

Optimization and Utilization of Tofu Waste by Using Separator Machine Technology to Increase the Income of Home Industries and Create Environment-Friendly Industries Through Diversification of Various Foods Processing

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Abstract:

Tofu industry is one of the big producers of waste because the waste reaches 25-35% of tofu product. The Lack of public awarness about the tofu waste resulted unused waste, even they throw away the tofu waste without knowing the high nutrition contained in the tofu waste. Cooperation between UD. The final target to be achieved is to form a business unit for various processed foods using a separator machine in the sanding of tofu waste with soy milk extract, as well as marketing management with the help of information technology (social media). The basic contribution to the target is that housewives get new knowledge and skills about diversifying various processed tofu waste products and getting more benefit. In addition, housewives will get income from creative economic activities for the sake of moving the economic wheel that increases directly for the community, especially families.

Keywords: Tofu Dregs Separator Machine, Diversification of Various Processed Foods.

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Introduction

UD. Arya Jaya is a trading business that is engaged in making tofu. It began operations in 2003, by Mrs. Siti Aisyah. UD. And located on Bukkolan Village RT.01 RW.01 Paowan Village / Panarukan Sub-District, Situbondo Regency, East Java Province.

Housewives is the productive age group who have a minimum of high school / education, and have not been able to contribute to their family's income, due to the lack of skills, information and business opportunities to increase the income. Therefore, housewives are chosen as partners in this activity so it is expected to have additional skills that can improve family welfare.

The tofu industry is one of the big producers of waste because tofu waste reaches 25-35% of the tofu product. The community thinks that tofu waste is less useful and does not contain sufficiently high nutrition (Suprapti, 2005), even though tofu waste is a waste from the process of making tofu which still has economic value if it is further processed.

Not all tofu waste is treated, it caused pollution to the environment. Tofu pulp does not smell but the stench will come gradually since 12 hours after the tofu pulp is produced especially if it

is left too long open in free air. Tofu waste is usually used as animal feed and some of it is used by some rural communities to be processed for making “tempe gembus”. The waste must be processed into valuable food product, it can reduce the polution and increase the income for the residents. The reason for using the tofu was is caused of the lack of public knowledge about tofu waste. It almost becomes unused, even discarded without knowing the high nutrition contained in the tofu waste. Beside the price of the tofu waste is cheap and easy to obtain.

According to the Indonesian Ministry of Health (1995) dried tofu waste contains 414 calories, 26.6% protein, 18.3% fat and 41.3% carbohydrate in 100 grams of material, so it is possible that tofu waste can be processed into various variations food. and high value. It means that the tofu waste has many and vantages such as containing high protein, lots of fiber, as well as cheap and easy to obtain. It has the potential to be processed into nutritious food products that are beneficial to the human body.

The use of separator machines in the utilization of tofu waste can separate the tofu waste

with soy milk extract. The use of this separator machine in a series of tofu production activities is needed to optimize the utilization of tofu waste. Tofu waste separator machine will help a lot of entrepreneurs in providing added value, considering that tofu waste still has enough protein.

This separator is suitable to increase production and utilization for the needs of the market. The separator machine works easily which can be used to squeeze tofu dregs, so it takes the time needed also to be faster and lighter power. It is expected to increase efficiency and productivity.

Based on the situation analysis above, the UD. Arya Jaya and PKM Team seeks to overcome the problem in question by optimizing the utilization of tofu waste to diversify various processed foods that have a sale value by applying separator machine technology.

This business has good prospects. These various processed foods are sold at affordable prices by small communities, entrepreneurs know will have no difficulty handling their waste. The materials used in this activity are easily available in the neighborhood or local markets, such as flour, cooking oil, sugar, salt and others. Material prices are very cheap, easy to obtain and can be obtained without knowing the season. How to make tofu pulp processed is also easy to practice.

Alternative utilization of tofu pulp for diversification of various processed foods will be more profitable, because it is more economical and helps entrepreneurs in handling their waste to create an environmentally friendly industry. In addition, protein and fat remaining in the tofu waste are expected to increase the nutritional content of various processed foods. Tofu waste also has a high total fiber content, which is 28.4%. Human dietary fiber requirements are around 38 g / day for men and 25g / day for women (FAO / WHO Expert Consultation 2002; Simsek and Sedef 2012). Thus, tofu waste has a great potential to become a source of food for fiber.

