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Increasing Farmers' Economic Capacity Through the "BERTANI" Micro Program in Tonasa Village

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Abstract

The "BERTANI" (Strengthening the Economic Capacity of Farmers in Tonasa) program aims to enhance the economic capacity of farmers in Desa Tonasa through training, micro-enterprise mentoring, and strengthening of farmers' groups. The primary objective is to improve farmers' knowledge, skills, and farm management practices, leading to increased productivity and income. The approach used is participatory action research (PAR), which involves the community as main partners in the change process, starting from field observations to data analysis for relevant solutions. The results show significant improvements in farmers' understanding and skills related to cultivation techniques, business management, and crop diversification, contributing to higher productivity and income. The program also strengthens farmers' group institutions and builds partnership networks with various agencies. In conclusion, capacity-based empowerment effectively increases farmers' welfare and can serve as a replicable model for other villages.

Introduction

Farmers in Tonasa Village face various problems which have an impact on low levels of economic welfare. These problems include low access to business capital, limited knowledge regarding farming business management, lack of application of efficient cultivation technology, and minimal market access to market production results. This condition results in suboptimal agricultural productivity, stagnant farmer incomes, and the competitiveness of agricultural commodities remains low. Apart from that, most farming patterns at the household level are still subsistence and have not yet developed into micro-enterprise units capable of producing added value. Low economic literacy and weak farmer group institutions worsen farmers' ability to adapt to market changes and village development challenges. Therefore, comprehensive intervention is needed through an empowerment approach and increasing economic capacity (Rahman 2024).

The urgency of this program is based on the urgent need to increase the economic capacity of farmers through a micro approach based on community empowerment. The BERTANI (Empowering the Economy of the Tani Tonasa People) program is designed as an empowerment strategy that combines training, mentoring for micro businesses, and strengthening farmer institutions. The rationalization of activities lies in the fact that increasing the human resource capacity of farmers is the foundation for encouraging village economic transformation. By providing access to skills, knowledge and support for micro businesses, farmers can build businesses that are more productive, responsive to the market and sustainable. This approach is in line with the direction of modern agricultural development which emphasizes increasing added value and economic independence of village communities (Mannahali et al. 2024).

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The farmer empowerment program is rooted in the concept of community empowerment which emphasizes increasing individual and institutional capabilities in managing resources independently. Empowerment theory according to Zimmerman and Perkins emphasizes the importance of psychological, participatory and structural capacities in improving community welfare. In a microeconomic context, farming can be categorized as a small business unit that requires capital support, management, marketing networks and technology (Todaro & Smith). Participatory approaches such as the Participatory Action Research (PAR) Approach are also relevant because they encourage communities to actively identify needs, problems and solutions collaboratively. Apart from that, agricultural added value can be increased through business diversification, product processing (home agro-industry), and the application of appropriate technology which has been proven to increase farmer household income in various village empowerment studies (Windari 2021).

The problem solving plan in the Micro BERTANI Program is prepared comprehensively to address the main obstacles faced by farmers in Tonasa Village. The efforts made include increasing the knowledge and skills capacity of farmers through a series of training on cultivation techniques, product processing and business management that are relevant to their needs. Apart from that, micro business assistance activities are carried out intensively to help farmers design and develop agricultural-based business units that are able to provide added economic value (Suswadi 2022). Strengthening farmer group institutions is also an important part of this strategy, so that farmer groups can function as a forum for collaboration, access to capital and a marketing tool. This program also encourages the development of partnership networks with village governments, market players and other supporting institutions to expand farmers' economic opportunities. In addition, the application of appropriate technology is a strategic step to increase production efficiency and the quality of agricultural products. With this series of efforts, this program is expected to be able to provide sustainable solutions for increasing farmers' economic capacity (Herawati 2025).

Methods

Research Approach and Community Service Design

This community service activity was conducted using a Participatory Action Research (PAR) approach, which emphasizes active community participation in identifying problems, designing solutions, implementing activities, and evaluating the results. PAR was chosen because it positions the community not only as the target of intervention but also as the main actor involved in the process of change. This approach allows the development of solutions based on the real conditions, experiences, and needs of the community.

