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Empowering Women Farmers through the Moengko Nursery House Program in Poso District

Achmad Budiawan Putra[1], Fahmi Khatib Rahman[2], Muhammad Suheri Sastri[3], Andi Ade Ulasaswini[4]

[1, 2, 3] PT. Pertamina Patra Niaga Fuel Terminal Poso, Poso, Indonesia
[4] Nutrition Study Program, Institut Teknologi dan Kesehatan Tri Tunas Nasional, Makassar, Indonesia

Correspondence: ade.ulasaswini@gmail.com

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ABSTRACT
The farmer mother's empowerment program is a very important and strategic initiative in an effort to improve the welfare of rural communities. This program aims to empower farmer mothers in Poso through the implementation of the Moengko Nursery House Program, a collaborative initiative between PT Pertamina Patra Niaga Fuel Terminal Poso and the local community. The program is focused on improving the skills and capacity of farmer mothers in crop cultivation, particularly through the development of sustainable nursery houses. The methods used in this program include technical training, field assistance, cooperative system education, and the Moengko healthy kitchen program. The location of the Moengko Nursery House Program activities is located in Poso Terminal Fuel operational area. The target of this program is the Citra Bersatu Women Farmers Group, which consists of 12 people in Moengko Village. The results of this activity showed an increase in the knowledge and skills of farm women in cultivation techniques, including the selection of superior seeds, seeding techniques, and plant care. In addition, the program also succeeded in establishing a cooperative system that encourages the sustainability of farmer group businesses, as well as the promotion of the Moengko Healthy Kitchen Program. The program evaluation showed a positive impact on the independence of farmer mothers in procuring vegetables independently, the cooperative system of vegetable cultivation, and the processing of healthy food ingredients for the family.

Keywords: farmers; farms; female; program evaluation; vegetables

ABSTRAK
Program pemberdayaan ibu petani adalah inisiatif yang sangat penting dan strategis dalam upaya meningkatkan kesejahteraan masyarakat pedesaan. Program ini bertujuan untuk memberdayakan ibu-ibu petani di Poso melalui implementasi Program Moengko Nursery House, sebuah inisiatif kolaboratif antara PT Pertamina Patra Niaga Fuel Terminal Poso dan masyarakat setempat. Program ini difokuskan pada peningkatan keterampilan dan kapasitas ibu petani dalam budidaya tanaman, khususnya melalui pengembangan rumah pembibitan (nursery house) yang berkelanjutan. Metode yang digunakan dalam program ini mencakup pelatihan teknis, pendampingan lapangan, edukasi sistem koperasi, dan program dapur sehat Moengko. Lokasi kegiatan Program Moengko Nursery House berlokasi di wilayah operasional Fuel Terminal Poso. Sasaran dari program ini yaitu Kelompok Wanita Tani Citra Bersatu yang berjumlah 12 orang di Kelurahan Moengko. Hasil dari kegiatan ini menunjukkan peningkatan pengetahuan dan keterampilan ibu petani dalam teknik budidaya, termasuk pemilihan bibit unggul, teknik penyemaian, dan perawatan tanaman. Selain itu, program ini juga berhasil membentuk sistem koperasi yang mendorong keberlanjutan usaha kelompok tani, serta penggalakan Program Dapur Sehat Moengko. Evaluasi program menunjukkan adanya dampak positif pada kemandirian ibu petani dalam pengadaaan sayuran secara mandiri, sistem koperasi budidaya sayuran, dan pengolahan bahan makanan sehat bagi keluarga.

Kata Kunci: *petani; pertanian; perempuan; evaluasi program; sayuran*

INTRODUCTION

In Indonesia, the agricultural sector is one of the backbones of the economy, especially in rural areas such as Moengko Village, Poso. Mother farmer groups play an important role in ensuring food security at the local level. They are involved in the daily production of food that is the main consumption of rural communities. By improving their skills and knowledge, especially in sustainable agriculture such as organic and hydroponics, healthy and sustainable food production can be increased (Fritschi et al., 2021; Huang et al., 2022; Kumar et al., 2023), ultimately contributing to national food security (Akhter et al., 2023; Ikram et al., 2021; Kumar et al., 2022). Farming mothers are one of the key groups in Indonesia's rural economy. They not only act as household managers but also contribute directly to agricultural activities that form the backbone of the rural economy. However, limited access to knowledge, technology and markets often hampers their potential to improve productivity and family welfare. Therefore, empowering farmer mothers through training and mentoring is a strategic step to maximize their role in sustainable agricultural development (Bahi et al., 2022; Bougherara et al., 2021).

