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by Nanik Anita Mukhlisoh

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Fulfilment of Quality and Safety Standard for Dairy Products of Kaligondo Village at Banyuwangi District to Improve Market Competitiveness

I Putu Dody Lesmana¹, Nanik Anita Mukhlisoh², Beni Widiawan³, Merry Muspita Dyah Utami⁴

^{1,2,3}Information Technology Department, ⁴Department of Animal Husbandry, State Politeknik Negeri Jember, Indonesia

^{1,2,3} {1,2,3 {dody, nanik.anita,beni}@polije.ac.id, ⁴merry.utami@polije.ac.id

Abstract: This community service activity is in the form of training on how to produce Good Manufacturing Practice (GMP) which aims to increase knowledge and understanding of small industry entrepreneurs about production processes that meet standards production in order to improve product quality and competitiveness. Approach method to resolve the existing problem, is to carry out the Technology Transfer Method to assess the implementation of Good Manufacturing Practice (GMP) at CV Indo Dairy Fresh. Process of GMP assessment is filling out the questions that contain about aspects of processing room, pest, equipment, supply water, and personal hygiene. The training results show that knowledge and understanding of participants increases, participants are able to identify and assess independently of the GMP aspects according to production standards and capable participants apply the GMP aspects. The application of the GMP rules shows an increase from 63,8 before implementation, to 85,6 after GMP implementation.

Keywords: Good manufacturing practice (GMP), small industry, Quality and safety standard, milk dairy product

1. Introduction

Kaligondo Village is one of center for healthy fresh milk whit concept of refining the production of ready-to-drink fresh milk that already exists in the village. Healthy fresh milk is designed to provide a product with a touch of quality and food safety standards, including the application of GMP and nutritional value for pasteurized healthy fresh milk. In CV Indo Dairy Milk purpose, a ready-to-drink fresh milk sales business which does not provide income significant because there are many similar businesses that sales in area Genteng District, they only processing milk in a simple way. And also, the lack of human resources in processing technology according to quality and food safety standards it causes a decrease quality of the milk and product cannot enter the bigger market because of low quality and food safety quality, low product shelf life.

One of the efforts to encourage and develop small-scale processing industries so that they can have good quality, safe for consumption, available on an ongoing basis, and economically competitive is by controlling the production process through management system based on the concept of an integrated



quality management program based on Good Manufacturing Practice (GMP). In food processing, an effective quality management system can guarantee product quality and safety [1].

Based on the situation analysis, to solving a problem CV Milk Dairy Fresh in Kaligondo village to create products that are safe for consumption and have long-term goals to become superior products of Banyuwangi district that capable to compete in the global market, it is necessary to carry out training and application of management systems quality in the form of application of Good Manufacturing Practice (GMP).

2. Research Method

This activity was implemented in CV Milk Dairy Fresh, Kaligondo Village, Banyuwangi District. The implementation of the activity was divided into tree stage, there are preparation, implementation process of training and application GMP, and monitoring stage.

2.1. Preparation (Survey/data Collection)

This survey activity aims to determine the condition or location partner and the objects especially regarding product quality control and the application of GMP, Interview with business owners and employees who involved in the production process to find out the how far they understanding of products, processes and quality control in production, and direct observation in the production area by observing each production activity.

2.2. Implementation Process of training and application GMP

This activity is to provide an understanding of the importance or benefits of implementing a good food production method, then teach and assist them (owner and employees) directly in the assessment of GMP aspects using a processing facility inspection form issued by BPOM.

2.3. Monitoring and evaluation Stage

The Monitoring stage are carried out to determine the benefits of GMP training on improving the production system and process at CV Indo Dairy Fresh after being given training.

3. Result and Discussions

3.1. Preparation (Survey/data Collection)

Target from Data collection activity are to know members of CV Indo Dairy Milk in GMP processing products and apply it to respective processing units based on check list of ratings aspects of GMP through direct observation before and after GMP application. This survey data / data collection (preparation) was held on February 2020.



Figure 1. Collecting Data in CV Indo Dairy Milk Kaligondo Village



3.1.1. Assessment of GMP aspects

Assessment of the GMP Aspects is carried out using the scoring method. The processing this assessment are requiring GMP aspect and documentation to determine the condition of the processing room, the state of the production site, production equipment, water supply, personal hygiene and so on. The requirements for an assessment of GMP aspects are seen in Table 1.

Table 1. Assessment of GMP aspects

SKOR	DESCRIPTION
81,00 - 100	Good (B)
51,00 – 80,00	Enough (C)
< 50	Less (K)

3.1.2. Evaluation GMP aspect in CV Indo Dairy Milk before implementation

Assessing the GMP aspects by providing an assessment of the GMP aspects at CV Indo Dairy Milk, Kaligondo Village processing unit. The assessment was carried out using a processing facility inspection. Based on observation in CV Indo Dairy Milk, there are still many aspects that do not meet product management standards. Personal hygiene for employees is a basic requirement that can create a good condition for the product, this aspect is one of the important aspects in implementing GMP. Before this community service activity (GMP training) in CV Indo Dairy Milk, employee health has not become a major concern yet. For the results of observations before the application of GMP, the value of the GMP aspect was only around 46.0 or categorized as “less”. In pest control system, for an assessment of this aspect based on scoring method trainer gave a score of 60.0 or were categorized as “Enough”. Similar with two aspect before, that processing unit and equipment are also not standards even though the availability of equipment is still categorized as sufficient, but it is necessary to pay attention to the cleanliness. The results of the GMP aspects before implementation of GMP can be seen in Table 2.

