

Community-based product standardization education to strengthen human resource capacity of The Peduli Pesisir forest farmer group in Beras Basah Village, Langkat District, North Sumatra

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ABSTRACT

Forest Farmers Group (KTH) Peduli Pesisir has played an active role in coastal conservation through mangrove forest rehabilitation and the utilization of fishery products. Although it is well known locally and has many customers, the lack of proper standardization is a major obstacle to improving the competitiveness and economic value of its products. This community service activity was carried out using an educational approach and discussions. Participants in the activity were members of the KTH Peduli Pesisir directly involved in food production processes. The methods used included education on hygiene, sanitation, and good manufacturing practices (GMP) in food production in the micro, small, and medium enterprises (MSMEs) and the importance of product standardization. The questionnaire results show that participants' perceptions consistently improved after participating in the program, particularly regarding the importance of product standardization, quality assurance, and consumer trust. Participants also felt that implementing standardization not only facilitates market access but also increases product value and helps meet distribution and certification requirements. Enhancing KTH Peduli Pesisir's capacity in product standardization is a crucial foundation for sustainable business development. The implementation of good quality standards not only improves product safety but also opens access to larger markets and enhances consumer trust. The combination of education and active discussion plays a significant role in promoting economic independence among coastal communities, alongside efforts to preserve the environment.

Keyword: Education, Forest Farmers Group, Processed Food Products, Product standardization, MSMEs.

ABSTRAK

Kelompok Tani Hutan (KTH) Peduli Pesisir telah menunjukkan peran aktif dalam konservasi kawasan pesisir melalui rehabilitasi hutan mangrove dan pemanfaatan hasil perikanan. Walaupun secara lokal telah dikenal banyak pelanggannya, namun ketiadaan standarisasi yang baik menjadi hambatan utama dalam meningkatkan daya saing dan nilai ekonomi produk. Kegiatan pengabdian ini dilaksanakan dengan pendekatan edukatif dan diskusi. Peserta kegiatan adalah anggota KTH Peduli Pesisir yang terlibat langsung dalam proses produksi makanan. Metode yang digunakan mencakup edukasi tentang higiene sanitasi dan GMP (good manufacturing practices) pada produksi makanan di usaha mikro, kecil dan menengah (UMKM) dan pentingnya standarisasi produk. Hasil kuesioner menunjukkan bahwa persepsi peserta meningkat secara konsisten setelah mengikuti program, terutama terkait pentingnya standarisasi produk, jaminan kualitas, dan kepercayaan konsumen. Peserta juga merasa bahwa penerapan standarisasi tidak hanya mempermudah akses pasar, tetapi juga meningkatkan nilai jual produk serta membantu memenuhi persyaratan distribusi dan sertifikasi. Peningkatan kapasitas KTH Peduli Pesisir dalam standarisasi produk menjadi pondasi penting untuk pengembangan usaha yang berkelanjutan. Penerapan standar mutu yang baik tidak hanya meningkatkan keamanan produk,



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tetapi juga membuka akses ke pasar yang lebih besar dan meningkatkan kepercayaan konsumen. Kombinasi edukasi dan diskusi aktif berperan besar dalam mendorong kemandirian ekonomi masyarakat pesisir, seiring dengan upaya pelestarian lingkungan.

Keyword: Edukasi, Kelompok Tani Hutan, Produk Olahan Makanan, Standarisasi Produk, UMKM

1. Introduction

Standardization of processed products from micro, small, and medium enterprises (MSMEs) faces several challenges, as highlighted by various studies. The lack of specific quality assurance and efficiency in production processes, which hinders product growth and stability, is one of the significant issues faced by MSMEs. This can be seen in the context of halal product standardization, where applications such as CEK-PRODAKU aim to improve product quality through certification and assistance, in line with national standards such as SNI [1]. The standardization of processed products from MSMEs in Indonesia is a multifaceted issue involving various aspects such as certification, financial reporting, innovation, and compliance with regulations. Certification and product standardization have been proven to significantly increase sales and competitive advantage for MSMEs, as they provide a framework for quality assurance and market differentiation [2].

