



Training Management Diversification of Melinjo Based Food in the Community of Brebes Regency as Efforts to Increase Capability to Achieve Small Medium Industry Opportunities

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Abstract. The empowerment of Small and Medium Industries (IKM) in Brebes Regency is the goal of a poverty alleviation program by utilizing the diversification of melinjo (Gnetum Gnemon) and melinjo chips into productive food products. Melinjo is a potential agricultural product in Brebes as its production reaches 12,040 quintals in 2019 and 14,266 quintals in 2020. The training aimed to improve the knowledge and skills of the community in seizing business opportunities through (IKM), particularly related to the diversification of melinjo-based products. The training was carried out by delivering material on Good Manufacturing Practice and diversification of melinjo-based products, as well as the demonstration on processing melinjo into chips and melinjo chips into chocolate melinjo flakes, melinjo chips cookies, spicy melinjo chips, melinjo nuggets. Descriptive percentage analysis was carried out to identify the participants' ability before and after attending the training, and the Gain Score analysis was used to identify the improvement of the participants after the training. The results showed the initial ability of the participants were very poor (10%), poor (5%), enough (20%), good (20%), and very good (20%). After attending the meeting, the participants reach the ability with criteria good (30%), and very good (70%). The increase in N-Gain of 0.7 was calculated with the "Medium" category, which means the training has good results in increasing the knowledge and ability of the participants. a "Medium" category or in other words, the results of the training have good results in increasing participants' understanding and abilities.

Keywords: Management training · IKM · Snack diversification · melinjo

1 Introduction

Covid 19 pandemic is a difficult period for most people in Indonesia, as the limited activities and relations between communities, which effect to constrained economic activities,

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Table 1. Nutritional Values of melinjo in 100 g

Unit	Nutrition	Amount
1	Calories (kal)	66.0
2	Protein (gr)	500
3	Fat (gr)	0.70
4	Carbohydrate (gr)	13.30
5	Calsium (mg)	163.00
6	Phosphor (mg)	75.0
7	Iron (gr)	2.80
8	Water (gr)	80.00

including economic activities of IKM (Small and Medium Industries). IKM is a business producing various products that are used for any activity of humans. The improvisation skills from business owners are required to continue their economic activities to keep their business exist. One of the improvisation efforts is creating the diversification business based on the basic ingredients production they have used or using the different basic ingredients. The similar situation is experienced by IKM in Brebes Regency.

Brebes is one of the regencies in Central Java located along the nort coast of Java with the area, extending to the south with the Banyumas residency, in the east border with the City of Tegal, and in the west with the Cirebon. Brebes regency has an area of 1,662.96 km² and consist of 17 subdistrict and 297 villages.

According to BPS (2020) the poverty level in Brebes Regency reaches 16.22% compared to, 9.22% of poverty level in Indonesia at 2019 [1]. Thus, the local government requires the consecutive measures to reduce poverty, and one of the implemented programs is management training for IKM.

As an agricultural country, Indonesia has discovered a lot of bio diversities documented to be used as food sources, including melinjo. Melinjo (*Gnetum Gnemon*) have benefit antihyperglycemic. In the antihyperglycemic research of melinjo seeds phytochemical screening tests were also carried out and positive results were obtained containing several compounds including alkaloids, flavonoids, saponins and tannins [2]. Melinjo is commonly found in Southeast Asia, including Indonesia. Based on BPS data, the average melinjo production in Central Java was 508, 653 quintals in 2019 and 592,930 quintals (2020) [1].

Almost all parts of melinjo tree used by Indonesian people, the leaves are used for vegetables, the fruits used as chips. The seed contains some beneficial effect in human health. Several bioactive compounds are found in melinjo [3]. Siswoyo [4] revealed that melinjo seeds contain as much as 9–11% of protein, 16.4% of fat, 58% of starch, polyphenolic compounds (flavonoid and tannins), resveratrol, gnemonoside compound one of the stilbenoi groups, and antioxidant compounds that free radicals. The nutritional content of 100 g of melinjo is listed Table 1.

The application of melinjo seed for food in Brebes is relatively low. Generally, the community uses melinjo seed as a basic ingredient for making vegetable chips and

additional ingredients. However, according to health expert, the maximum amount for consuming melinjo chips is 100 grams (10 small pieces) a day, due to its high calorie content (as much as 350 calories in 100 grams chips) and its ability to trigger gout.

The utilization of melinjo and melinjo chips are part of the poverty alleviation programs as they are found in many villages in Brebes, which the production reached 12,040 quintals in 2019 and 14,266 quintals in 2020. This large production has the potential to develop into various processed forms of industrial products, called food diversification.

Food diversification is effort to increase the consumption of various foods the principle of balanced so it doesn't focus on one type only [5]. One of the challenges to develop local food is the lack of community-acceptable and accessible derivative foods, and the opportunity to develop local food is providing the capacity building or training for the local food-based community or food industry.