From the above explanation, the specific target to be achieved is the establishment of a variety of food processing business units using a separator machine in the separation of tofu waste with its liquid, and marketing management with the help of information technology (social media).

Based on the above situation analysis above, three priority issues can be formulated as follows:

1. The absence of abundant tofu waste waste utilization into various processed foods. So far, it has only been used as a material for making tempe gembus. It is caused the process of making tempe gembus is easy (no need for special skills) and the cost is quite cheap. Beside tempe gembus, tofu waste is also processed to be used as animal feed. Whereas the processing of tofu waste can be a diversification of various processed food products that are nutritious, durable, or stored for several days and providing added value.
2. There is no machine that functions to separate the tofu waste with soy milk extract so that the utilization of tofu waste can be optimized.
3. The absence of sales management related to finance and marketing of various food processing businesses using information technology to improve competitiveness among food processing entrepreneurs.

Method

Based on the solutions and targeted outputs proposed in the Community Partnership Program (PKM) activities, the stages in implementing solutions in the production activities are described in Table 1, while financial management and marketing activities are shown in Table 2.

Table 1. Stages of Production Activities

The Solution	Output	Stages
Program for Providing Appropriate Technology (TTG) and Assistance for operation and maintenance of tofu waste separator machines	Separator Machine Technology	<ol style="list-style-type: none"> 1. Identification and collection of follow-up data to partners. 2. Making the concept and functional design of the tofu pulp separator machine. 3. Operation of how the machine works. 4. Testing the quality of the results of the separation of tofu pulp with soy milk 5. Engine maintenance
	Document of SOP	<ol style="list-style-type: none"> 1. Making a SOP for operating the machine. 2. Making SOP for machine maintenance.
Training and Assistance Program for making diversification of various processed tofu products	Knowledge and Skills	<ol style="list-style-type: none"> 1. Determining the location of the training / accompaniment. 2. Preparation of diversification of various processed tofu waste products of and separator machines at partner locations. 3. The socialization of utilization and creative economic business opportunities, namely the making of diversification of various processed tofu waste products. 4. Training on diversified production practices of various processed tofu waste. 5. Assistance to the two partners so that cooperation and good communication can be established.
	Independent Production Capability	<ol style="list-style-type: none"> 1. Continuous monitoring of participant skills and implementation of production activities in the form of regular visits. 2. Evaluate the level of achievement of program targets and regular coaching for the emergence of independent production.
	Intertwined Cooperation and Communication	<ol style="list-style-type: none"> 1. Signing the cooperation agreement between the two partners in the form of a legal agreement. 2. Licensing of products to the Department of Industry.

In the Appropriate Technology (TTG) provision program, the Proposing Team acts as (1) the provider and selects the technology to be used in the manufacturing activities of diversification of various processed tofu products based on concepts and functional designs agreed upon with partners, (2) testing machine performance which will be used in the activity of separating the tofu pulp with soy milk extract, (3) making the SOP document based on a previously prepared design. Both partners act as providers of information regarding production capacity, production schedules, and the feasibility of production output. Solid cooperation and active participation in the two partners will produce high-quality and high-value products.

For the training program and assistance in making diversification of various processed products of tofu waste, the Proposal Team acts as a trainer and companion of production activities, evaluates the monitoring and evaluation and initiates cooperation. While the two partners acted as trainees and mentors, the owner and owner of entrepreneurial activities. Motivation in the form of

exchanging opinions / discussions, questions and answers, practices, ongoing monitoring and evaluation is carried out in order to create an independent creative business.

The following will explain the stages of financial management and marketing can be seen in Table 2.

Table 2. Stages of Activity Financial Management and Marketing

Type of activity	Activity Steps
Finance	<ol style="list-style-type: none"> 1. Recording evidence of transactions both expenses and receipts. 2. Making a general journal. 3. Post to ledgers and balance sheets. 4. Completion journal entry. 5. Making financial statements in the form of a balance sheet, profit and loss, changes in capital and cash flow.
Marketing	<ol style="list-style-type: none"> 1. Making a product catalog that contains various products that are made and will be ordered. 2. Creating social media accounts (Facebook, Twitter, and Instagram) containing various products that are made and which will be ordered in order to find products easily and quickly. 3. Create an E-Commerce service account (Tokopedia and Buka lapak) containing various products that are made and will be ordered to find products easily and quickly. 4. Ensure the safety of goods ordered online by affixing the delivery receipt number. As for the Tokopedia and open bukalahap shanties already provide security features in shopping online therein. 5. Guarantees the product being sold. 6. Netting the level of product satisfaction that has been purchased by customers in the form of testimonials / questionnaires.