The service activity was carried out in Tonasa Village, particularly in Maroanging Hamlet, focusing on the agricultural sector, especially tomato farming. The implementation of PAR consisted of several interconnected stages, including problem identification, participatory planning, action implementation, and reflection evaluation. Through these stages, farmers were actively involved in determining agricultural problems and developing strategies that were relevant to local conditions.

The main objective of this activity was to assist farmers in addressing agricultural challenges, particularly declining tomato selling prices, dry-season cultivation constraints, and limited knowledge regarding sustainable farming strategies. The PAR

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approach enabled the service team and farmers to collaboratively formulate solutions that could improve agricultural productivity and strengthen farmers' economic resilience.

Participants and Location of the Activity

The participants in this community service program were tomato farmers in Maroanging Hamlet, Tonasa Village. The selection of participants was based on their direct involvement in tomato cultivation activities and their experience in facing agricultural challenges. Farmers acted as partners throughout the service process by providing information regarding cultivation practices, production constraints, market conditions, and their expectations for agricultural development.

The involvement of farmers was essential because PAR requires continuous interaction between facilitators and community members. Farmers contributed through discussions, field observations, interviews, and practical implementation of recommended agricultural strategies. The collaboration between the service team and farmers created a participatory learning environment where knowledge exchange occurred in both directions.

Data Collection Techniques

Data collection was conducted through several participatory techniques, including direct observation, interviews, and group discussions with farmers. Field observations were carried out by visiting agricultural areas together with farmers to identify actual conditions of tomato cultivation. The observation process focused on plant growth conditions, pest and disease problems, soil and land conditions, irrigation availability, fertilization practices, and cultivation techniques applied by farmers.

Interviews were conducted through informal discussions with farmers to explore their experiences and challenges in tomato production. The information obtained included problems related to climate conditions, especially drought during the dry season, fluctuations in tomato selling prices, production costs, and farmers' strategies for maintaining income stability.

Furthermore, participatory discussions were conducted to validate the identified problems and formulate appropriate solutions. The results of these discussions became the basis for designing agricultural assistance activities that were aligned with the needs of farmers in Maroanging Hamlet.

Implementation Stages of the Community Service Program

The first stage involved observing agricultural conditions and discussing directly with farmers to identify the main challenges faced in tomato cultivation. The results showed that farmers experienced difficulties due to prolonged dry seasons, pest risks, and a significant decrease in tomato selling prices. The price decline from approximately IDR 120,000 per bag to IDR 55,000 per bag became one of the major concerns affecting farmers' income. After identifying the problems, the service team and farmers collaboratively developed strategies to address these challenges. The planning process focused on improving cultivation management, strengthening farmers' knowledge, and developing adaptive strategies for dealing with market fluctuations. Several strategies were formulated, including improved fertilization management, Integrated Pest Management (IPM), proper irrigation practices, selection of appropriate planting periods, and diversification of horticultural crops.

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The action stage was implemented through agricultural counseling and technical assistance. Farmers received education regarding balanced fertilization techniques, plant maintenance during dry seasons, pest control using IPM principles, and proper watering techniques, particularly recommending tomato irrigation in the afternoon to reduce plant stress. In addition, farmers were provided with knowledge regarding economic strategies, including adjusting planting schedules to avoid periods of excessive supply, diversifying agricultural commodities, and utilizing post-harvest land to reduce dependence on a single crop. The assistance process was conducted through direct demonstrations and discussions to ensure that farmers could apply the recommended practices.

The final stage involved evaluating the implementation process through discussions with farmers. Evaluation focused on farmers' understanding of the materials provided, the feasibility of implementing agricultural recommendations, and the potential impact of the strategies on farming productivity and income improvement. Reflection activities were conducted to identify strengths and limitations of the program. The feedback obtained from farmers became important input for improving future community service activities and ensuring that agricultural assistance remains sustainable and relevant to local conditions.

Data Analysis

The data obtained during the community service activities were analyzed descriptively using a qualitative approach. Information from observations, interviews, and discussions was categorized based on the main themes, including cultivation problems, environmental challenges, economic constraints, and farmer empowerment strategies. The analysis process aimed to describe the effectiveness of the PAR approach in increasing farmer participation and developing solutions based on local agricultural conditions.

