Vol 8 No 1, Maret 2024
ABDI DOSEN
Jurnal Pengabdian Pada Masyarakat
pISSN: 2614-6509
eISSN: 2620-5156

FRESHWATER FISH PRODUCT PROCESSING IN PULOTONDO VILLAGE, TULUNGAGUNG REGENCY, EAST JAVA

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Abstract

Freshwater fish cultivation in Pulotondo Village, Ngunut District, Tulungagung Regency, East Java, has significant potential to increase income and improve the well-being of the community while fostering sustainable economic growth. Ponds managed collectively by the Village-Owned Enterprises (BUMDES) serve as a facility for freshwater fish cultivation, with an annual production of 220 tons. One of the obstacles to the development of this business is the enhancement of the value and shelf life of processed fish products. Therefore, the Community Service activity in Pulotondo Village focuses on training in the processing of freshwater fish products. Through this initiative, BUMDES and the community can enhance understanding and skills, enabling processed products to be stored longer and have a more competitive market value. To assess the training's impact, participants provided feedback through a questionnaire. The results indicate that the training activities were well-understood by the participants, showing an indication of increased entrepreneurial spirit through local potential.

Keywords: Freshwater Fish Processing, Pulotondo Village, Training, Packaging, Storage.

INTRODUCTION

Village Pulotondo is located 11 km southeast of Tulungagung city and 5 km southwest of the sub-district capital Ngunut. The village covers an area of 19 hectares, divided into three hamlets: Juranggandul, Ngrukem, and Jangglengan. Its boundaries are as follows:

- North: Sambirobyong Village (Sumbergempol District)
- East: Brantas River (Wonodadi District)
- South: Pulosari Village (Ngunut District)
- West: Jabalsari Village (Sumbergempol District) Geographically, Pulotondo Village holds a strategic position, mostly situated on flat terrain and serving as a main route connecting parts of Ngunut sub-district to Sumbergempol sub-district, where community mobility is relatively high. As of the end of 2021, the village's population consists of 1840 males and 1757 females. The topography, characterized by fertile plains and efficient irrigation systems, supports agriculture as the primary livelihood for many residents. Besides rice farming, some in Pulotondo also engage in fish pond farming, utilizing communal ponds managed by the Village-Owned Enterprises

Submitted: February-2024 Received: February-2024 Available online: March-2024

(BUMDES). Organizational support in a region significantly impacts the income of fish farmers (Hermawan, 2017).

Freshwater fish farming is a potential venture to boost the economy and welfare of Pulotondo residents, contributing to high, inclusive, and continuous economic growth (Dahuri, 2016). This initiative is one of the pursuits of the people in Pulotondo, Ngunut sub-district, Tulungagung, East Java. Adequate water and land availability have led the majority of the community to engage in freshwater fish farming. The cultivated freshwater fish include Nener fish, Catfish, Snakehead fish, Pangasius, Nile tilapia, and Carp. By the end of 2021, the overall freshwater fish production in Pulotondo reached 220 tons per year, indicating an abundant yield. The nutritional content of fish, including protein, omega-3 fatty acids, minerals, taurine, vitamins, among others, offers various health benefits to consumers (Indrayeni et al., 2019). Considering these nutritional potentials, the processing of freshwater fish could lead to functional food products.

The harvested freshwater fish are marketed directly to consumers, local markets, Farmers' Groups (KUD), middlemen, and retailers. The sales result varies due to seasonal abundance, affecting the selling price and profitability for farmers. Concerns about fish spoilage during abundant harvests often lead to lower prices to avoid significant losses. On the flip side, a bountiful harvest should ideally generate high income, serving as an economic advantage. To minimize losses during peak harvests, processing freshwater fish is a viable solution (Holinesti et al., 2020; Rahayu et al., 2020). Fish processing can contribute to household income in Pulotondo and play a vital role in reducing rural poverty as fish farming enhances household income (Babatunde & Qaim, 2009; Cervantes-Godoy & Dewbre, 2010; de Janvry et al., 2005).

Based on observations, common issues in fish processing are identified, such as a lack of competence in skills related to preparing dishes from freshwater fish, knowledge about processed food production, and business management (Adhywirawan Sutarjo & Warkoyo, 2019; Mas'ud et al., 2017). Therefore, this community service provides a training in freshwater fish product processing/treatment and packaging techniques. Participants showed enthusiasm, evident from their attendance, number of questions asked, and feedback provided during the training.

