Implementation of Kaizen Culture to Increase the Efficiency and Quality of Pasteurized Milk Products in KUD Argopuro Krucil Probolinggo

Author : Retnowati, Naning[1]; Iskandar, Ridwan[2]; Perlambang, Rizal CNAWP[3]

[1] Agribusiness Management Departement, Politeknik Negeri Jember
[2] Agribusiness Management Departement, Politeknik Negeri Jember
[3] Agribusiness Management Departement, Politeknik Negeri Jember
Jl. Mastrip Kotak Pos 164

naningretnowati83@gmail.com

Abstract. As the latest economic crisis showed, companies must take care of its resources, people and processes, if they want to survive in a competitive global market. In other hand if a company wants to be competitive, innovative and leading in its industry it has to continuously improve its processes and employees. This can be achieved through practicing *kaizen* on the daily production process.
KUD Argopuro Krucil is one of cooperative in Probolinggo district that produces pasteurized milk obtained from the farmers around. Kaizen method is a continuous improvement process that can be implemented by KUD Argopuro Krucil in every production stage to improve quality product and to reduce the production costs.
The purpose of this research are : 1) to determine the extent to which the principle of effectiveness and efficiency has been applied by KUD Argopuro Krucil in its pasteurized milk production process, 2) to determine the concept of Kaizen (sustainable improvement techniques) that can be applied by KUD Argopuro Krucil in order to improve efficiency and quality the product.
KUD Argopuro Krucil has applied the principle of effectiveness and efficiency in the process of pasteurizing milk production. Principles 5 S have been applied and the occurrences 3 M also have been minimized by KUD Argopuro Krucil, although its implementation is still not perfect, but cooperatives must be able to strive for strategies to improve customer satisfaction included: always focus on customers and do continuous quality improvement on products and production processes.
Keywords : continuous improvement process, kaizen

1. Introduction

The influence of globalization in the industrial world today has caused competition between companies to become increasingly strict and competitive. Companies are required to continue to grow so that they are able to face the competition. The company's ability to meet customer needs itself is strongly influenced by the level of quality provided by the company to customers which includes product quality, price and delivery time. Product quality is the suitability of product use to meet needs and achieve customer satisfaction [3]. "Quality is conformity with market needs"[1]. Quality is full customer satisfaction. A quality product if it can give full satisfaction to consumers, which is in accordance with what consumers expect of a product.

The higher the quality level provided by the company to customers, the higher the level of customer satisfaction. But if there is a gap between the level of quality provided by the company and the actual needs of the customer, then there will be a problem of customer dissatisfaction that must be resolved by the company. Based on this, the company is required to be able to

continuously increase its production capabilities so that it can produce products that are in line with customer desires.

Kaizen is a Japanese term for the concept of Continuous Incremental Improvement. Kai means change and Zen means good. "Kaizen" is continuous improvement carried out by eliminating waste, eliminating excess workload, and always improving product quality. The main goal of "kaizen" is to eliminate waste that does not provide added value to products or services. The waste needs to be eliminated because it causes costs that cause reduced profits.

The application of "kaizen" can be done at the beginning of the production process, during the production process, until the final process of the item is stored in a warehouse and ready to be sent to the customer. So that the goods produced have high selling value with good quality. In addition, the application of "kaizen" will reduce production costs by reducing the number of damaged products. In its application in the company, Kaizen includes an understanding of continuous improvement that involves all of its employees, both upper level management and lower level management [4]. Kaizen is a continuous improvement that involves everyone, both managers and employees [2].

KUD Argopuro Krucil is one of the cooperatives in Probolinggo Regency which works on pasteurized milk products by collecting fresh milk from farmers in the environment (region) around the cooperative. KUD Argopuro Krucil has the opportunity and potential to develop into a bigger company by making efficiency and effectiveness in the production of their pasteurized milk products. The Kaizen method is a continuous quality improvement technique that can be applied in industry (KUD Argopuro Krucil) in every production activity so that it can improve every production activity and save various production costs.