Through this method, the community service activity was expected to produce practical contributions for farmers in Maroanging Hamlet by improving agricultural management capacity and strengthening their ability to respond to production and market challenges.

Superior Program

One of the topics discussed in the 'Aisyiyah South Sulawesi Institute's Thematic KKN briefing for the 2025/2026 period is that observation is the first step that must be carried out in implementing Thematic KKN. Observations are carried out to collect data and produce information for the team, which will then be analyzed. The results of this analysis will be used to plan work programs and conditional activities that will be presented to the Tonasa Village community in work program seminars. The work program and conditional program aim to overcome the problems that exist in Tonasa Village. In an effort to empower the economy of farmers in Tonasa Village, we are trying to carry out assistance called "BERTANI" which is an abbreviation for Tonasa Farmer People's Economic Empowerment.

The "BERTANI (Economic Empowerment of the Tonasa Farming People)" program is a superior program designed based on the results of field observations at the beginning of the implementation of the 'Aisyiyah Institute of South Sulawesi's Thematic KKN. Observations on the horticultural land in Tonasa Village show that farmers face various challenges, such as traditional cultivation techniques, quite high pest attacks, and lack of access to modern cultivation training and farming business management. Through direct

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interaction with farmers, including plant inspections, discussions about land conditions, and collecting field data as seen in the photo, the KKN team succeeded in identifying the main needs of the farming community. The BERTANI program was then structured to provide technical assistance, GAP training and integrated pest control, as well as increasing agricultural economic literacy. The aim is to increase farmer capacity, encourage business efficiency, and strengthen the local economy in a sustainable manner. With a collaborative approach and based on field evidence, this program is a strategic step in efforts to empower the economy of Tonasa Village farmers (Asnuryati 2023).

Results



Figure 1. Agricultural Land Observation



Figure 2. "BERTANI" Program

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Farmer training and education in the BERTANI program is designed to improve farmers' overall technical and managerial abilities. The material provided includes correct cultivation techniques according to good agricultural practice standards, management of fertilizer and pesticide use to make it more efficient and environmentally friendly, implementation of integrated pest control to reduce crop damage, as well as farming business analysis to help farmers understand production costs, profits and efficiency of their business (Saputra, Rahman, and others 2024). The training process is carried out using varied methods, starting from lectures to provide basic theoretical understanding, demonstrations to show how to practice in the field, discussions to explore the experiences and problems faced by farmers, to direct demonstrations on the land so that participants can see the results and techniques applied in real life. This approach ensures that farmers not only understand the concepts but are also able to practice them independently and sustainably. This program is expected to increase farmers' income with abundant fruit yields in all commodities so that farmers' welfare will increase, especially in Tonasa Village (Effendi, Juita, and Balkis 2024).

Result

The results of the "BERTANI" program have had a tangible impact on increasing farmers' knowledge of modern cultivation techniques, land management, and understanding of appropriate agricultural inputs. Through training sessions and field mentoring, farmers gained a better understanding of the concept of sustainable agriculture, efficient fertilizer use, and the importance of integrated pest control. This knowledge provides a crucial foundation for improving production quality and reducing ineffective cultivation practices. In addition to knowledge, farmers' technical skills also significantly improved. Farmers were able to practice good land management practices, more measured planting techniques, and the use of simple tools and technology that support work effectiveness. This hands-on approach accelerated the development of farmers' skills and enabled them to apply them independently after the program concluded (Bachtiar et al. 2025).

The program also fostered positive changes in farmers' ability to manage their farms more professionally. They learned to plan cropping cycles, manage capital use, record costs and yields, and make business decisions based on simple data. These managerial skills better prepared farmers to deal with fluctuating market prices and unpredictable weather conditions. The application of this new knowledge and skills resulted in increased land productivity, enabling farmers to produce higher yields in both quantity and quality. Efficient fertilizer use, more precise pest control, and more disciplined cultivation techniques contributed to increased yields, which were directly felt by program participants (Alfidyah 2025).