Capacity building, or namely training is activity to increase the knowledge and skills of a personal in their particular job [6]. Any activity may be called as an exercise or training as long as meeting the three following criteria, such as 1) increase the knowledge and abilities, 2) change the habits and attitudes and 3) related to a specific job. The training is carried out in the form of delivering the materials which contain guidance and direction from the instructor to improve the knowledge and skills through completing tasks and exercises.

Management is the process of arranging something by group of people or organization to achieve the goals of the organization with how to work together utilizing owned resources [7]. Training is essentially a planned effort to improve skills and attitudes job relevant, while according to which states that management training is an effort to increase talent, skills, ability in dealing with tasks [8].

In brief, management is the art and science of managing resource to achieve purposes effectively and efficiently. Thus, training management can be interpreted as planning efforts to conduct training which includes planning, organizing, implementation, and evaluation.

The Department of Industry participates in poverty alleviation effort and strengthen IKM in Brebes Regency which is on training activities on diversification of melinjo-based products, involving the certified human resources (lecturers) from UNNES (Semarang State University) as competent training instructor. The instructor should hold a competency certificate in the field of food and beverage products issued by BNSP (National Agency for Professional Certification). These consecutive efforts are expected to reach the needs of IKM actors and to increase food security for local community.

The purposes of the management training are 1) to determine the participants abilities before and after participating training, 2) to identify the increased ability level and 3) to design the management training on melinjo based product diversification.

2 Research Method

This is a descriptive study with a quantitative approach. The study was carried out in Karanglo Village, Jatibarang District of Brebes Regency on May 12–16, 2022 and targeted 20 people in Karanglo village.

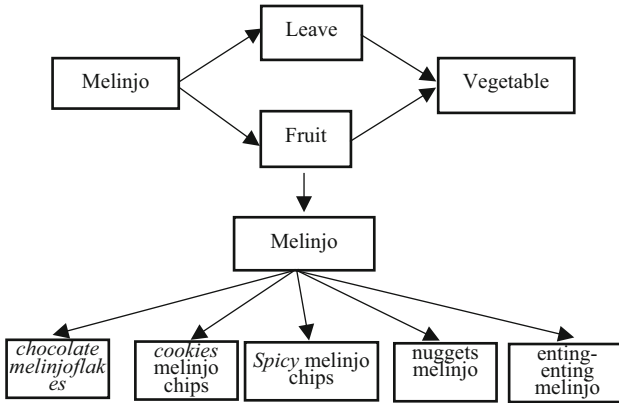


Fig. 1. Diversification Melinjo-based Products

The training was carried out by delivering material on Good Manufacturing Practice (GMP) and diversification of melinjo-based products, as well as demonstration on producing melinjo into chips and chips into chocolate melinjo flakes, melinjo chips cookies, balado chips, melinjo nuggets.

The method used before delivering the material is a pre-test in order to initial skills of the participants, followed by presenting the materials lectures, question and answer to provide deeper understanding GMP materials and diversification of melinjo and melinjo chips.

The practice method was conducted by dividing participants into 4 (four) practice groups consisting of five participants. Each groups demonstrated the entire material such as chocolate melinjo flakes, cookies melinjo, balado melinjo chips, melinjo chips, and nuggets melinjo. The practice is carried out the guidance of instructor and assistant instructor to avoid mistake and to obtain the product in accordance with quality. A post-test evaluation was conducted subsequently with the aim participants after the training and evaluating the exercise results.

The research instrument used in this study was instrument test which is implemented by conducting pre-test and post-test equipped with discussion. The observation sheets were used to determine the participants skills in manufacture of melinjo based and melinjo chips-based products, and further to observe the extent to which participants will develop a diversified business of melinjo based products using the assignment of creating a business plan. The diversification melinjo-based products are described in Fig. 1.

Data analysis was performed using descriptive analysis percentage to identify the ability of the participants before and after attending the training and Gain score analysis to observe the skills improvement after participating the training.

3 Result and Discussion

3.1 The Ability of Participants Prior to Training

In this section, the ability refers to participants initial knowledge and skills on Good Manufacturing Practice (GMP) and diversification of melinjo based products prior to the training. The data is shown in Table 2.

The data revealed that the initial ability of the participants was relatively diverse from to very poor until very good. Most of the participants had a very good ability (45%), following by 20% of the participants were occupied by good ability, 20% of them were having enough ability, 20% of the participants were in very poor ability, and those 5% of the participants were known to have poor ability. Participants who had a very good criteria because they often attended the training held by department of industry therefore had more knowledge and skills that participants who do not often attended the training. This is relevant to the research by [9] individual abilities become more enhanced, controlled and more effective due to training, experience, and opportunities to participate.

