ANALYSIS AND IMPROVE THE PROCESSED RADISH BUSINESS WAREHOUSE EFFICIENCY: A CASE STUDY OF MAE TONG SUK RADISH.

Ananyot Sreekeaw*, Pongsatorn Sukpanya&Martusorn Khaengkhan*****
College of Logistics and Supply Chain, Suan Sunandha Rajabhat University, Bangkok, Thailand*Email: *s59127343035@ssru.ac.th, **s59127343021@ssru.ac.th,***martusorn.kh@ssru.ac.th*

ABSTRACT

Analysis and improve the processed radish business warehouse efficiency: Mae thong suk radish case study, this research aims to solve the processed radish warehouse management systems problem. Interviewed are research tools in which warehouse managers and staff are interviewed. The fishbone diagram is used to analysis the warehouse management systems cause and main problem. The analysis results found that the product's storage and distribution are not systematic, important products are not classified and product picking errors are often occurred. Therefore, this study's objective is to find the method solution for solving the problem. The ABC analysis and visual control are used to solve the problem. The new products planning are designed by using ABC analysis concept as follows: Class A, product price is more than 60 baht per unit with 4 items, 30.76% of total products and the products quantity and value are 1,987 kg and 119,220 baht, respectively. Class B, product price is between 50 - 60 baht with 5 items, 38.46% of total and the products quantity and values are 2,780 kg and 140,000 baht, respectively. Class C, product price is less than 50 baht per unit with 4 items 30.76% and the products quantity and products value are 3,070 kg and 122.800 baht, respectively. Then, Visual Control is used for tagging to increase visibility and reduce errors in storage and distribution.

Keyword: Warehouse management, ABC analysis, Visual control

INTRODUCTION

Currently, the business sector is recognized the importance of logistics management cost which is inherent in all business activities and industry. Causing in the logistics process development is to be more complicated. Therefore, the strategy is used to drive business to be more competitive. Due to these issues, the popularity of Third Party Logistics Provider or 3PL has increased which is a more complete logistics specialist and lead to the trend of using Premium Warehouse business. The warehouse rental business is also designed and built to better facilitate the integrated logistics system. Moreover, some of the large retailers with complete logistics capabilities have expanded their operations to construct premium warehouses for use in their own businesses. Therefore, the warehouse structure of Thailand has gradually changed to the operation of the premium warehouse and there is a lot of competition in the warehouse business. In terms of management, both work processes need to be modernized by cutting work procedures that have no value to customers in order to meet the needs of users.

The business that the researcher studied is the agricultural product processing factory of Mae Thongsuk shop. There are main products processing of radishes into various forms in Ratchaburi. There are operating procedures which are pickling radish, then processed into various forms such as fuzzy, sheets, dice, and mash and pickled by dividing into 2 forms which are sweet and salty. After that put it into the packaging in which the packaging is divided into many forms such as bucket, bags and packaging with the Mae Thongsuk logo. Finally, the products are transferred to the warehouse. The raw material warehouse and finished goods warehouse are studied in this research. From the survey, there are problems regarding the appropriateness of the product placement for storage in the warehouse. To be a guideline for improving the storage layout of the products to be more efficient, management tools are used to analyze and solve storage problems that are currently not systematic.

RESEACH OBJECTIVES

To proposed a solution for solving warehouse management system problem at Thong Mae Thongsuk Radish factory.

RESEARCH SCOPE

Analysis and improve the processed radish business warehouse efficiency: Mae thong suk radish case study.

The survey and interviews are used for collecting the information in which warehouse supervisor and manager are interviewed.

1. Scope of content

To study problems and obstacles in order to find the solution for improving logistics management methods (warehouses) in order to increase the competitiveness of the warehouse organization as the following topics:

- Warehouse Management
- ABC analysis
- Visual control

2. Scope of area

The radish processing warehouse management problems at Mae Thongsuk Radish Business Chet Samian, Photharam, Ratchaburi 70120

3. Scope of time

Analysis and improve the processed radish business warehouse efficiency: Mae thongsuk radish case study in which data is collected from January 2562 - April 2562.

LITERATURE REVIEW

ABC Analysis and Pareto's law in warehouse management

Stock and Lambert, 2001 concluded that ABC Analysis is a concept that focuses on products importance by ranking according to high consumption or product value which can be grouped as follows:

Group A is 10% of products with products value is up to 70%.

Group B is 20% of products with products value 20%.

Group C is 70% of products with 10% of products value.

