



## Tempe Innovation from Mung Bean With a Variety of Flavors in Business to Increasing Community Income

Nastiti Mufidah<sup>1\*</sup>, Mohammad Rizki<sup>2</sup>

<sup>1</sup> Institut Agama Islam Negeri Ponorogo, Indonesia, [nastiti@iainponorogo.ac.id](mailto:nastiti@iainponorogo.ac.id)

<sup>2</sup> Institut Agama Islam Negeri Ponorogo, Indonesia, [rizkiahmadmuhammad4@gmail.com](mailto:rizkiahmadmuhammad4@gmail.com)

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\*Corresponding author email:

[nastiti@iainponorogo.ac.id](mailto:nastiti@iainponorogo.ac.id)

Phone number: [081217198353](tel:081217198353)

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### Abstract

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Indonesia is a country that has very fertile soil, including Dusun Dorokenong, Tulung Village, Sampung Ponorogo, which are some of the villages that are popular for their agricultural output. Located in a tropical climate rich in food diversity, balanced rainfall makes Indonesia's soil very fertile, so it is perfect for growing various types of plants such as rice, fruits, vegetables, and legumes such as peanuts and peanuts. Soybeans and mung beans can grow well. In particular, nuts are the main ingredient in making tempe. Tempe is one of the many types of traditional Indonesian food that has the potential as a functional food because it has the high nutritional content needed by the body. Tempe is rich in fiber, calcium, B vitamins, and iron. So far, the primary ingredients for making tempe are fermented soybeans and other ingredients, namely tempe yeast. Currently, processed tempe can be made with the primary ingredients of mung beans, which are not inferior to soybeans. To increase the success of the tempe-making business, it takes courage to innovate both product and marketing. Tempe makers must innovate in making tempe; the ingredients used are soybeans and mung beans to deal with the scarcity of soybeans in the market and the high cost of imported soybeans.

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## INTRODUCTION

There are so many kinds of famous authentic Indonesian food, whether traditional or modern. Among the original Indonesian foods that are legendary and in great demand by the

public is the traditional food, tempe (Kusumawati dkk., 2020). Tempe is a traditional food that has been legendary since ancient times; until now, tempe still exists as a meal of the community. Tempe has a lot of nutritional content and is beneficial for the body; widely found in the market and has a distinctive taste from other foods (Kurniadi dkk., 2017). The nutritional content is far different from foods sourced from animals. Many people make this tempe food as a companion to eat every day; the processing of tempe is also widely processed into a delicious and exciting snack (Risni T, 2013).

Tempe is a type of traditional food that is made from mung bean seeds. These mung bean seeds are the primary ingredients for making tempe. To make tempe ultimately, tempe yeast is needed as an additional ingredient used to ferment the mushrooms needed for making tempe itself (Hasbullah & Silvy, 2020). The fungus helps ferment soybean seeds which will later coagulate and become tempe (Nasional, 2012). Until now, tempe has been a favorite dish among people of various groups, from the lower, middle, and upper classes; all of them like this traditional food, tempe. Therefore, tempe is a traditional food that can be developed at home and abroad (Hasanah dkk., 2020). Experts say that the quality of the tempe content is very high. The quality of nutrition and protein found in soybean tempe is almost the same as the quality of nutrition and protein found in meat. There are many benefits found in tempe, one of which is the antioxidants that are useful for warding off disease (Shaw, 2015). Tempe also contains B vitamins which help process food in the body into energy, or it can also be called the body's metabolism (Nurrahman, 2017). So there is no need to worry anymore about the content and benefits contained in tempe; of course, many advantages and benefits can be obtained by consuming tempe. Not only is it made in the usual way, such as frying, but tempe can be processed into very delicious creations that are not inferior to other foods, namely by making tempe brownies, tempe nuggets, and many other creations (Anizar & Torong, 2020).