Table 2. Results of the assessment before the implementation of GMP (February 2020)

Element	Sub Element (amount)	Average Final Score	Final Criteria (B / C / K)
PROCESSING ROOM	14	60,0	C
PEST CONTROL	3	60,0	C
EQUIPMENT	4	78,0	C
SUPPLY WATER	7	75,0	C
PERSONAL HYGIENE	5	46,0	K

3.2. Implementation Process of training and application GMP

Based on the results of assessment product unit in CV Indo Dairy Milk, Kaligondo Village, indicate that there are need improvement to implement of GMP aspect. This also shows that the understanding and knowledge of the training participants are able to assess and apply processing standards based on GMP aspects.



Figure 2. Delivering Process material Aspect of GMP Standard

This training activity was attended by 30 participants include owner and employees and was held on February 2020 after preparation activity. During training activities of standard GMP Processing units, participants were very enthusiastic in following and listening to the explanations. Delivering material of GMP standard can be seen in figure 2.

After delivering and explaining the material, all participants implemented the GMP aspect in their processing process step by step. After 8 months (from February – September 2020) implemented the aspect of GMP in the Processing unit, the results of GMP assessment increased. This can be shown in table 3.

Table 3. Results of the assessment after implementation of GMP (September 2020)

Element	Sub Element	Average	Final Criteria
	(amount)	Final Score	(B / C / K)
PROCESSING ROOM	14	90,0	B
PEST CONTROL	3	85,0	B
EQUIPMENT	4	82,0	B
SUPPLY WATER	7	90,0	B
PERSONAL HYGIENE	5	81,0	B

Based on the results of the assessment of the implementation aspect of GMP Processing unit in VC Indo Dairy Milk, Kaligondo Village, it indicates that there are any improvements. That means, this training activity is running effectively. It also shows that the understanding and knowledge of the training participants in assessing and applying processing standards based on GMP aspects have increased.

Substantial changes occurred in the hygiene aspects of individuals prior to the application of its value, which increased to 46.0 after the application of 81.0 or categorized as "enough". This value indicated that the participants' awareness had begun to increase after being given an understanding of the importance of personal hygiene in the processing process. After GMP Training, employees in CV Indo Dairy Milk wear work clothes, headgear, masks, gloves, and work shoes during the processing of milk. Increasing personal hygiene in CV Indo Dairy Milk can be shown in Figure 3. This is very important to ensure the safety of the products produced, in addition to preventing the spread of disease through food [2].



Figur 3. Personal Hygine Aspect of GMP on Processing Unit

From the aspect of the pest control system, it also shows an increase, where before the application the value is 60.0 after implementation becomes 85.0. Pest control system aspects are also a concern for improvement because frequent contamination caused by pests that enter the production room. It is necessary to take the minimum possible steps that already exist in the requirements of the pest control system to prevent this by providing given the seal of PVC plastic curtain between space production (Shows in Figure 4) and providing a cover on each of the existing air net vents.



Figure 4. Seal of PVC plastic curtain between space production

In equipment aspect, it also shows an increase where before implementation the value was 78,0 and after implementation GMP aspect processing units increased to 82,0. According to [3], an industry that related in processing must have processing equipment in accordance with the requirements, not easy to rust, easy to clean and complete with instructions.

From Supply water and processing room shows in figure 5. increasing result after training and implementation GMP aspect. In supply water aspect there is only minor repairs such as improvements in water holding containers. But in Processing room aspects, several improvements were made there are: The building is not adjacent to the dairy cow barn, the floor is ceramic which is not slippery when exposed to water, the door from the outside to the room is made of wood, good condition but easily weathered for a long time and is not waterproof, and soon.

3.3. Monitoring and Evaluation

Result of GMP assessment after implementation is increase 85,6 from 63,8 can be seen in table 4 and chart in figure 6. Figure 6 shows, this chart show the comparison between before and after implementing



GMP Aspects in production process unit. It indicates that CV Indo Dairy Milk, Kaligondo Village has started to implement GMP principle in their processing unit product to increasing quality of their products.



Figure 5. processing room shows

Table 4. Evaluation of Implementation of GMP in CV Indo Dairy Milk, Kaligondo Village

Element	Sub Element (amount)	Before implement GMP (Average)	After implement GMP (Average)
		Final Score	Final Score
PROCESSING ROOM	14	60	90
PEST CONTROL	3	60	85
EQUIPMENT	4	78	82
SUPPLY WATER	7	75	90
PERSONAL HYGIENE	5	46	81
LEVEL OF GMP IMPLEMENTATION		63,8	85,6

There are still many aspects of GMP that have not been done, it is associated with a substantial investment and a fairly long time to implement them. However, the commitment of the owner of CV Indo Dairy Milk is very great to continuing gradually improve on production unit so that it is in accordance with the correct GMP principles.

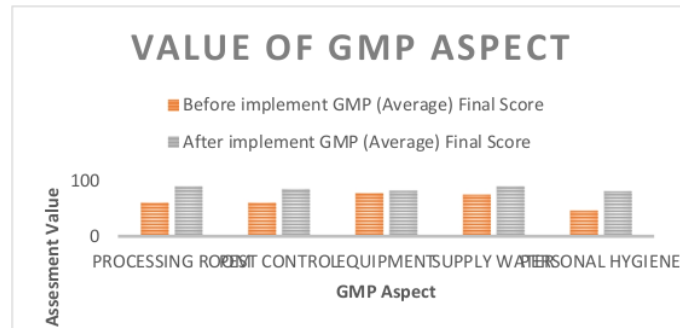


Figure 6. Chart Value Aspect GMP assessment

4. Conclusions

Based on research targets, the results can be obtained from these activities are:

- The GMP training activities were carried out well and the participants attended the training with great enthusiasm.
- Participants are able to independently assess the application of GMP aspects.
- The implementation of GMP aspects has been applied to the work partner processing unit with a value of 85,6 or categorized “enough”.

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