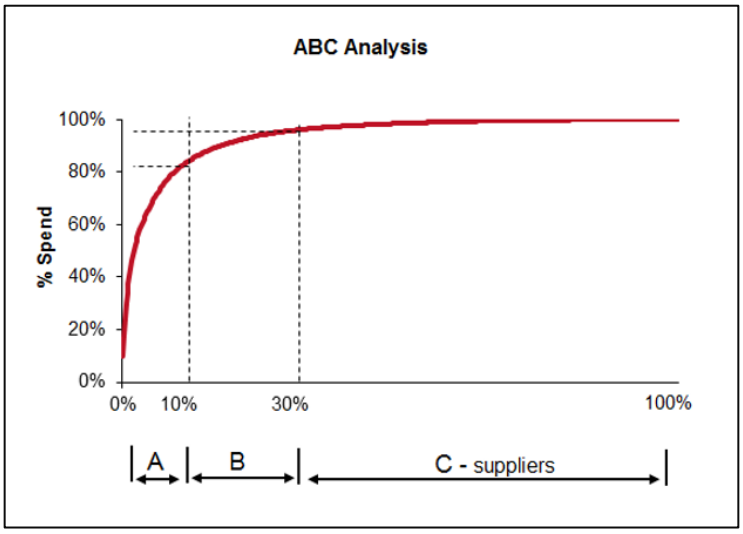

Figure 1 diagram by Stock and Lambert, 2001.

Visual Control concept

Visual Control is not limited to the operational level, but also reflects the management philosophy and the organization policies. There are covered setting annual goals and operational plans, in order to support quickly recognize the current situation as a machinery tool for production, quality and maintenance controls. Visual Control is a process that focuses on process & delivery control, quality control, work control, object control, equipment, fixture and tool control. It also covered maintenance issues, safety protection and administrative management. The Visual Control design must have the principles of operation in accordance with the work environment both in physical and human engineering for the integrity of the Visual Control system. Visual Control is classified according to the benefits in the application as follows.

1. Safety reasons, such as various types of safety symbols.
2. To improve quality, for example, good work characteristics, bad work.
3. Inventory management, such as various product type labels.
4. Machine maintenance, such as the maximum and minimum level of engine oil.
5. Sales promotion such as billboards.
6. To monitor the performance, such as a graph showing the performance of each department with visual control media preview based on communication characteristics.

It can be concluded that the Visual controls are increased the visibility which can distinguish between things. The easiest technique to separate and the most obvious is the color, which makes it possible to know the process of communication and is useful in many areas mentioned above.

RESEARCH METHODOLOGY

Data collection

Primary data and secondary data are used for collecting data as detailed below.

1. The primary data is collected from primarily process and operational problems by observing the behavior of employees while operating experience and interviews the warehouse supervisor and management.
2. Secondary data is collected data from the documents, academic articles, theories and research related by analyzing data. According to the analyzed results can support the results to be more reliable, as the following steps.

2.1 Surveying and collecting general problems to be used as data for selection and analysis.

2.2 Study the work process, including each process activities, from the goods receipt and the operation details of each activity used in the operation.

Data analysis and solution of problems.

Regarding to the data collection and data analysis from the case study in which the problem has analyzed found the warehouse management problem as follows;

1. Goods are not place into categories.
2. Employees have miscommunication in storage and distribution of products.
3. The products are not classified according to importance level.

After that, methods for solving the problem are studied and various theories are used for solving the warehouse management problems as following

1. ABC analysis
2. Visual control

After calculating the new results to find a solution to select a new product plan that is suitable by focus group meeting, the researcher has arranged the group meeting with 3 supervisors and manager with the questions in the interview as follows

1. What is your opinion of the current product storage planning?
2. What do your expected outcome from meeting by using the fishbone diagram?
3. What is your opinion on the use of the product classification analysis according to the importance products level?
4. How does vision control approach is useful?
5. What are factors that may affect the storage space allocation plan?
6. Do you have any other comments and proposals?

RESULTS

The warehouse operations of the company, a case study of storage for use in assembly of the company's structure. The products prices are similarly production. There are 13 products with a price between 40-100 baht per unit. Products are set in a price range for product grouping by ABC Analysis as follows:

- Class A is products price is more than 60 baht per unit.
- Class B is products price between 50 – 60 baht per unit.
- Class C is products price is less than 50 prices per unit.

Therefore, the criteria used to classify with the ABC analysis as;

1. Unit price
2. Items stored in the warehouse.

The data is analyzed by using ABC Class Analysis with divided as;

13 item 13 by grouping ABC analysis.