The research objectives include: 1) to determine the extent to which the principle of effectiveness and efficiency has been applied by KUD Argopuro Krucil in its pasteurized milk production process, 2) to determine the concept of Kaizen (sustainable improvement techniques) that can be applied by KUD Argopuro Krucil in order to improve efficiency and quality the product.

2. Method

The research method used is a case study, the aim is to provide a detailed explanation of the background, traits and clear characteristics of the case which later from these special traits will be made a general matter. Sources of data collected are primary data which includes direct observation and interviews with cooperatives and secondary data in the form of several documents owned by KUD, for example: SOP in the process of pasteurized milk production.

Data collection method used in this study is triangulation. Triangulation is a method that combines at least three methods such as observation, interviews and document analysis. The advantage of this method is that they cover each other's weaknesses between one method and the other, so that the results obtained from the company become more valid.

Data Analysis Method

The method of data analysis in this study is a qualitative descriptive method, namely discussion and conclusion of the research data stated in words or sentences.

Fish bone diagram can also be used as a qualitative descriptive analysis tool. Fishbone diagrams are often also called Cause-and-Effect Diagrams or Ishikawa Diagrams introduced by Dr. Kaoru Ishikawa, a quality control expert from Japan, as one of seven basic quality tools. The main function of the Ishikawa diagram is to get some key sources that make the most significant contribution to the problem being examined. These sources are then chosen for the repair process. This diagram also illustrates the relationship between various factors that might affect one another.This diagram is often also called by several names such as Ishikawa diagram, Cause-and-Effect diagram, Fishbone diagram, and Root Cause Analysis. This concept provides a reference for the main causes (big bones) originating from "4M", namely: "materials", "machines", "man", and "methods". Even though in its development, we are free to make modifications according to the

problems faced. It was only from the main cause that we broke again into specific points (small bones). The key is to get 3–6 main categories that cover the most influential things. If leaders want to get additional information and ideas, they generally brainstorm with the team that is directly related to the problems they want to solve. Big ideas are placed in "big bones" while specific ideas are placed on "small bones". The more detailed an idea to see a problem, the better. The maximum depth of "bone" is usually around four or five levels. When the picture is complete with reference to all possibilities, the process of drawing this diagram can be considered complete. This "Cause-and-Effect" diagram can be used by individuals or teams. If applied to the work team, it is initially started by a leader who describes the main problems to be discussed, then asks the work team to determine the main causes one by one by describing it on the board in the form of large and small bones. The team got involved by asking a number of relevant and significant questions, while continuing to explore all possibilities until the whole picture was filled enough to see thoroughly from all sources. After the picture is considered complete, the entire team is involved to find the possibility of the root cause of the main problem.
Ishikawa Diagram is very useful for organizations that have implemented knowledge management. Simply by gathering group ideas in a systematic way can facilitate understanding and find a diagnosis of a problem faced by an organization.

3. Result and Discussion

Principles of Effectiveness and Efficiency in Pasteurized Milk Production

1. Effectiveness

Effective means making the right decisions and implementing them successfully. Effective is the achievement of goals correctly or choosing the right goals from a series of alternatives or choice of ways and determine the choice of several other choices. Effectiveness can also be interpreted as measuring success in achieving predetermined goals.
Effectiveness shows the ability of a company to achieve precisely the goals (end results) that have been determined.

2. Efficiency

Efficiency is the minimum use of resources to achieve optimum results. Efficiency assumes that the correct goals have been determined and try to find the best ways to achieve these goals. Efficiency can only be evaluated by relative assessments, comparing input and expenditure received.
Efficiency is the most important part of management because it refers to the relationship between output and input (output / input). Efficiency shows the organization's ability to use resources correctly and there is no waste.
Organizations that achieve success are organizations that are able to create together a high level of efficiency and effectiveness.
KUD Argopuro Krucil has applied the principle of effectiveness and efficiency in the process of pasteurizing milk production. The application of the principle of effectiveness is demonstrated by the ability of Argopuro Krucil KUD to achieve the target (final product) appropriately. The resulting pasteurized milk products are always of good quality (taste and guarantee of food safety) in accordance with the wishes and expectations of consumers because KUD always applies SOP in every production process. The application of the efficiency principle is indicated by the ability of KUD to use materials correctly so that they can produce maximum pasteurized milk products (there is no waste of raw material use, no repetition of production).