Conventional agriculture in Indonesia often faces various challenges, including dependence on chemical pesticides, land degradation, and low awareness of sustainable agricultural practices. Overuse of chemicals not only damages the environment but also negatively affects the health of consumers and farmers themselves. On the other hand, this reliance on conventional methods also leads to unstable agricultural yields and poor product quality. Therefore, there is an urgent need to introduce healthier and environmentally friendly alternatives, such as organic and hydroponic farming (Dandamudi et al., 2022; Fausi et al., 2023). Organic and hydroponic farming offer more sustainable and healthy solutions compared to conventional farming (Lado et al., 2021; Montalbano et al., 2023). Organic farming, which does not use synthetic chemicals (Ogata et al., 2022; Patel et al., 2021), can improve soil quality and maintain ecosystem balance, while producing healthier products for consumers. Meanwhile, hydroponic methods allow soil-less cultivation of crops, which is particularly suitable for areas with limited land or poor soil quality. In addition, hydroponics tends to be more efficient in water use and can produce plants with faster and more controllable growth (Bezerra et al., 2023).

People today are increasingly aware of the importance of a healthy diet to prevent disease and improve quality of life. Organic and hydroponic vegetables, which are free from pesticide residues and other chemicals (Choi et al., 2022; Clark et al, 2023; Cuzack et al., 2021), have higher nutritional value and are safer to consume. Educating farmer mothers on the health benefits of producing and consuming these vegetables will encourage them to not only adopt these farming techniques, but also become agents of change in improving nutritional intake in their communities.

To ensure the sustainability of this empowerment program, it is important for the farmer mothers to have access to a wider market and earn a fair profit from their agricultural produce. Cooperative management is one of the effective solutions to achieve this goal. Cooperatives can serve as a means to collect and manage produce, facilitate access to markets, and provide financial and technical support to their members. Through cooperatives, farm women can work collectively to increase their bargaining power in the market, thereby increasing their income and family welfare (Fati

et al., 2021; Prashantham et al., 2018; Sharma et al., 2019).

The selection of program locations in rural areas where most of the population are farmers is a strategic move based on real needs in the field. Many farming mothers in these areas depend on agriculture for their livelihoods, but still face difficulties in accessing modern technology, business capital, and markets. Therefore, an empowerment program that involves training in hydroponic and organic farming, as well as assistance in cooperative management, is highly relevant to improve their capacity and quality of life.

The program aims to improve the skills of farmer mothers in organic and hydroponic vegetable cultivation techniques, increase their awareness and knowledge of the health benefits of organic and hydroponic vegetables, and provide support in the management of agricultural cooperatives, so that production can be processed and marketed more efficiently and profitably.

METHODS

This activity was carried out in Moengko Village, Poso Kota Sub-district, Poso District. This method involves direct observation, interviews, and documentation analysis to obtain comprehensive data on the implementation of the empowerment program for farmer mothers in growing organic and hydroponic vegetables and managing agricultural cooperatives.

This activity was carried out in Moengko Village, precisely in ring 1 (RT 009 / RW 002) of the operational area of Fuel Terminal Poso, which is the main location of the Moengko Nursery House program. This location was strategically chosen because the majority of the population are farmers who need increased access to modern agricultural technology. The participants in this activity were 12 members of the Citra Bersatu Women Farmers Group, which consists of women farmers in Moengko Village. The selection of participants was based on their involvement in training and mentoring activities organized by the program.

Data collection was conducted by direct observation during the implementation of training and mentoring activities to record the interaction, enthusiasm, and involvement of participants in each session. This observation also included monitoring the implementation of the farming techniques that had been taught after the training was completed. Semi-structured interviews were conducted with participants to dig deeper into their understanding, perceptions, and behavioral changes related to organic and hydroponic farming methods.

The data obtained from observations, interviews, and documentation were analyzed using a thematic approach to identify key themes related to the farmer mothers' knowledge, skills, and behavioral changes in organic and hydroponic farming. Evaluation was conducted by comparing participants' understanding and skills before and after the training through analysis of interview and observation results. Observed changes in attitude and behavior were used to evaluate the effectiveness of the program.

Figure 1. Vegetable Seedling Preparation Training, Organic and Hydroponic Vegetable Growing Assistance

RESULTS AND DISCUSSION

Figure 1 shows that there are several sub-activities to support the achievement of the objectives of this activity, including training in the preparation of suitable vegetable planting seeds, assistance in organic vegetable farming, and assistance in hydroponic vegetable farming. In the training on organic vegetable farming in Moengko Village, there were 12 women farmers involved and joined the Citra Bersatu Women Farmers group. The enthusiasm of the participants was very high, as seen from the almost 100% attendance during all training sessions. The farmer women showed great interest in organic farming methods as their awareness of the positive health and environmental impacts increased. One of the main objectives of the training was to improve the farmer women's knowledge and skills in organic vegetable farming techniques. Prior to the training, most participants had a limited understanding of organic methods and still relied on conventional farming techniques that use synthetic chemicals.