From the past until now, the primary ingredients for making tempe have been known only to use soybean seeds (Saputri, 2019). Even though it should be noted that making tempe does not only use the primary ingredients of soybean seeds, because it has been rooted and passed down from previous ancestors that the primary raw material for making tempe is soybean seeds, this is why until now, tempe makers, especially those who produce either at home or home industry or large-scale production or tempe-making companies choosing soybean seeds in the manufacture of tempe (Helly, 2016). The need for the development of innovation in the manufacture of tempe products at this time; the thing that can be done in developing this tempe product is to process mung bean seeds as the main primary ingredient in making tempe.

As the main ingredient in making tempe, soybeans contain nutrients that are beneficial to the health of the body. However, to make a tempe that doesn't taste the same as soy tempe, you can use mung bean seeds as the main ingredient (Hasanah dkk., 2020). It should be noted that soybeans are very different from mung beans, whose prices tend to soar in the market, compared to mung beans, which tend to be stable. This medium causes tempe makers to have difficulty

getting them because the price of soybeans tends to be expensive. Even soybeans have to be imported from Indonesia. Compared to soybeans, the price of this type of mung bean is not the case, mung beans are still plentiful and easy to find on the market, plus the nutritional content contained in mung beans is not inferior to soybeans. There are many benefits contained in mung beans, one of which can slow down premature aging (Prativi dkk., 2023). In terms of cultivation, the two plants are very much different. Soybeans themselves tend not to be able to survive in dry and barren areas because they need to get an adequate and regular supply of water. At the same time, mung beans themselves can survive in dry and infertile areas. Hard to care for. That's one thing that makes soybeans have a price that tends to be expensive. Processing mung beans in the process of making tempe does not reduce the mung beans' nutritional content.

Since there are so many farmers in Dorokenong Hamlet, Tulung Village, Sampung District, and Ponorogo Regency, many of them grow mung beans, so for that they can be used as the main ingredient in making mung bean tempe by empowering tempe farmers and home-based businesses to use it by working together with each other the trade-off between the two. So far, many tempe producers have produced their tempe independently or at home. None other than the business people making tempe in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency also produce their tempe independently at home. So far, Tempe-making businesses in Dorokenong Hamlet, Tulung Village, Sampung District supply the essential ingredients for making tempe, namely soybeans, by buying them, where the price of soybeans, which tends to be expensive and uncertain, directly affects the process of making tempe.

So with that, the problems experienced by tempe makers in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency are the severe problem and require a solution to solve them. Against this background, this community service research hopes to be able to help in the problems faced by tempe-making home industry players. in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency. Therefore, it is necessary to develop tempe production through innovations that can improve the quality and quality of the tempe. Making tempe with its main primary ingredients, namely mung beans, which incidentally are easy to find, and many farmers also grow these mung bean plants, at the same time getting around the primary ingredients of tempe, namely soybeans, whose prices are uncertain on the market, plus the lack of yields of existing soybeans, can make Tempe home industry business actors can slightly reduce the production costs of tempe without having to change the quality and quality of production. By processing it into various variants, it is hoped that the public will be more interested in buying it and, in the end, can increase the income turnover of the tempe-making home industry business in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency. Not only that, it is hoped that the mung bean tempe made in Dorokenong Hamlet will be widely known by Ponorogo, especially outside Ponorogo. And can inspire other tempe-making home industry businesses to be able to follow in this footsteps and innovation.

## **METHOD**

Innovations for making tempe made from mung bean are developed in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency, through the Assed Based Community Development approach or the ABCD approach. This ABCD approach prioritizes benefits and what already exists and is owned by a community that There is (Dureau, 2013). This assistance utilizes ownership assets and various potentials the community owns to be developed and used. A further definition of assets and potential is anything that has a value from any point of view. Everything that includes anything and has value is an asset that is useful for meeting needs. Otherwise, the potential is not much different from assets because potential is also everything that is owned by the community that has value to meet needs. So assets and potential cannot be separated because to fulfill, suffice, and become the subject of something valuable later and into the future (Barrett, 2015). The assets and potential already owned by a community must be maintained and used creatively and well.

One of the potential assets of a community in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency, is one of the tempe home industry players who have been around for generations from the tempe-making family. Most of the people of Tulung Village make their living as farmers, so there are many rice fields in the village. The crops, such as rice, corn, sugarcane, cassava, and mung beans, are also diverse. The writer found there is an asset or potential that comes from nature. To take advantage of all of their crops, some farmers sell them and consume them themselves. Given that one of the primary ingredients for making tempe is soybeans, these soybeans are tough plants to live in in a relatively dry place.