5-S concept

The 5-S movement obtained its name from the Japanese initials starting with the letter S: Seiri, Seiton, Seiso, Seiketsu, Shitsuke as part of the visual management of a comprehensive program.

1. Seiri (Sorting)

Seiri means choosing and classifying items according to their type and function,

so it is clear which is not needed. KUD Argopuro Krucil in carrying out the process of pasteurized milk production has applied the Seiri principle, indicated by the grouping of production equipment according to the stages of production.

2. Seiton (Setup)

Seiton means arranging and placing materials and goods in accordance with their place so that they can be easily found or reached when needed. KUD Argopuro Krucil always emphasizes on its employees to neatly arrange all materials and tools after each use.

3. Seiso (Cleanliness)

Seiso means cleaning all facilities and work environment from dirt and throwing trash in its place. KUD Argopuro Krucil always asks his employees to always maintain the cleanliness of facilities and the environment around the cooperative, KUD also hopes that this good habit is always maintained and preserved.

4. Seiketsu

Seiketsu means maintaining all goods or equipment, clothing, workplaces and other materials in a clean and neat condition. This consolidation is the result of selection, structuring and cleaning activities, which are carried out appropriately and repeatedly. KUD Argopuro Krucil always asks its employees to always maintain all facilities as well as possible.

5. Shitsuke (habituation)

Shitsuke means forming an attitude to fulfill the rules and discipline regarding cleanliness and neatness of equipment and workplaces. KUD Argopuro Krucil always emphasizes its employees to always obey the rules and work discipline, always maintain the cleanliness and neatness of production equipment.

The concept of 3M

1. Muda

Muda all wasteful activities that do not add value or are not productive. This process seeks to suppress waste and all resource activities so that it can be of course high quality.

2. Mura

According to the terminology, it is defined as inequality, inequality, irregularity. This can be avoided through the application of the J I T (Just In Time) system specifically for the inventory field.

3. Muri

In terms of terminology is defined as excessive loading, compulsion, or beyond the limits given to resources. This event can be avoided through the provision of specifications or standards to a product or resource.

KUD Argopuro Krucil has minimized the occurrence of 3M, although its implementation is still not perfect.

Through Ishikawa diagram analysis it can be seen that the problems faced by the company are less attractive product packaging, as shown in Figure 1.

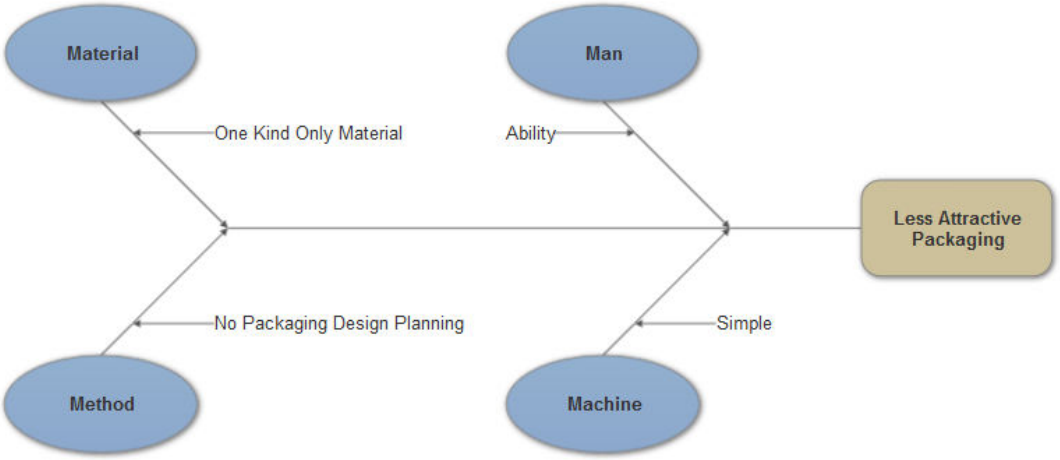


Figure 1. Ishikawa Diagram About Less Attractive Packaging in KUD Argopuro Krucil

