

Objective 1: Identify costs associated with maintaining an inventory.

Anticipated Problem: What are the costs associated with maintaining an inventory?

I. The manager of a business should be concerned with the effective management of inventory. He or she should strive to maintain an inventory sufficient enough to adequately meet the needs of the customer, while keeping the inventory at a level that will minimize cost. The two most apparent costs of inventory are: (1) the capital investment in the inventory and (2) the investment in space and facilities to store the inventory. There are four basic factors that play into these costs of inventory. They are:

A. The amount of finished goods a business must have on hand. ***Finished goods*** are goods in the state or form in which they are to be sold. This factor relates to how quickly a business can fill a customer's order for products. The longer the manufacturing time needed to make the product, the larger the inventory needed.

B. The second factor that is closely related to inventory cost is the cost of a back order. A ***back order*** is an order not yet filled. If a company is not able to fill an order, a percentage of its customers will be willing to accept the delayed delivery, but others will obtain a similar product elsewhere.

C. A third factor that is related to the effective use of space is product obsolescence. ***Product obsolescence*** refers to whether or not a product is out-dated. Some products cannot be carried from one year to the next. Therefore, a business would not want to carry a large inventory in case all of the product could not be sold.

D. The fourth factor to consider is seasonality of products. Some products are only used during certain times of the year or maybe are used more at a certain time if used year-round. It is important that a businesses inventory be prepared for these seasonal changes.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to help understand the costs associated with maintaining an inventory. Chapter 12 in Agribusiness Management and Entrepreneurship is recommended.

Objective 2: Describe the relationship between inventory and lost sales.

Anticipated Problem: What is the relationship between inventory and lost sales?

II. The major relationship between inventory and lost sales lies in the cost of a back order. As stated in objective one of this lesson, if a company is not able to fill an order, a percentage of its customers will be willing to accept the delayed delivery, but others will obtain a similar product elsewhere. Every business must establish a best estimate as to the magnitude of the cost of being unable to provide delivery of a product at the time of customer demand. In relation to this estimate, it may be found that there are some rather large differences of opin-

ion between departments within the business, depending partly upon business custom and partly upon the nature of the product involved. Losses due to the business' inability to fill an order occur in three ways:

A. Customers cancel the order because they are unwilling to wait for a back order.
B. Customers obtain a similar product elsewhere and then refuse or cancel the back order.
C. Customers go elsewhere and permanently transfer all of their business activities to another business.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to help understand the relationship between inventory and lost sales. Chapter 12 in Agribusiness Management and Entrepreneurship is recommended.

Objective 3: Discuss the importance of inventory records.

Anticipated Problem: What is the importance of inventory records?

III. In a business it is necessary to maintain adequate inventory records to permit sound inventory control decisions. For all products these records should include the cost price, quantity of product, and its location. ***Cost price*** refers to the actual cost to the business of manufacturing or purchasing the items in its inventory. If a business handles a very small number of products, the inventory control and management system may be very unsophisticated. As the number of products increases, the need for a more complex system becomes more evident. In many businesses, the inventory system in maintained on computers. In some larger companies the inventory system is automated in the sense than when the inventory reaches a certain level, the computer automatically orders more product to maintain the programmed inventory.

A. As part of the inventory records system, a physical inventory count of all products on hand should be carried out at periodic intervals. At a minimum this should be done on an annual basis. The frequency of physical inventories is dictated by several factors:
   1. The characteristics of the product.
   2. The rate of turnover of the product.
   3. The rate of turnover of personnel.
   4. The frequency with which non-employees have access to the storage area.
B. Seldom will a physical inventory of all products reflect identical figures to those shown on the inventory record. There are many reasons for ***shrinkage*** or loss.
   1. Pilfering—Once a business has recognized the nature and extent of loss from this source, it is in a better position to take the necessary corrective measures to reduce this as a potential loss source.
   2. Waste or damage—This may occur due to poor warehousing practices such as improper use of equipment during loading and unloading operations.
   3. Losses related to storage and/conversion factors—An example of this would be the storage of 20 percent moisture corn which, during storage is reduced to 14 percent

moisture. In this case an ***inventory reconciliation*** or adjusting of inventory records, must take place. Every business will experience a percentage loss in inventory due to storage loss. It should be the goal of the business to keep this percentage as low as possible.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to help understand the importance of inventory records. Chapter 12 in Agribusiness Management and Entrepreneurship is recommended. Use TM: B4–6A to aid in discussion on this topic.

Objective 4: Identify the methods of determining the cost of inventory.

Anticipated Problem: What are the methods of determining the cost of inventory?

IV. In making the necessary financial entries related to inventory, there is the problem of what to maintain as the unit cost price of a product. The cost price of a product, depending upon the overall economic conditions, can have a major effect on the short-term profitability of an operation. This is reflected on the business's financial statement. When a business buys a product or raw material the cost price of the item may be different than those already on hand. There are three basic inventory valuation methods that a business can use. In the long-term it makes relatively little difference which method a business uses, however in the short-term it may make a big difference. Whatever method is chosen, inventory records should be kept on a consistent, comparable basis year after year so to avoid the types of discrepancies that occur when the method of pricing inventory records is constantly being changed. The inventory pricing systems are:

A. ***First-in, first-out (FIFO)***—This system puts inventory valuation according to the cost of the product when it was purchased.

B. ***Last-in, last-out(LIFO)***—This follows the policy of using a replacement cost for the product.

C. **Weighted Average Method**—In this system costs should be charged against revenue on the basis of an average, taking into consideration the number of units acquired at each price and determining the average.

A variety of techniques may be used to assist students in mastering this objective. Students should use text materials to help understand the methods of determining the cost of inventory. Chapter 12 in Agribusiness Management and Entrepreneurship is recommended.

Review/Summary. Use the student learning objectives to summarize the lesson. Have students explain the content associated with each objective. Student responses can be used in determining which objectives need to be reviewed or taught from a different angle. Questions at the end of each chapter in the recommended textbooks may also be used in the review/summary.

Evaluation. Evaluation should focus on student achievement of the objectives for the lesson. Various techniques can be used, such as student performance on the application activity. A sample written test is attached.

Answers to Sample Test:

Part One: Matching

1. e
2. c
3. a
4. d
5. f
6. b

Part Two: Completion

1. Product obsolescence
2. elsewhere
3. consistent, comparable

Part Three: Short Answer

See Objective 4 in the lesson for scoring this question.

Sample Test Name_____

Test

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Part One: Matching

Instructions. Match the term with the correct response. Write the letter of the term by the definition.

a. Back order	b. Finished goods	c. Cost price
d. Shrinkage	e. First-in, First-out	f. Inventory reconciliation

_____ 1. This system puts inventory valuation according to the cost of the product when it was purchased.

_____ 2. The actual cost to the business of manufacturing or purchasing the items in its inventory.

_____ 3. An order not yet filled.

_____ 4. Loss.

_____ 5. Adjusting of inventory records.

_____ 6. Goods in the state or form in which they are to be sold.

Part Two: Completion

Instructions. Provide the word or words to complete the following statements.

1. _____ _____ refers to whether or not a product is out-dated.
2. If a company is not able to fill an order, a percentage of its customers will be willing to accept the delayed delivery, but others will obtain a similar product _____.
3. Inventory records should be kept on a _____, _____ basis year after year.

Part Three: Short Answer

Instructions. Provide information to answer the following question.

Compare and contrast the three methods of inventory valuation.

TM: B4–6A

REASONS FOR SHRINKAGE OR LOSS

Pilfering

Waste or damage related to storage and/conversion factors