Many farmers do not grow these soybeans because the treatment differs from legumes. , so there is no supply or yield of soybean planting in Tulung Village. It makes it more difficult for tempe home industry players to obtain soybeans. One of the ways to get it is by buying it in markets or importing it from abroad. Of course, soybean prices have skyrocketed; this is not proportional to the expenses and income of the tempe makers. So the development of innovation to make tempe from the primary ingredients of mung beans is a benefit that can be done to overcome this problem. It will be made with various tempe flavors such as onion, original, and spicy, and people are not bored with the same tempe flavor. The hope is that the development of innovations in making tempe made from mung beans will benefit the community, especially for the tempe home industry, so that it can increase revenue turnover from processed mung bean tempe.

This community service research chose the ABCD approach, with that in the development and innovation in making tempe made from mung bean, it pays close attention to the principles contained in the ABCD method. (Ponorogo, 2021). The principles of the ABCD method are 1) half full, half empty, or you can compare it to a glass half filled with water, meaning it doesn't change

what is there but instead adds, gives creative ideas, supports, and has a better and positive impact on society or existing assets and potential. 2) nobody has nothing or can also be called all have potential, so all existing communities or communities have potential; each may have none. It is by having the potential of all having the right to participate and contribute to the development of assets owned by the people in the area. 3) participation, or what can be called participation, provides space for the community to channel and contribute to developing existing assets and potential. 4) partnership can also be called a collaboration between several parties in establishing a good cooperative relationship in developing assets and potential in the area. 5) positive deviance can also be called an approach with strategies and methods that have never been practiced with positive deviance. The hope is that it can provide ideas and be imitated by others to create good assets and potential development. 6) endogenous, or it can also be called the origin of the community itself; by utilizing what is owned by the community, the development process can be carried out correctly and positively impact all. 7) heliotropic, or it can also be called developing existing energy sources, so utilizing the yields from farmers who grow mung beans can benefit farmers and tempe-making businesses to run their businesses.

## **RESULT AND DISCUSSION**

### **The phase of the Community Service Implementation Process**

After the program plan had been made by adjusting the conditions and circumstances in the field, namely in Dorokenong Hamlet, Tulung Village, Sampung District, Ponorogo Regency, community service was carried out. For forty days, the activity was carried out. The focus of the work plan program is the activity of developing mung bean-based tempe innovations with various flavors to increase revenue turnover. With this development innovation, it is hoped that the Tempe-making home industry in Dorokenong Hamlet will obtain more turnover than before implementing this innovation.

This community service process is carried out using three stages in carrying it out; for the sequence of the stages themselves the first stage is the preparation stage, the second stage is the implementation stage, and the third stage is the evaluation stage. Starting the first stage, namely preparation, in this preparatory stage activities are carried out to check areas that will later be used as a place of community service while finding out what assets and potential exist in Dorokenong Hamlet, Tulung Village, Sampung Ponorogo District, at the same time asking for permission from related parties and elements in the area.

Furthermore, the second stage is implementation; this stage begins with introducing community service participants to residents so that the community knows the intent and purpose of the community service participants' arrival. The hope is that knowing and understanding each other can make it easier to carry out activities. It is easy to get the information and data needed when working on the report later, or it can also be called the inculturation stage. Furthermore, it is the sorting or mapping various assets and potentials in Dorokenong Hamlet, or the discovery

stage. The next step is to design any program plans that the conditions in the field will carry out. This stage can also be called the design stage.

According to the conditions in the field, the potential owned in Dorokenong Hamlet is that the majority are farmers and not only rice farmers but also many farmers who grow mung bean plants, so mung bean plants are chosen to be used as a primary ingredient in making tempe. After the design stage is carried out with the innovation of making tempe made from mung beans, the next activity is the implementation of what has been planned or a work program that is by the conditions in the field, namely activities carried out precisely in the home industry for making tempe in Dorokenong Hamlet. The last activity, namely the reflection stage after the innovation of making tempe made from mung bean to increase revenue turnover, can be seen whether this innovation has made home industry players more motivated to produce it, given that the primary ingredient for tempe is generally soybeans, whose prices tend to be expensive and different, away with mung beans.