3.2 The Ability of Participants After Training

The knowledge and skills of the participants on Good Manufacturing Practice (GMP) and diversification of melinjo based products after training were examined to indentify the improvements. The data after training is shown Table 3.

Table 2. The Ability of Participants Prior to Training

Interval	Criteria	Amount	Percentage
81–100	Very good	9	45%
61–80	Good	4	20%
41–60	Enough	4	20%
21–40	Poor	1	5%
0–20	Very Poor	2	10%

Table 3. The Ability of Participants After Training

Interval	Criteria	Amount	Percentage
81–100	Very good	14	70%
61–80	Good	6	30%
41–60	Enough	0	0%
21–40	Poor	0	0%
0–20	Very Poor	0	0%

The results pointed that after participating the training, the knowledge and skills of the participants were improved, which were observed from the increasing percentage of the participants with very good ability (70%) and good ability (30%) and none of the participants were having either enough, poor, or very poor ability. These results might be indicated the effectiveness of the training. Increase knowledge and abilities in participants because had been given material on Good Manufacturing Practice, diversification of food based on melinjo and derivative products from melinjo into chocolate melinjo flakes, melinjo cookies, balado melinjo, and ting ting melinjo. The result of this research relevant by Radianto [9] providing training given material and practice can improve abilities and skills as well as trainers also effect the enthusiasm of participants in participating in the training, so that the training carried out successfully achieves the target [9].

3.3 Improve Participants Ability After Training

The improvement of participants ability after participating the training was evaluated form 2(two) aspects, that is Theory and Practice. Changes in the achievement of participants scores can be seen from the average scores on: pre-test and post-test as shown in Table 4.

Based on the table can be known there is increase the training result from pre-test and post-test. The increase in the achievement of the training value is calculated based on the NGain formula:

$$N_{gain} = \frac{(Mean\ score\ post\ test) - (mean\ score\ pre\ test)}{(Score\ maximum) - (Mean\ score\ pre\ test)}$$

Criteria NGain can be seen in Table 5.

Increase score from pre-test to post test:

$$N_{Gain} = \frac{(93, 16) - (78, 9)}{(100) - (78, 9)}$$

Table 4. Mean Score

	<i>pre-test</i>	<i>post-test</i>
Mean Score	78.95	93.16

Table 5. Category Score NGain

Range	Category
$g > 0,7$	High
$0,3 < g \leq 0,7$	Medium
$g \leq 0,3$	Low

$$N_{Gain} = \frac{(14, 26)}{(21, 1)}$$

$$N_{Gain} = 0,7$$

Based on the calculations, it is known that there is an increase in N_{Gain} 0,7 during the training, which means that the training has a “Medium” category or the results of the training is good in term of improving participants knowledge and skills. This research relevant by Hariyanto and Jupriyono [10] revealed that the training activities have proven to be able to increase participants knowledge in terms of nutritional value and utilization of local plants. This indicator can be seen from the significant increase in knowledge after participating in the training. Besides that, it can also be seen that during food processing practices, participants is very good and can produce any various products [10].

3.4 Management Training Diversification Melinjo Product

The success and effectiveness of the training depend on how to the management training process is planned, implemented, evaluated, and followed.

As part of the planning stage, there is development of theoretical materials in regard of melinjo and its derivative product, as well as and the materials on Good Manufacturing Practice (GMP). The practical materials were also prepared which included the practice of manufacturing enting-enting melinjo, melinjo nuggets, balado melinjo chips, cookies melinjo and chocolate melinjo flakes. This plan was carried out based on a mapping of potential research objects, namely is the Small and Medium Industry in Brebes Regecy.

Pre-test was performed prior to delivering the materials in order to identify and measure the initial knowledge and skills of the participants, followed by delivering the training materials about melinjo seeds, melinjo chips, Good Manufacturing Practice (GMP), good marketing strategy, and the various recipes og the manufacturing of melinjo-based derivative food. The manufacturing product ini practical work were also demonstrated, that is the participants were allowed to practice the processing derivative food from melinjo such as enting-enting melinjo, melinjo nuggets, balado melinjo chips, cookies melinjo, and chocolate melinjo flakes.

Afterwards, a post-test was performed as a training evaluation order to measure and identify whether the materials were well received by the participants as well as to know whether there is an improvement from the previous pre-test. In the end, the participants were given as assignment of creating a business plan to construct their future business in relation to melinjo-based products diversification.

4 Conclusion

Based on the result practice training for Small and Medium Industry through give theory and practice derivative food based on melinjo. the conclusions are as follow:

1. The participants were very enthusiast to participating the training
2. The participants have ability to improve the value of melinjo-based product become an innovative product to entrepreneurship
3. The success of the training was achieved, seen from the participants knowledge which increased from the results of the pre-test and post test

- The participants are capable to make business plan for melinjo based products diversification.

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