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Diversifying Groundnut Products: Empowering the Kulo Farmers Group with Peanut Milk and Butter

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ABSTRACT

Groundnut (*Arachis hypogaea*) is one of the leading agricultural commodities in Teluk Village, Pemayung Subdistrict. The local variety, Garuda, is characterized by its large size and high yield potential, typically producing 3–4 seeds per pod. Despite its potential, the commodity is commonly sold only in raw form, limiting its economic value. This community engagement project aimed to empower the Kulo Farmers Group by diversifying groundnut-based products into peanut milk and peanut butter. The program was implemented through the Student Organization Capacity Building Program (PPK Ormawa Tymac), with the university serving as a facilitator of knowledge and technology transfer. Activities included product development, business registration (NIB), intellectual property rights (IPR) facilitation, partnership building, and the creation of a digital marketing platform via Shopee. The Participatory Rural Appraisal (PRA) approach was applied to ensure that activities were tailored to the actual needs and capacities of the community. As a result, the farmers gained practical skills in food processing and entrepreneurship, and the value of local groundnuts increased through product innovation. This program demonstrated that academic–community collaboration can enhance local economic resilience. Continued mentoring and market expansion are recommended to sustain the initiative's impact.

Keywords: Community Ewpowerment; Digital Marketing; Food Processing; Groundnut; Product Innovation.

INTRODUCTION

Teluk Village, located in Pemayung District, Muaro Jambi Regency, is a lowland area traversed by the Batanghari River with an agricultural landscape dominated by rice fields, rubber plantations, and oil palm estates. The majority of its 3,295 residents work as farmers, laborers, or engage in small-scale animal husbandry. One of the key agricultural commodities in this village is groundnut (Arachis hypogaea), which has been cultivated since 2010 with an average yield of 4.7 tons from 4.42 hectares. However, groundnuts have mostly been marketed in raw form without value-added processing (Kurniawan & Purnamawati, 2017; Gulo et al., 2020).

In response to the rising national demand for groundnuts—driven by population growth, nutritional needs, and the expanding food and feed industries (Kaya, 2012; Yasier et al., 2023)—the Kulo Farmers Group (Kacang Tanah Kito Gegalo), a local partner mentored by the PPK Ormawa Tymac team, was encouraged to diversify their groundnut-based products. This initiative led to the development of peanut milk and peanut butter as alternative products. Such innovation not only addresses the limited processing skills of the farmers but also supports the local government's efforts to

reduce stunting rates (Abidin & Rahmawati, 2023; Hamzah & Syam, 2024). In Batanghari Regency, which reached 9.01% according to the 2023 Health Department census. The introduction of peanut milk, as a nutritious and locally sourced food product, is expected to contribute to the nutritional improvement of the community, especially among vulnerable groups (Utami et al., 2017; Simbolon et al., 2022).

Groundnut (Arachis hypogaea) is a nutrient-dense legume containing approximately 25–30% protein, 40–50% fat, 12% carbohydrates, and vitamin B1, placing it second only to soybean in terms of nutritional value (Mayura & Idris, 2019; Yunanda, 2022). Its industrial applications are diverse, including the production of margarine, soap, cooking oil, plant-based milk, and various snack foods (Firia et al., 2022; Leonita et al., 2020). Among these, groundnut milk offers significant advantages due to its high nutritional content, making it particularly beneficial for infants, children with undernutrition, and individuals suffering from malnutrition (Utami et al., 2017; Putriningtyas et al., 2019). The growing demand for milk in Indonesia, alongside increasing awareness of alternative nutrition sources and the rising cost of dairy milk, creates a favorable context for developing groundnut milk as an affordable and locally produced substitute (Apriani et al., 2021; Helliyah & Syahadatina, 2023).

Despite this potential, farmers in Teluk Village, Pemayung District, Batanghari Regency, continue to market ground nuts primarily in raw form. Teluk Village, characterized by a predominantly agricultural population, is home to the Kulo Farmers Group, which has yet to develop the capacity for value-added processing due to limited technical skills and inadequate access to equipment and knowledge. This situation highlights a critical gap between existing agricultural potential and its practical utilization for community welfare and economic growth. It also reflects a broader pattern of underutilization of local food commodities in rural Indonesia, which calls for urgent intervention (Sanger at al., 2018; Komalasari & Karni, 2023; Rizkaprilisa, 2023).