The last stage is the third stage, namely the evaluation stage. This evaluation activity is carried out to monitor how much success has been so far in making tempe made from mung beans and how much turnover has been obtained. Is it significant, or has it decreased drastically? Evidenced writer by the enthusiasm of the local people who buy and are interested in this mung bean tempe.

### **Implementation of the Work Program to Develop Tempe Innovations made from Mung Beans**

Based on situational analysis and field interviews with the owner of the tempe-making home industry in Dorokenong Hamlet, Tulung Village, Sampung Ponorogo District, several main problems were found. The problem that arises is the high price of the primary ingredients for making tempe, namely soybeans because soybeans on the market are uncertain and tend to be expensive. This problem makes tempe-making home industry players complain that the price of tempe-based ingredients is costly; compared to the products processed into tempe, it is not worth the income they get (Prativi dkk., 2023). So the solution is to develop innovations in making tempe made from mung beans, which is expected to help the tempe home industry to continue producing tempe. Even though the primary ingredients are different, it doesn't change the process of making tempe. The following is the procedure for making tempe made from mung bean seeds:

- a. The ingredients needed in the process of making mung bean tempe:
  1. Fresh mung bean seeds
  2. Good quality tempe yeast
  3. Flavor powder: spicy, original, onion
  4. Water is used to wash mung beans (Anizar & Torong, 2020)
- b. Procedure for making tempe:

1. It is sorting the materials that need to be used to make tempe and choosing materials with guaranteed quality and quality.
2. Weigh this is done so that the size of the material is by a predetermined formula.
3. Wash the mung beans; this is done so that the ingredients don't stick to the dirt that sticks to the mung beans.
4. After washing, the mung beans are boiled, and this is done for 30 minutes or half cooked from the mung beans.
5. After boiling, namely peeling the mung bean skin and separating the boiled mung bean skin, you can use your hand manually, or you can also use a tool.
6. After the stripping, the next step is steaming, which is done for 20 minutes.
7. After the steaming is complete, the next step is cooling, done when the mung beans are removed from the steamer.
8. This fermentation stage is carried out after the mung beans are completely cold; mix a little yeast tempe with mung beans, then blend it.
9. After the fermentation, the next step is to divide the mung beans given yeast into three parts, then give flavors such as spicy, original, and onion, then mix until smooth.
10. The last stage of packaging is done using plastic; fill with enough plastic with mung beans according to taste, and don't forget to put a few holes in the tempe plastic. This process provides a little air to help the tempe ferment. (Dinar, 2014).



(Page 1. Sequence in making mung bean seed tempe)



(Page 2. Results So Tempe mung bean seeds)



(Page 3. Results of making mung bean tempe)



(Page 4. Marketing of mung bean tempe to buyers)

**Table 01.** The results of implementing the development of raw tempe production with mung bean-based innovations to increase people's income.

No.	Activity	Results
1.	Know the problem	After knowing the problems faced by home industry tempe makers in Dorokenong Hamlet, Sampung Ponorogo, with the development of innovations in making tempe using mung beans as the main ingredient, we made little contribution and benefit to tempe makers in Dorokenong Hamlet.
2.	Formulate and make procedures for making tempe	Making posters or leaflets on the procedures and procedures for making mung bean tempe coherently and correctly can help tempe makers in Dorokenong Hamlet in the hope of being able to put it into practice and, in the end, increase income.
3.	Promotion of mung bean-based tempe innovation development	The socialization was carried out by providing samples of some of the raw tempe products made from mung beans to the community and the business owners
4.	Training on making tempe made from mung beans with innovations in various flavors	a) Providing processed mung bean tempe to some of the people of Dorokenong Hamlet (testimony) b) Provide a recipe in the form of a complete brochure regarding making mung bean tempe.



	c) Increasing the innovation of mung bean-based raw tempe products, especially for tempe home industry business owners and generally for the community
5. Marketing	Get the marketing mung bean tempe through social media. It can be selling at markets, at home, taking orders, and being entrusted by itinerant vegetable vendors. At the same time, it is assisted by young children from home industry entrepreneurs who make tempe by marketing it using social media such as WhatsApp, Instagram, Facebook, and many others.