METHODOLOGY

The approach method employed to support the implementation of freshwater fish product processing training activities in Pulotondo Village is conducted systematically, engagingly, educatively, and enjoyably. Therefore, the method used involves a combination of lectures, discussions, Q&A sessions, demonstrations, and training in the processing and packaging of freshwater fish products. In detail, the activities are carried out as follows:

1. Lecture

   In this stage, theory and explanations are provided to the training participants regarding:

   a. The potential of freshwater fish as a local food source for various food products and its health benefits (nutrition).
   b. Techniques for selecting raw materials, production, and packaging of food in accordance with hygiene and sanitation standards.

c. Fundamental management principles to enhance participants' time, energy, and financial potential, including the calculation of production costs and selling prices.
d. Motivating mothers and teenage girls to actively contribute to improving family economics.

2. Discussion and Questions and Answers on the presented material.
3. Practice

   In this stage, participants are given skill training on:

   a. Practicing the selection of quality raw materials to be processed into various food products.
   b. Practicing the processing of freshwater fish into frozen food products using local ingredients.
   c. Practicing the packaging of the produced products to ensure high quality and longer shelf life, thereby increasing market value.

RESULTS AND DISCUSSION

Community service activities by universities aim to develop and contribute to the success of the development sector towards achieving an advanced, just, and prosperous society. Therefore, in its implementation, efforts are made to solve community problems, and community service should be directed towards activities whose impact and benefits can be directly felt by the involved community (partners). This can be achieved by initially thinking about or reassessing things encountered during activities, development, and the dissemination of science and technology. In line with the above rationale, the general outcomes achieved are the increased knowledge and skills of the partners, particularly in utilizing local food from freshwater fish.

This activity was attended by a total of 20 participants, representing various age groups, with the majority being mothers. The results of the activity can be categorized into four parts:

1. Lecture

The presentation of materials began with a lecture to provide an overview of the entire fish processing activity. In this session, examples of fish processing, the processing process, and challenges faced were also presented (Figure 1). Participants listened attentively to the explanations provided by the speaker. The effectiveness of the lecture method applied in the fish processing activity in Pulotondo Village was proven by the high level of enthusiasm among participants. In the lecture session, an interactive approach and interesting information presentation were key. Participants actively engaged in discussions and Q&A, creating a collaborative and educational atmosphere. The delivery of materials was systematic and clear, enabling participants to understand each piece of information well.

The enthusiastic presence of participants was the main driver of the success of this lecture method. It was evident that from the beginning to the end of the event, no participant left the room. They not only showed interest in the fish processing topic but also provided positive responses to the presented material. The two-way interaction between the speaker and participants created a dynamic learning environment and sparked enthusiasm. Through this interactive lecture method, it is hoped that knowledge and skills in fish processing can be

effectively absorbed and applied by the community of Pulotondo Village, leading to an enhancement of their capabilities in managing fisheries businesses.

Figure 1 Presentation of training materials to participants in Pulotondo Village

2. Discussion and Q&A

Following the completion of the lecture session on fish processing in Pulotondo Village, the atmosphere continued with lively interaction through a discussion and question-and-answer session. Participants enthusiastically seized this opportunity to delve deeper into the processing techniques that had been presented. The discussion session proved to be a valuable platform for the exchange of ideas, experiences, and knowledge between the presenters and participants. Attendees actively posed questions, sought clarification, and shared insights regarding the challenges they faced in managing fisheries businesses in Pulotondo Village.

The presence of the Q&A session demonstrated the level of engagement among participants with the material presented. Presenters patiently addressed each question with in-depth explanations and practical solutions. The discussion expanded participants' understanding of specific aspects of fish processing, including packaging techniques, marketing strategies, and potential business development in the future. This collaborative atmosphere not only enhanced a deeper understanding but also strengthened the local community in collectively formulating solutions and building a collaborative network to support the development of the fisheries sector in their village.

Figure 2. Enthusiasm of Participants during the Discussion and Q&A Session

3. Practice

After the energetic discussion and Q&A session, the activities progressed to the practical stage of fish processing in Pulotondo Village. Participants eagerly prepared to apply the concepts and techniques they had learned directly. The participants actively engaged in each stage of the practice, starting from the fish cleaning process to the vacuum packaging stage. Vacuum packaging, as a technique, can enhance the shelf life of freshwater fish products (Darajat et al., 2023; Mulyawan et al., 2019; Putra et al., 2023)Furthermore, attractive packaging have a positive impact by upgrading the market value of the products (Maryono et al., 2022; Rofieq et al., 2017)