The issue is closely related to the authors' field of expertise in agricultural education and community-based empowerment. Bridging this gap through capacity-building efforts aligns with the national agenda for rural entrepreneurship, food diversification, and stunting prevention (Beal et al., 2018; Putri et al., 2023). By introducing practical skills in groundnut processing—such as milk and peanut butter production, the operation of grinding machines, and attractive packaging techniques, this program seeks to enhance household income, promote local food innovation, and support nutrition improvement.

The objective of this community service initiative is to empower the Kulo Farmers Group by transferring knowledge and practical skills in groundnut processing, thereby facilitating the development of household-scale agribusiness and contributing to sustainable rural development.

METHODS

The community service activity in Teluk Village, Pemayung District, Batanghari Regency, was conducted from July to October. The target group involved in this program consisted of 25 participants, comprising 20 members of the Kulo Farmers Group and 5 members of the PKK (Family Welfare Movement) management in Teluk Village. The implementation of this community service program was carried out using the Participatory Rural Appraisal (PRA) approach, a method that actively involves all participants in the planning and decision-making process, ensuring that the outcomes are more relevant and beneficial for the community (Astari & Efelina, 2021). The stages of the program's implementation included:

a. Identifying the needs of the Kulo Farmers Group for business development and determining the appropriate timing for the main activities. The needs identified included packaging equipment (vacuum sealer), ground nut grinding machines, cooking utensils (stoves, pans, etc.), plastic packaging, jars, label creation, and

assistance in registering for NIB (Business Identification Number) and HAKI (Intellectual Property Rights). Additionally, the team helped establish partnerships and created an e-commerce platform (Shopee) to market the products.

b. Providing equipment support: The provision of these essential tools was aimed at improving production efficiency, reducing costs, and ensuring that the products produced were of high quality and competitive in the market.
c. Conducting practical training on peanut milk and peanut butter production using the equipment and raw materials provided by the project team. This hands-on training allowed participants to gain practical experience and assess the impact of the tools provided on production processes.
d. Evaluating post-production activities: An evaluation was conducted following the practical production sessions to measure the progress and success of the intervention, identify challenges faced during production, and assess the effectiveness of the newly acquired tools.

The intervention strategy employed in this program was designed to address the specific needs of the Kulo Farmers Group, emphasizing skills development in small-scale food processing. By providing the necessary equipment, knowledge, and support, the intervention aimed to empower the group to diversify their products and enhance their economic viability. The target group consisted of members of the Kulo Farmers Group, who are primarily engaged in ground nut farming, and members of the PKK, who are involved in community development and welfare activities. The group was selected due to their direct involvement in agriculture and the potential to expand their business through value-added processing.

The evaluation of the program was conducted through both qualitative and quantitative methods. Monitoring was done through regular follow-up meetings, production assessments, and feedback sessions to track progress. Key indicators of success included the production output, the quality of the processed products, and the sales performance via the e-commerce platform. Additionally, participant satisfaction and skills gained were assessed through interviews and surveys. The monitoring process ensured that any challenges were addressed in a timely manner and that the program's goals were met effectively.

RESULTS AND DISCUSSIONS

The core activity of this community engagement program was conducted using a hands-on practice method (learning by doing). Theoretical materials were presented on how to produce peanut milk and peanut butter, including instructions on operating the peanut grinder and the peanut milk-making machine. During the practical session, each participant received a training module and was directly trained to operate the equipment provided.

The production practice was conducted in small groups using the tools and raw materials prepared by the implementation team. This method was chosen to ensure participants fully understood the end-to-end process—from raw material preparation to final product—and were able to replicate it independently after the program concluded (Pramono, 2021; Puspita & Komarudin; 2021; Miliyanti et al., 2022).

1. Identification of Farmer Group Needs

The initial stage involved identifying the practical needs of the Kulo farmer group related to local peanut processing. Participatory mapping with 25 participants—20 Kulo group members and 5 Teluk Village PKK representatives—revealed a lack of equipment such as vacuum sealers, peanut grinders, and cookware. The group also lacked knowledge about packaging, legal registration (NIB, IPR), and digital marketing strategies.

This approach aligns with Participatory Rural Appraisal (PRA) principles, enabling community members to express their needs based on lived realities (Chambers, 1994; Sulaeman et al., 2023). Previous studies emphasize that accurate needs identification is vital for

effective rural development programs (Sedyastuti, 2018; Suhaeli et al., 2024).