In the agricultural processing sector for example, the absence of standardization in input materials, equipment, and processes has led to quality issues, such as contamination, the need for improved processing practices and technological upgrades to meet safety and quality standards [3]. The lack of standardization in packaging for international trade can significantly impact the competitiveness of MSMEs. These standards, while intended to create a level and fair playing field, may inadvertently disadvantage MSMEs from developing countries by imposing additional compliance costs. Therefore, adopting uniform global standards can mitigate these challenges, allowing MSMEs to compete more effectively in global markets by reducing the costs associated with meeting diverse regulatory requirements and minimizing the risk of non-compliance. This approach not only promotes a fairer trading environment but also supports the sustainable growth of MSMEs in the international arena [4]. Thus, the role of the government is very important to support the efforts of MSMEs to take part in the international area.

Improved product standardization through clear regulations, regulatory enforcement, and capacity building can significantly improve product quality and competitiveness, which are critical for economic growth [5]. The positive impact of certification and standardization on sales and competitiveness of MSMEs has been empirically demonstrated, suggesting that these practices are critical for long-term sustainability and market success [2]. Overall, standardization of processed products from MSMEs is a multifaceted challenge that requires coordinated efforts in quality assurance, regulatory compliance, technological innovation, and international alignment to improve product quality and market competitiveness.

The first step that can be taken is to provide education in the form of knowledge of standardization of processed products. This stage is an important step that must be taken so that MSMEs continue to advance and have a future in an increasingly tight market [2]. Ensuring that products from MSMEs that can be accepted by the market are not just one problem, but are large and many, from maintaining quality to understanding regulations, from utilizing new technology to aligning with global standards. All of this is done in order to help the products produced are of higher quality and more confident to compete.

Forest Farmers Group (KTH) Peduli Pesisir as one of the MSMEs that also produces processed products based on preliminary analysis is one of the MSMEs that needs to get education related to product standardization. The main products produced by KTH are processed fishery products and kelulut/trigona honey. Although these products are already well known among local customers, the lack of proper standardization remains a major barrier to improving their competitiveness and economic value at both the national and international levels. From a legal standpoint, KTH products have obtained a Home Industry Food Production Permit (PIRT) issued by the Investment Promotion Agency and One Stop Services of Langkat District since 2023. This means that KTH already has a solid initial foundation in terms of product marketing legality. Compliance with these regulations will support MSME products in entering formal markets more easily and increase their potential for export.

Although locally known to many customers, the absence of good standardization is a major obstacle in increasing the competitiveness and economic value of products on a national or even international scale. Therefore, education related to product standardization was carried out by presenting one of the resource persons from Tottori University Japan.

2. Methods

This activity is part of an international service scheme conducted in collaboration between the University of North Sumatra, Tjut Nyak Dien University, and Tottori University, Japan. This service activity was carried out using an educational approach, including discussions. The methods used include education on sanitary hygiene and GMP (Good Manufacturing Practices) in food production for MSMEs, as well as the importance of product standardization (Figure 1).



Figure 1. Documentation of international service in KTH Peduli Pesisir Kabupaten Langkat: (a) participants; (b) presenters from Tottori University; (c) visit to honey production and (d) discussion process.

This activity was implemented through several systematic stages to ensure participants understanding and application of the material. The first stage was program socialization, where the objectives, benefits, and activity flow were conveyed to the participants, including members of KTH Peduli Pesisir and academics from the University of North Sumatra and Tjut Nyak Dien University. After that, participants completed a pre-test questionnaire to assess their initial condition before the program. The second stage involved the delivery of material and discussions focused on sanitary hygiene practices and the implementation of GMP (Good Manufacturing Practices) in MSME food production. This stage also aimed to ensure that KTH maintains good processes and can improve GMP implementation so that the products can be marketed on a wider scale. The final stage was the completion of a post-test to assess the participants' condition after the program was conducted. With this structured activity flow, it is expected that participants' understanding will gradually increase, which will directly impact the consistency of product quality and the potential for wider marketing.

3. Results and Discussion

KTH Peduli Pesisir in Langkat Regency has shown its commitment in managing mangrove land and empowering coastal communities through fisheries processing and kelulut honey production. KTH Peduli Pesisir has successfully processed various local fishermen's catches into value-added food products, such as fish sauce, shrimp paste, and shrimp crispy made from seafood (Figure 2). These products not only increase the income of the group members, but also expand economic opportunities for the surrounding community. KTH Peduli Pesisir also developed kelulut/trigona bee farming that produces high-quality honey. Kelulut honey is known to have many health benefits and is now one of the group's flagship products. The production process is done manually and hygienically, while still preserving the surrounding environment. However, the production process is still not standardized and still relies on the experience of the producers.