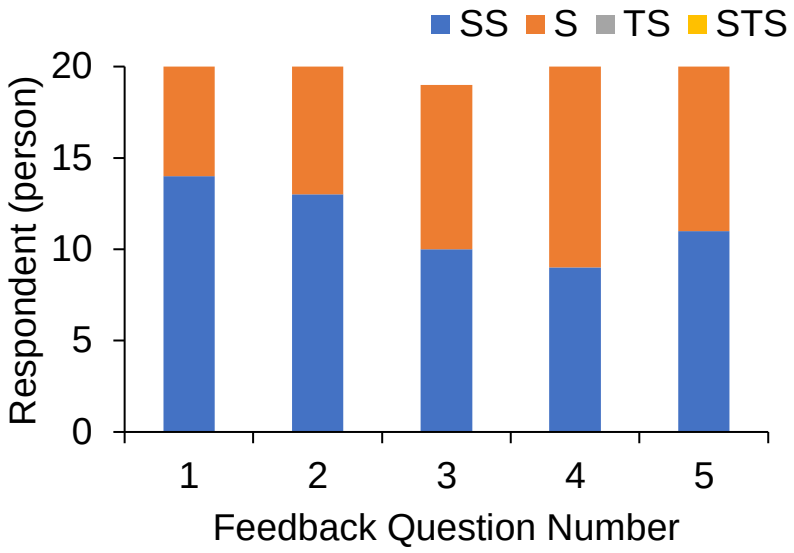
This practice provided practical opportunities for participants to hone their skills and deepen their understanding of the fish processing process. In a collaborative atmosphere, participants could share experiences, provide suggestions, and support each other. The facilitators, who were present during the practical session, offered direct guidance, explaining each step in detail. This activity not only imparted practical insights but also built the participants' confidence to apply these new skills in their freshwater fishery businesses.

With the inclusion of this practical session, it is hoped that participants will not only gain theoretical understanding but also directly implement the necessary methods. The continuity from the lecture, discussion, and Q&A to the practical session provides a holistic approach to enhance the knowledge and skills of the Pulotondo Village community in managing their freshwater fishery businesses.

Figure 3. Packaging practice using a vacuum sealer machine.

4. Training Feedback

The feedback from the Community Service (CS) activity indicates positive outcomes. Out of a total of 20 participants, 70% expressed "strong agreement" with the solutions provided through this activity to address the challenges faced by the partners. This reflects the success in delivering relevant and beneficial responses to the challenges encountered by the partners. Overall, the feedback results show that 55% of the partners feel satisfied with the implementation of the CS activity. This figure indicates that the activity has successfully met the expectations and needs of the partners. The positive satisfaction level serves as an indicator that the CS activity has a positive impact and provides the desired solutions for the participants. Thus, these feedback results can serve as a basis for improving or developing specific aspects of CS activities in the future.



Note:
SS = Strongly Agree
S = Agree
TS = Disagree
STS = Strongly Disagree

Figure 4. Recapitulation of Questionnaire Responses by Training Participants. 1) The Community Engagement Activity provided solutions to the challenges faced by the partners, 2) Team members involved in the Community Engagement Activity were actively providing assistance, 3) The frequency of assistance provided by the Community Engagement Team was perceived as appropriate, 4) There was an improvement in the self-reliance or an increase in knowledge and skills of the partners, 5) Overall, partners felt satisfied with the conducted Community Engagement Activity.

A total of 9 participants, or 45%, stated that there was an improvement in self-reliance or an increase in knowledge and skills after participating in the Community Engagement Activity (PPM). This figure reflects that almost half of the participants have successfully gained significant benefits from the activity. Although only a portion of the participants reported improvement, it still serves as a positive indicator that the Community Engagement Activity has a tangible impact on some partners. Further evaluation can help understand the factors influencing these differences and assess the effectiveness of the methods used. Nevertheless, the success in providing benefits to almost half of the participants indicates the potential for enhancing the sustainability and quality of Community Engagement Activities in the future.

CONCLUSIONS

The Community Engagement Activity (PPM) in Pulotondo Village has shown positive impacts on the participants. Through interactive lecture methods, enthusiastic discussion and question-answer sessions, as well as practical fish processing sessions, the activity successfully enhanced the knowledge, skills, and satisfaction of the participants. The positive feedback from 70% of participants who strongly agreed with the solutions provided, along with 55% of partners expressing satisfaction, indicates that the activity offered relevant solutions and met the expectations of the Pulotondo Village community. Additionally, 45% of participants reported an increase in self-reliance, knowledge, and skills after the activity, indicating a significant positive impact on the majority of participants. The success of interactive lecture methods, in-depth discussion sessions, and engaging practical sessions created a holistic learning experience. All of these can serve as a foundation for the development of future Community Engagement Activities, with a focus on improving specific aspects according to the needs and expectations of the partner community.

Acknowledgment

Our gratitude is extended to the Research and Community Service Center (Pusat Penelitian dan Pengabdian) of Malang State Polytechnic for their support in the form of funding for this activity through the internal competitive grant program.

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