The response was excellent from the home industry for making tempe in Dorokenong Hamlet with the development of innovations for making tempe made mainly from mung beans. From this innovation, tempe home industry entrepreneurs have no more difficulties obtaining the primary ingredients for making tempe, namely mung beans, tempe can now be made, not only with soybeans. Therefore, the home industry for making tempe is more economical regarding expenditure or the principal capital, which is usually spent much now with mung bean raw materials. Hence, spending on purchasing raw materials becomes economical.

The process of making mung bean tempe is the same as that made from soybeans. So it's not difficult to make, because you are used to it, and the process is the same. For the innovation of giving the flavors themselves, the manufacture is also the same, that is, after being given tempe yeast, then giving various flavors and separating them from one another (Santhirasegaram dkk., 2016). For the process itself of making mung bean tempe, there are no problems. The residents' enthusiasm also proves that the innovative processed tempe made from mung beans is in great demand among residents, especially residents in Dorokenong Hamlet. Many want to know what taste mung beans give as the main ingredient for making tempe. The testimonies the residents gave were also excellent; this added to the enthusiasm of the tempe makers to further increase their production in making processed mung bean tempe (Anizar & Torong, 2020).

Promotional activities that are often found today positively impact every business actor, whatever it is. Apart from being able to introduce its business products widely, promotional activities are currently very well known for electronic media and social media, such as social media, which are very easy to find, namely social media Whatsapp and Instagram; these two social media used a lot (Bernhardt, 2014). Because it is easy to use, the promotion of tempe products can use these two media where buyers can directly interact with sellers, and the profits or results can be received directly by sellers, not through long intermediaries (Yuniarsih, 2020).

After the development of innovations for making tempe made from mung bean seeds, the home industry business for making tempe in Dorokenong Hamlet should also pay attention and think about the innovations that are currently running, meaning that after this activity is successful, the owner of this tempe business must develop the tempe again. That's in the future.

You don't have to stick with the current changes; as much as possible, there are other innovations, such as making tempe with other legumes and adding flavor innovations. Tempe-making home industry players must start planning carefully (Raharjo & Tety, 2019).

From a business that has been involved for generations, this is the first time that the tempe home industry business in Dorokenong Hamlet has been able to produce tempe using primary ingredients other than soybeans. During an interview with the owner of a tempe-making business in Dorokenong Hamlet, the thought of this tempe business owner first crossed his mind to try to produce his tempe with the main ingredients other than soybeans; however, until now, this has not been implemented. It was only possible when the community service participants arrived. It is hoped that with some assistance, the development of mung bean-based tempe products can continue to be implemented, and more and more people are starting to like the existence of processed tempe made from mung beans.

## CONCLUSION

Based on the description in the discussion, it can be concluded see the potential for the existence of mung bean seed plants in terms of nutritional content and how to obtain mung beans on the market and the large number of farmers who cultivate mung beans because they are different from soybeans, which are more challenging to care for. Mung bean seed plants are legumes that can be processed and modified as the main ingredient in making tempe to overcome when soybeans experience scarcity and are hard to find on the market. Mung beans have the strength to survive in the dry season. With so many farmers growing mung bean and how easy it is to care for and is widely found on the market, it can help tempe-making home industries get it. The innovation of tempe made from mung beans can bring up ideas and innovations for partners in the tempe home industry in Dorokenong Sampung Ponorogo Hamlet. It was evident that the enthusiasm of the people around the making of the tempe home industry when they were given a mung bean tempe sample seemed to like it and wanted to know how to make it. With that, it is hoped that mung bean tempe can be widely recognized by the community and have a significant influence on tempe home industry partners in Dorokenong Sampung Ponorogo Hamlet and, in the end, can increase the income turnover of tempe home industry partners.

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