Results and Discussion

In this Community Partnership Program (PKM) activities have been carried out which include the Program for the Provision of Appropriate Technology (TTG), Assistance in the operation and maintenance of tofu waste separator machines to partners UD. Arya Jaya. In addition, the Implementation Team has also implemented a Training and Assistance Program to make diversification of various processed tofu products to partners, they are UD. Arya Jaya and the group of housewives. The following are some of the activities carried out in the Community Partnership Program.

Preparatory Activities

This coordinating activity was aimed at preparing a plan of community service activities and division of tasks. Coordination of the Implementation Team with the Head of the partner group resulted in an agreement including: the implementation of the activity located in UD. Arya Jaya, there would be 30 participants attending each activity, and the implementation was in July 2019 by considering the day to be agreed upon further. Equally important was the discussion about the design that was delivered at the time of the activity

in the form of Providing Appropriate Technology (TTG) and Assistance in the operation and maintenance of tofu separator machines to UD. Arya Jaya as the partner. In addition, the Implementation Team will also carry out a Training and Assistance Program to make diversification of various processed tofu products to UD. Arya Jaya and the group of housewives.

Socialization Activities to Both Partners

In this activity, the Implementation Team conducted a socialization program on Optimizing the Utilization of Tofu Waste by Implementing Separator Machine Technology in an Effort to Increase Home Industry Income and Creating an Environmentally Friendly Industry Through Diversification of Various Processed Foods to PKM UD. Arya Jaya and the Housewife Group as partners. In this activity, the Implementation Team coordinated in the Preparation of Training and Operation of Tofu Dregs Separator Machine and the Making of Diversification of Processed Food Tofu Waste. This activity was carried out in July 2019 at Bukkolan Village RT.01 RW.01 Paowan Village, Panarukan District, Situbondo Regency and was attended by representatives from UD. Arya Jaya and Housewife.



Figure 1. PKM Socialization Activities to Partners at UD. Arya Jaya Situbondo.

Training and Assistance Activities

a. Tofu Separator Machine Separator Operation Training Activities

This Training and Mentoring activity was carried out on Thursday 18 July 2019 at 10.00-finished and located at the Regional General Assembly. Arya Jaya Situbondo. In attendance were 30 participants. The activity went on smoothly and went according to the previous plan. From starting

to prepare materials and separator machines. The participants were very enthusiastic.



Figure 2. Group photo before the implementation of the training activities of the pulp and cake separator machine.

b. Activities of Training on Making Diversification of Various Processed Food Tofu Waste

This Training and Mentoring activities were carried out on Friday 19 July 2019 at 10.00-finished and located in UD Kitchen Room. Arya Jaya Situbondo. A total of 30 participants attended. The activity went on smoothly and went according to the previous plan. From starting to prepare cake ingredients and cooking utensils, the participants were very enthusiastic.



Figure 3. Photo together when after the training on making diversification of various processed food waste of tofu waste

Conclusion

The conclusion of the activities of the Community Partnership Program (PKM) in the form of Utilization of Tofu Waste with the Application of Separator Machine Technology Efforts to Increase Home Industry Income and Realize an Environmentally Friendly Industry Through Diversification of Various Processed

Foods in Bukkolan Village RT.01 RW.01 Paowan Village, Panarukan District, Regency Situbondo, East Java Province are as follows:

1. The Implementation Team has carried out the design activities of the implementation of activities in the form of careful preparation with the aim of preparing a plan of service activities that will be carried out and the distribution of tasks.
2. The Implementation Team has tested the quality of the results of the separation of tofu pulp with soy milk. This activity is intended to produce a Standard Operating Procedure (SOP) in the operation and maintenance of machines. Thus the optimal production results and high selling value are obtained.
3. The Implementation Team has conducted an outreach to PKM Partners regarding activities to be held in the form of Training on Tofu Waste Separator Machine and Making Diversification of Various Processed Food Waste Tofu Waste.
4. The Implementation Team has conducted training and assistance for the Operation of the Tofu Waste Separator Machine and the Making of Diversification of Processed Food Waste Tofu Waste in a good and smooth condition in accordance with the plan that had been prepared previously.

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