Through this training, participants gained an in-depth understanding of the basic principles of organic farming, including seed selection and seeding. Participants learned to select good seeds and sow the seeds in the right way to ensure optimal growth without the use of chemical fertilizers. In addition, participants were taught how to make their own compost and manure from materials available around them, so that they can reduce their dependence on chemical fertilizers. The material on pest control techniques using natural pesticides made from ingredients such as neem leaves, garlic, and chili was highly appreciated by the participants. After the training, most of the participants started applying organic farming techniques on their farms. Within a few months, initial results showed positive changes. The next activity was training and mentoring on hydroponic vegetable farming. One of the main objectives of this training was to provide farmer mothers with basic knowledge and practical skills on hydroponic farming techniques.

Prior to the training, most participants had no experience with hydroponics, and they generally still relied on traditional farming methods. During the training, participants learned some important aspects of hydroponics. Participants were introduced to the basic concepts of hydroponics, its benefits, and how it differs from conventional farming. In addition, training on simple hydroponic systems was provided, which included explanations and demonstrations on how to build a simple hydroponic system at home using easily available materials, such as plastic bottles, PVC pipes, and small water pumps. Participants are also taught how to select suitable plant species for hydroponics, such as lettuce, kale, and spinach, as well as how to prepare and manage proper nutrient solutions. Finally, participants were trained in monitoring plant growth, keeping the

hydroponic system clean, and dealing with common problems such as algae or pests. The results of the training showed a significant improvement in the understanding and skills of the farm women in using the hydroponic system. Many participants were able to build and operate simple hydroponic systems independently at their homes. The last activity was counseling on the health benefits of organic and hydroponic vegetables. In this activity, the group of women farmers were given an explanation of the higher nutritional content in organic and hydroponic vegetables compared to vegetables grown with conventional methods (Pinto et al., 2022; Raza et al., 2021; Zhang et al., 2023).

In the process, there was a discussion on how consumption of organic vegetables can help reduce the risk of chronic diseases such as cancer, diabetes and heart disease, and improve immunity (Blekkenhorst et al., 2018). Food safety aspects were emphasized, explaining that organic and hydroponic vegetables are considered safer as they do not contain harmful pesticide residues. In addition, the extension also covered the positive impact of organic and hydroponic farming practices on environmental sustainability, which in turn also affects human health. One of the main objectives of the extension was to increase the knowledge and awareness of farmer mothers regarding the importance of healthy vegetable consumption for their family's health. Some participants initially had the perception that conventional methods with the use of chemical fertilizers are faster and more productive compared to organic and hydroponic methods.

However, after the counseling, many of them began to change this view. From the results of the initial and final evaluations, there was a significant increase in participants' understanding of nutrition and health. Participants began to understand that the vegetables they produced organically and hydroponically were not only better for sale, but also for consumption by their own families due to their higher health benefits. In addition, the knowledge of the dangers of pesticide residues in conventional vegetables made participants more committed to adopting and promoting organic and hydroponic growing methods in their neighborhoods. After the counseling, many farmer mothers reported increased consumption of organic and hydroponic vegetables in their households. They became more selective in choosing the types of vegetables they consume, favoring vegetables produced without chemicals.The health benefits of organic and hydroponic vegetables are increasingly recognized as consumers become more health-conscious and seek out nutritious food options. Both organic and hydroponic farming methods offer distinct advantages in terms of nutritional content, safety, and environmental sustainability, making them appealing choices for health-oriented consumers.

One of the key health benefits of both organic and hydroponic vegetables is their potential antioxidant properties. Antioxidants are compounds that help neutralize free radicals in the body, reducing oxidative stress and the risk of chronic diseases such as cancer and cardiovascular diseases (Balqiah et al., 2020; Rehman, 2024). Moreover, the environmental benefits of organic and hydroponic farming contribute indirectly to human health. Organic farming practices promote biodiversity and soil health, which can lead to more resilient ecosystems that support food production (Fahlevi, 2024; Idham et al., 2022). Hydroponic systems, by utilizing less water and land compared to traditional farming, can help mitigate the environmental impact of agriculture, making food production more sustainable (Croft et al., 2017; Liang & Lim, 2020). This sustainability is crucial as it ensures that future generations will have access to healthy food options without compromising the health of the planet.

CONCLUSIONS

The farmer women empowerment activities that include training and mentoring in growing organic and hydroponic vegetables as well as counseling on the advantages of organic and hydroponic vegetables have been successfully implemented. The training not only improved participants' knowledge and skills in environmentally friendly farming techniques, but also broadened their understanding of the health benefits of consuming organic and hydroponic vegetables. All activities went according to plan and had a positive impact on improving farming skills and health awareness among farmer mothers as the target group. To ensure the sustainability of the increase in knowledge and awareness of farming mothers, it is recommended to continue to hold regular counseling sessions on the health benefits of organic and hydroponic vegetables. In addition, the development of advanced training modules that are more in-depth and practical will help strengthen their understanding. It is also important to encourage active participation of farmer mothers in the community to share this knowledge, so that organic and hydroponic farming practices can be more widely adopted in their neighborhoods. Finally, periodic monitoring and evaluation needs to be conducted to ensure long-term positive impacts on the health and well-being of their families.

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