2. Provision of Processing Equipment

The team provided a set of peanut processing equipment and packaging materials. This intervention significantly improved production efficiency and product standardization. Beneficiaries reported a 35% reduction in production time and a 50% increase in product shelf life due to vacuum sales. These findings are in line with other studies showing that access to appropriate technology enhances the productivity of micro agro-industries (Abbas & Suhaeti, 2016; Astutiningsih & Sari, 2017). The integration of simple food processing tools in rural areas not only increases value-added products but also facilitates commercialization by smallholders (Elizabeth & Anugrah, 2020).

3. Peanut Milk and Peanut Butter Production Training

Hands-on training sessions enabled participants to produce peanut milk and butter using locally sourced raw materials. Products tested during organoleptic evaluations were well received, with 87% of respondents rating taste and texture as “good” or “very good.” This level of acceptance highlights the potential for broader consumer adoption. Peanut milk is a high-protein alternative that can address rural malnutrition (Utami et al., 2017; Ramadhani et al., 2022), while peanut butter’s long shelf life and commercial viability make it a promising micro-enterprise product (Susanti, 2019).

The peanut milk product developed by the Tymac PPK Ormawa Team in collaboration with the Kulo Farmer Group in Teluk Village is branded as KATAMILK, an abbreviation of kacang tanah milk (peanut milk). Its primary brand name, KULO, stands for Kacang untuk Gegalo (Peanuts for All), representing local identity and the spirit of community empowerment.

Figure 1. Product Packaging

The product packaging includes essential information such as ingredient composition, flavor variants, and expiration date. However, the halal certification logo has not yet been included, as halal certification in Indonesia requires at least one year of consistent production. KATAMILK has officially obtained a Business Identification Number (NIB) with the registration number 1608230031372, reflecting its legal standing and readiness for broader market distribution.

Based on laboratory tests conducted by the Department of Industry and Trade of Jambi City, the peanut milk product contains 4.19% protein and 4.7% lactose. These values comply with the requirements set by the Indonesian National Standard (SNI), specifically SNI 01-2891-1992 for protein content and SNI 01-2892-1992 for lactose content. Therefore, the product is considered safe for consumption and suitable for sustainable production and distribution.

4. Post-Training Evaluation

The success of this program can be assessed through the achievement of predefined targets (Wulandari et al., 2022). This is monitored through comprehensive evaluation and monitoring activities conducted by the Tymac PPK Ormawa Team in collaboration with the Kulo Farmer Group. The evaluation process plays a crucial role in measuring the extent or percentage of success of the program implementation. Furthermore, the outcomes of this evaluation will be reported to the Directorate of Student Affairs (Belmawa), Ministry of Education, Culture, Research, and Technology (Kemdikbudristek), as an accountability measure for the grant

received by the implementing team. Post training evaluation can be seen in Figure 2.

Figure 2. Post-training Evaluation

Post-training evaluation through surveys and interviews revealed a 75% improvement in participants' skills in food processing, packaging, and e-commerce marketing. Furthermore, the group obtained a business license (NIB), submitted IPR documentation, and launched a Shopee online store, receiving orders by the second month.

This outcome emphasizes the importance of skill building, digital literacy, and legal empowerment for rural agro-entrepreneurs. Empowerment models that combine these elements produce more market-oriented and resilient small businesses (Munthe et al., 2023).

The improvement in the quality of the peanut milk produced and related products is expected to contribute to increased income for members of the Kulo Farmer Group. Ultimately, this will help ensure the sustainability of their business while also enhancing their standard of living and overall well-being. In addition, this program aligns with Indonesia's national efforts to reduce stunting by offering a locally sourced, protein-rich milk alternative. Community-based nutrition interventions have been shown to improve child health outcomes (Abidin & Rahmawati, 2023).

CONCLUSION

The PPK Ormawa program conducted in Teluk Village, Pemayung District, Batanghari Regency has demonstrated a positive impact by enhancing the capacity of the Kulo Farmer Group through hands-on training in peanut processing into milk and spread, alongside the provision of production tools that support efficiency and quality improvement. The program's success is reflected in the increased technical skills of group members, the establishment of a local product identity (KATAMILK), and business legitimacy through the registration of a business license (NIB) and nutritional content testing. Evaluation and monitoring indicated significant achievement of the program's targets, with promising implications for increased income and improved livelihoods. Therefore, it is recommended that this initiative be continued through sustained mentoring, halal and food safety certification, and expansion of marketing networks as part of a broader socio-economic transformation strategy based on appropriate and collaborative innovations in rural communities.

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