The success of the "BERTANI" program is inseparable from several supporting factors, such as active farmer involvement, support from village officials, and the availability of competent mentors. Synergy between implementing agencies and village communities created a conducive learning environment, enabling the material to be effectively absorbed and implemented. Furthermore, the availability of training facilities and demonstration plots strengthened the program's impact. Despite its effectiveness, program implementation still faced challenges such as limited farmer time, unstable weather conditions, and differences in understanding among participants. To address these challenges, the implementation team adjusted the training schedule to avoid

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disrupting farmers' primary activities, increased field mentoring sessions, and provided materials using a simple, step-by-step approach. These efforts ensured that all participants could optimally participate in the program (Indraningsih and Swastika 2021).



Figure 3. Harvesting process, the result of the "BERTANI" program

The BERTANI program has shown real success through increasing farmers' harvests in Tonasa Village. This success can be seen from the farmers' ability to apply all training materials, starting from cultivation techniques, fertilizer and pesticide management, to implementing integrated pest control. Intensive assistance enables farmers to improve cropping patterns, increase fertilizer efficiency, and prevent pest attacks without relying excessively on chemical pesticides. As a result, plant productivity increases significantly and produces more abundant and good quality harvests.

Apart from that, this program also strengthens solidarity and cooperation between farmers in one group. Regular discussions held during mentoring encourage the exchange of experiences, providing solutions to each other, and sharing effective strategies in cultivation. This habit of mutual support creates a more unified work atmosphere and makes it easier to coordinate land management, especially when facing challenges such as extreme weather changes or attacks by plant pests. With increased group cohesiveness, farmers feel more confident and have strong social support to continue implementing innovations learned through the BERTANI program.

Discussion

Evaluation And Monitoring Stages

After the entire series of training and mentoring activities in the "BERTANI" Program are completed, the final and crucial stage is evaluation and monitoring. This evaluation is conducted to assess the extent to which the program's objectives have been achieved, particularly in increasing farmers' capacity in terms of knowledge, skills, and managerial abilities in managing their farming businesses. The evaluation process examines how

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participants apply the provided cultivation techniques, manage their land efficiently, and their ability to plan and make decisions in their agricultural businesses (Juk et al. 2024). Furthermore, the evaluation assesses the program's economic impact, including changes in crop productivity, increased income, and efficient resource utilization, ensuring tangible benefits for farmers (Kurdi et al. 2023).

Factors contributing to success, such as farmer motivation, village government support, and the availability of production facilities, are also analyzed, along with any obstacles, such as limited capital, weather changes, or problems with crop distribution, to enable appropriate improvement strategies to be developed (Pratiwi 2025). Post-training monitoring is conducted periodically through visits to participants' fields to ensure the continued application of the knowledge and skills acquired, provide additional guidance, and help address any obstacles that arise. The results of the evaluation and monitoring are then compiled into a comprehensive report, covering successes, challenges, and recommendations for program improvement. In this way, the "BERTANI" Program can be continuously improved, both in terms of training materials, mentoring strategies, and economic support, thus optimizing the long-term impact on farmer welfare in Tonasa Village (Ahmad et al. 2024).

Conclusion

The "BERTANI (Empowering the Economy of Tonasa Farmers)" program has successfully increased the capacity of farmers in Tonasa Village through training, mentoring, and more effective farm management. Program participants demonstrated increased knowledge and skills in cultivation techniques, farm management, and more thorough production planning. Positive impacts were also seen in agricultural productivity and increased income, demonstrating a significant contribution to farmers' economic well-being. Supporting factors such as participant motivation, village government support, and access to production inputs contributed to the program's success, while emerging challenges were addressed through appropriate mentoring strategies. Post-activity evaluation and monitoring ensured the continued application of the knowledge gained and served as a basis for future program improvements.

The author's recommendations for the sustainability of the "BERTANI" program include ongoing mentoring with greater frequency to ensure consistent application of cultivation techniques and farm management. Support for production inputs and access to capital need to be strengthened so that economic barriers do not diminish the effectiveness of the knowledge gained by participants. Furthermore, developing more specific training materials tailored to the village's leading commodities will help farmers improve their skills in a more focused and impactful manner. Post-training monitoring should also be conducted routinely with systematic documentation, so that evaluations can provide more precise and strategic recommendations. Furthermore, expanding collaboration with government agencies, the private sector, or local organizations can improve market access and economic support for farmers, thereby ensuring the sustainability of the program and improving the welfare of farmers in Tonasa Village.

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