Figure 2. Processed products from KTH Peduli Pesisir.

The Likert scale is used to assess participants' level of understanding of the training material, with each number reflecting the extent to which participants recognize the importance of the subject being evaluated. A score of 1 indicates that participants have very little understanding and do not perceive the relevance of the material, while a score of 2 indicates minimal understanding. A score of 3 signifies that participants have a sufficient understanding but are still uncertain about its application. A score of 4 indicates that participants understand the material and recognize its benefits, while a score of 5 reflects full understanding and readiness to apply the subject consistently. This questionnaire is administered both at the pre-test stage to assess participants' initial condition before the training and at the post-test stage to evaluate improvements in understanding after the activity is completed, allowing for analysis of changes in participants' knowledge and perceptions of the material.

Prior to the service program, the participants' level of understanding generally tended to be in the moderate category, with the majority of responses recorded at a score of 3 to 4 on a 1-5 Likert scale. This finding indicates that participants were aware of the urgency of standardization, but their mastery of the substance was still at a suboptimal level. For example, on the item that revealed "product standardization can increase consumer confidence in MSME products", the average score was at 3. Participants stated that so far their products have been accepted and there are subscriptions that continue to buy even though they currently do not carry out product standardization. After the education, there was an increase in knowledge of the role of product standardization in increasing consumer confidence, especially for export purposes. Figure 3 shows the changes in participants' perceptions regarding the standardization of processed products between before and after the program was conducted.

After the service program, each question item showed an increase in score to reach 5 consistently. This finding indicates that the service activity succeeded in strengthening participants' awareness and knowledge of the benefits of standardization. Participants believe that standardization is not only a protector of product quality and consistency, but also an important prerequisite for modern market penetration and increasing the competitiveness of MSME products. This finding is consistent with the results reported by Sobar, et al. [6], who stated that training participants realized that standardization not only functions as a means of protecting product quality but also serves as an essential requirement for entering modern markets. These findings align with previous studies that reported a 37.34% increase in participants' understanding of market demands and product innovation following training activities.

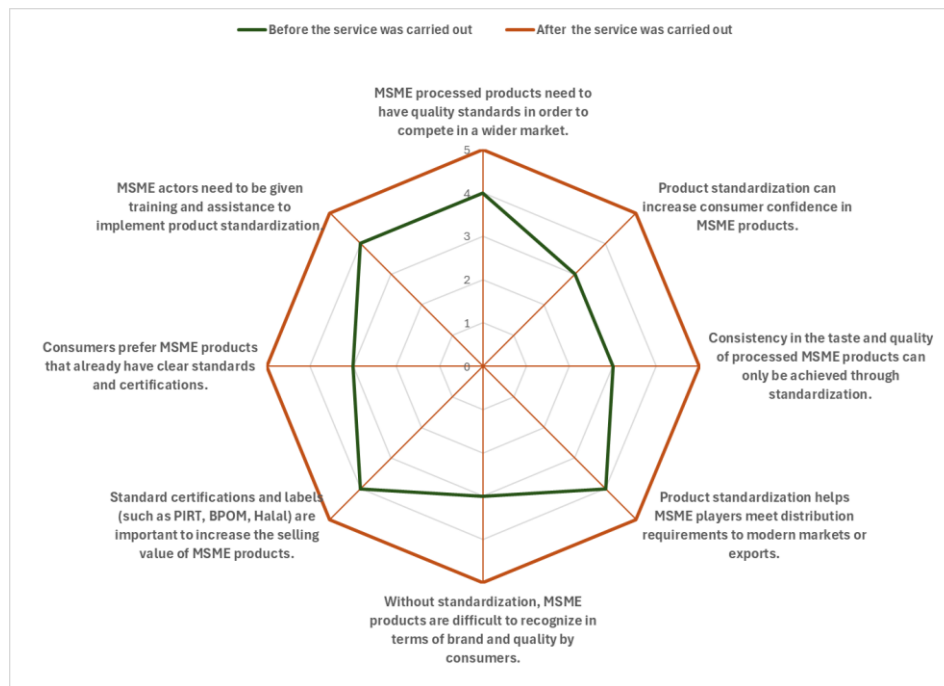


Figure 3. Changes in participants' perceptions after receiving education related to the importance of product standardization.