The *effect* (problem) is shown as the fish's head, facing to the right, with the *causes* extending to the left as fishbones; the ribs branch off the backbone for major causes, with sub-branches for root-causes, to as many levels as required. The causes emerge by analysis, often through brainstorming sessions, and are grouped into categories on the main branches off the fishbone. To help structure the approach, the categories are often selected from one of the common models shown below, but may emerge as something unique to the application in a specific case.
Based on the Ishikawa diagram above, there are four main factors in the problem of less attractive packaging.

a. Man: the ability of employees in the packaging design process is still considered lacking in terms of the level of creativity in drawing attractive packaging design patterns.
b. Machine: The tools and machines used in the packaging process for pasteurized milk products are still manual using an electric sealer. The process of printing images on the press also using simple molds.
c. Material: packaging material is less attractive to consumers because only one type is made of plastic. Variations in packaging materials are needed to attract consumers, for example from paper material coated with aluminum foil.
d. Method: At KUD Argopuro Krucil there is still no packaging design, because it still focuses on the quality of pasteurized milk produced.

The Kaizen principles that should be applied by KUD Argopuro Krucil include:

1. Focus on customers. One of the seven principles of quality management is customer focus. Not surprisingly, it is customers who make us in business. It is the customer who finances the operations of the company and the customer that keeps the company still exist. Focus on customers must be reflected in every part of the quality management system that is created. One that needs attention is in making quality objectives. In making a quality goal, we are confronted with setting targets. Targets can be made based on best practices, comparing with similar companies, historical data, customer requests or company capabilities.
2. Continual Improvement. Continuous improvement encourages companies to analyze and create ways that are more competitive and effective in achieving company goals and meeting the expectations of all parties concerned. Application of quality improvements that should be done by KUD. Argopuro Krucil includes improving product quality and improving production processes. The packaging of Argopuro's KUD fermented milk products is still considered less attractive by consumers. This unattractive product packaging problem can be solved by designing product packaging that is in accordance with the consumer's desires (material and

packaging design). Consumer information about the desired design and packaging materials can be obtained through consumer research. While the improvement of the production process that should be carried out by Argopuro KUD is related to the use of better process technology with a larger engine production capacity.

The six (6) steps of the Continuous Improvement Process that can be implemented by Argopuro KUD are:

1. Identify Improvement Opportunity: Select the appropriate process for improvement.
   - Evaluate Process:
   - Select a challenge/problem
2. Analyze: Identify and verify the root cause(s).
3. Take Action: Plan and implement actions that correct the root cause(s).
4. Study Results: Confirm the actions taken to achieve the target.
5. Standardize Solution: Ensure the improved level of performance is maintained.
6. Plan for Future:
   - Plan what is to be done with any remaining problems
   - Evaluate the team's effectiveness Set a target for improvement

4. Conclusion

The conclusion in this research there are :

KUD Argopuro Krucil has applied the principle of effectiveness and efficiency in the process of pasteurizing milk production. Principles 5 S have been applied and the occurrences 3 M also have been minimized by KUD Argopuro Krucil, although its implementation is still not perfect, but cooperatives must be able to strive for strategies to improve customer satisfaction included: always focus on customers and do continuous quality improvement on products and production processes.

5. References

[1] Deming, W. Edwards. 2001. ***Out of Crisis.*** Cambridge: Massachussetts Institute of Technology.

[2] Imai, M. 2001. *Kaizen : The Key to Japan's Competitive Succes.* Jakarta: PPM Press.

[3] Juran, Joseph M. 2000. ***Quality Planning and Analysis***. 3rd ed. New York: Mc. Graw Hill Book Inc.

[4] Takeda, Hitoshi. 2006. ***The Change Management Handbook.*** New York: Irwing Professional