Table 1
Number of items to be stored by using ABC analysis

ABC Analysis	Range of price	Goods	Quantity (KG)	Price (Baht)
Class A	P>=60 THB	4	1,987	119,220
Class B	50<P<60 THB	5	2,780	140,000
Class C	P<50 THB	4	3,070	122,800
Grand total		13	7,837	382,020

Table 2
Items list by grouping ABC analysis

Number	Name of goods	Types of goods	ABC Analysis	Quantity (KG)	Price (Baht)
1	Processed radish, Fuzz	Salty good grade	A	987	60
2	Processed radish, Rondelle	Salty good grade	A	145	60
3	Processed radish, Dice	Salty good grade	A	262	60
4	Processed radish, Grind	Salty good grade	A	593	60
5	Processed radish, Fuzz	Sweet	B	420	50
6	Processed radish, Rondelle	Sweet	B	220	50
7	Processed radish, Dice	Sweet	B	956	50
8	Processed radish, Grind	Sweet	B	784	50
9	Processed radish, Spicy	Sweet	B	200	55
10	Processed radish, Fuzz	Salty	C	1,936	40
11	Processed radish, Rondelle	Salty	C	544	40
12	Processed radish, Dice	Salty	C	296	40
13	Processed radish, Grind	Salty	C	494	40
Grand total				7,837	382,020

The Visual control concept

After, the product categories are divided using the ABC analysis theory. Then the visual control approach is supported store or picking products to be faster and more accurately.

Product classification is implemented by using the ABC analysis theory, the visual control guidelines have been defined as follows:

1. Colors are specified by product type, which divided colors clearly and are easy to distinguish.

Table 3
The colors of each class

Group of product	Color
Class A	
Class B	
Class C	

2. Shelving design styles with the product category name is attached to shelves. Shelves are divided according to different classes with the layout as follows.

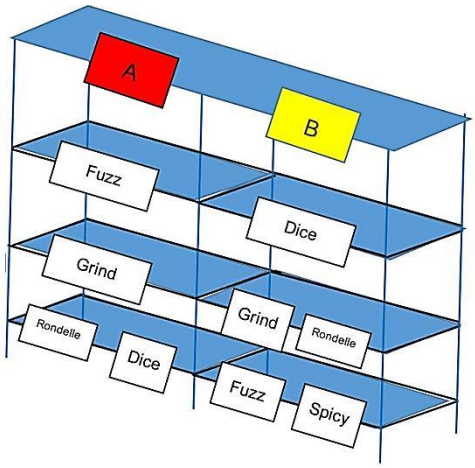

Fig.2 Shelves 1 new layout

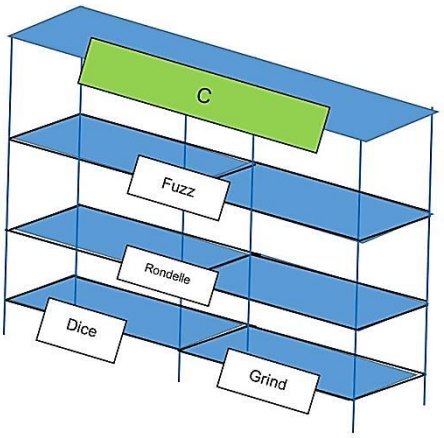

Fig. 3 Shelves 2 new layouts

CONCLUSIONS AND DISCUSSION

Regarding to this research studied with a case study of Mae Thongsuk Radish Business and warehouse management showed that data and warehouse management problem analyzed found the issues as follows. 1. Product storage and distribution is not systematic because of there is not working follow the procedure. 2. There is not categorized the product importance 3. Employees have unclear communication. Thus various theories are used for solving the company's warehouse problem.

This research's result consisted with the research of Prasert Ladsuwan (2009), the storage systems concept is used. In order to improve storage efficiency in which reducing the distance of product movement. By using the ABC analysis, which can be used in processing radish industry with the use of forecasting to find the amount of inventory that can reduce the out-of-stock or over-stocking of the warehouse and also reduce the time spent in the warehouse activities.

SUGGESTIONS

Qualitative research is used in this research case and found the cause of the problem is that the product placement is not systematic and the solutions in each area for managing warehouse activities to be more efficient. Further research may use the technology to solve problems and develop more systems to increase speed and become more international, while also supporting warehouse workers to work more conveniently, in order to reduce the complicate processes of the products searching.

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