Positive changes were also noted in perceptions regarding training and mentoring for MSME actors. After the activities were carried out, it was seen that participants stated the importance of training and mentoring in the implementation of product standardization, this was evident from the answer to the question which initially only received a number 4 to a number 5 after the education was carried out. Dinarti, et al. [7] also found a significant improvement in participants' perceptions regarding the importance of training and mentoring for MSME actors, as indicated by an increase in scores from 4 to 5. This emphasizes the role of education as a key factor in the effective implementation of product standardization [8].

Consistency of taste and quality in the food industry is closely related to product standardization. The perception that consistency of taste and product quality can only be achieved through standardization was also highest at a similar score of 3. The perception has been that consumers like their processed products because the taste and quality are considered to have met their desires even though they have not been standardized. However, after education, their awareness of standardized products is increasing. Novianti and Harjoprayitno [9] reported that after the training, changes in participants' perceptions regarding the relationship between taste consistency and standardization further reinforced the finding that participants began to understand the benefits of applying standards to meet consumer expectations. This awareness indicates that standardization practices are no longer perceived as a burden, but rather as an important strategy for maintaining customer satisfaction [10]. Consistent application of standards encourages innovation and strengthens the commitment of MSME actors, which are key factors in maintaining competitiveness amid increasingly dynamic market conditions [11]. In Nigeria, the development of a comprehensive MSME standardization model that emphasizes quality control and government support has contributed to improved access to international markets while simultaneously fostering economic growth [12]. Furthermore, standardization models in the agricultural sector highlight the need for clear regulatory frameworks and collaboration among stakeholders to enhance product quality and safety. These efforts not only increase export potential but also strengthen consumer trust [13]. Therefore, product standardization can be regarded as a fundamental strategy for micro enterprises aiming to grow and remain sustainable in an increasingly competitive market environment.

Standardization plays an important role in ensuring uniformity and consumer satisfaction. Standardized recipes and processes are essential for maintaining consistent quality in culinary products, as they provide detailed guidance on ingredients used, preparation, manufacturing processes and portion sizes, allowing manufacturers to predict and control the quality and cost of the final product. This standardization is not only beneficial for inventory control and labor efficiency but also increases consumer satisfaction as manufacturers are able to deliver consistent food quality [14]. Product standardization plays a crucial role MSMEs seeking

to grow sustainably. Through standardization, both the competitiveness and market value of products can increase significantly. Numerous studies indicate that the implementation of product standards has a positive impact on sales growth and competitive advantage, as it helps MSMEs align their products with consumer expectations and globally accepted quality standards [2]. With this education, participants have increased their knowledge of the importance of product standardization even though there are still many obstacles.

Although there has been an increase in knowledge of the importance of product standardization for MSMEs, there are still many obstacles to its practical implementation. As reported by Cicek [15], small and medium enterprises face many challenges when adopting product standardization, mainly due to limited resources and organizational constraints. One significant challenge is the implementation of quality management systems such as ISO 9001:2015, which require extensive documentation and risk analysis. These requirements burden SMEs with bureaucratic demands that can hamper operational efficiency if not managed with simplicity and effectiveness.

SMEs also often experience problems with the integration of digital technology, which is critical for standardization but is hampered by limited resources, skills gaps, and often found to be resistant to change [16]. Resistance to change occurs due to educational factors and the weakness of MSME actors to make changes and tend to stay with the way they have been accustomed to.

4. Conclusions

Based on the comparison of conditions before and after the implementation of the service program, there was a significant improvement in MSME actors' understanding of the importance of product standardization. All statement items showed higher scores after the service was provided, indicating increased awareness that quality standards, product consistency, and certifications such as PIRT, BPOM, and Halal play a crucial role in enhancing consumer trust and the market value of MSME products. Furthermore, product standardization is also understood as an important factor in meeting distribution requirements for modern retail markets and export opportunities, as well as facilitating brand recognition and product quality identification by consumers. These results demonstrate that the training and mentoring activities were effective in strengthening MSME actors' understanding of the implementation of product standardization as a strategy for sustainable business development. Although knowledge has increased, several obstacles are faced by KTH when implementing product standardization, such as limited human resources and equipment. Further assistance is needed from the government, educational institutions, and other non-governmental organizations to support the implementation of the processed product standardization program in KTH Peduli Pesisir.

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