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Mentoring and Assistance of Women Farmers Groups (WFG) in South Tangerang City to Increase Yields and Sustainability through Value Chain

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ABSTRACT

The 2024 community service program, funded by the Ministry of Research, Technology, and Higher Education, was carried out in the Women Farmers Group (WFG) Cempaka Batan Indah, South Tangerang, which manages a Sustainable Food House Area. WFG produces various healthy vegetables and fresh fish, with its main products being Butterfly Pea Flowers, Sacha Ichi, and Cumin. However, WFG faces supply chain challenges, including suboptimal production due to inefficient task division and low member awareness. Additionally, product distribution and packaging remain inadequate, leading to delivery obstacles. Profitability is also limited, as sales turnover does not meet expectations, and processing facilities are insufficient to achieve target production. To address these issues, the program provided training and coaching on organization, marketing, production quality, and productivity improvement. Members were also educated on the importance of the Supply Chain and Value Chain. Additionally, appropriate technology support was introduced with a dehydrator and an automatic vertical sealer to enhance production efficiency. As a result, members demonstrated increased understanding, enthusiasm, and capability in using the machines, leading to a threefold increase in production capacity. The process became more efficient, hygienic, and standardized, improving product quality and ensuring business sustainability.

Keywords: Coaching, Sustainability, Value chain, WFG.

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INTRODUCTION

The results of the 2020 Population Census (SP) show that the population of the South Tangerang area was 1.35 million people in 2020. Of that number, 964.01 thousand people (71.18%) are in the productive age group (aged 15-64 years). Meanwhile, 390.34 thousand (28.82%) of the population are in the unproductive age group. In detail, 325.54 thousand people

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(24.04%) are in the unproductive age group (aged 0-14 years) and 64.8 thousand people (4.78%) are in the unproductive age group (aged 65 years and over). Based on gender, 678.16 thousand people (50.07%) of the population of South Tangerang City are male. Meanwhile, there are 676.19 thousand (49.93%) of the population in the city who are female.

South Tangerang City is one of the cities in Banten with an area of 147.19 square kilometers (1.63%). The city, which borders directly with DKI Jakarta, is divided into seven sub-districts and 54 villages. Pamulang is the sub-district in South Tangerang with the largest population, reaching 305.56 thousand people. Pondok Aren follows its position with 294.99 thousand people, Ciputat with 208.72 thousand people, East Ciputat with 172.14 thousand people, Serpong with 154.74 thousand people, North Serpong with 134 thousand people, and Setu with 84.18 thousand people.

The women's farmer group in the South Tangerang area has a program in the form of KRPL or an abbreviation for the sustainable food house area, this KRPL is fully managed by the women's farmer group which includes administrative management, seed house management or plant management that can help in the economic sector of members. In agricultural product processing activities, the women's farmer group prioritizes local products from South Tangerang, including; butterfly pea flowers, other medicinal plants, grape plants, chocolate fruit, and bananas, so the women's farmer group processes these basic ingredients. This is not only engaged in the processing sector, but the women's farmer group has gone further by making attractive packaging even though it is still simple to market, they have permission from the government in the form of a PIRT permit or household industrial food.

Empowering women farmers is a strategy carried out by the government to realize household food security. Women's farmer groups are a place for women who are allowed to participate in advancing the agricultural sector. One important factor supporting the success of this food security program is the involvement of women farmers themselves (Rohmatulloh et al., 2020). In agricultural processing activities, women's farmer groups prioritize local products from South Tangerang, including; butterfly pea flowers, other medicinal plants, grape plants, cocoa, and bananas, so that women's farmer groups process these basic ingredients. This is not only engaged in the processing sector, but women's farmer groups have gone further by making attractive packaging even though it is still simple to market, they have obtained permission from the government in the form of a PIRT permit or household industrial food.

Based on interviews with the head of WFG and several administrators, it was explained that WFG Cempaka has plants and seeds. some seeds from members and from the city's agricultural office. The constraints faced by WFG related to the supply chain are felt in production that is not optimal because the division of tasks and awareness of WFG Cempaka members have not run according to expectations, product distribution and packaging have not been optimal, so that there are obstacles in delivery to end consumers, and production results have not been able to get profit from the turnover that can be sold according to expectations and processing production facilities are still inadequate, so that production results have not met the target.

The Women Farmers Group, which has been started with togetherness and associations that are active in complex gardens and the use of public land, has produced many garden crops, although there are still many difficulties in distributing the results and the supply obtained is not yet precise. Although it has almost all types of vegetables as basic household needs, and development now has a fish pond. This is needed with great hope that all the basic needs of members and the surrounding community can be met. Many daily necessities are managed by the Cempaka Women Farmers Group, with superior products that have received appreciation from external institutions including the South Tangerang City Agriculture Service, there are 3 types of products, namely cumin plants, butterfly pea flowers, and sanca inchi plants. Processed

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products from these 3 types of superior plants produce various processed products including from cumin plants into: cumin chips, detergent mixtures, soap, antiseptic shampoo. Butterfly pea plants become processed tea with various flavors. While from the sanca inchi plant can be processed into: drinks, chips, and from the seeds of the sanca inchi plant can be fried and ovened. The superior products of WFG Cempaka are widely produced considering the greater demand and easier cultivation process, members and the community are also easily educated to carry out independent planting and processing, and th benefits and variations of processed products are more numerous. The following is a picture of the superior plants cultivated by WFG Cempaka, these plants have high production and these plants are also developed in several member homes and local residents as an extension of WFG.

All of this is done to utilize the yard land in the Batan Indah area, which has been given permission for KWT. The yard is an open land located around the house. The yard can be utilized according to the taste and desires of the owner, for example by planting productive plants such as ornamental plants, fruits, spices and medicines. The utilization of yard land is generally part-time to fill free time and meet household food needs (Ashari et al., 2021). The utilization of yard land becomes very important to do when there is a conversion of agricultural land which can disrupt food availability (SUHARDI and GUNAWAN, 2021). Efforts to utilize yard land for vegetable cultivation have a very good impact on women farmers, being able to contribute to increasing the availability of healthy and nutritious vegetables for households. (Herman et al., 2024).

Figure 1. Butterfly Pea Plant

Figure 2. Cumin Plant

Figure 3. Sancha Inchi Plant

Source: Cempaka Women Farmers Group

Based on the optimization of the supply chain and the added value of these results, the Cempaka Women Farmers Group, South Tangerang needs to be encouraged by increasing awareness, commitment and understanding of opportunities and competencies to increase the value of the products produced. The purpose of this community service is: 1) to increase joint commitment in carrying out processing or production activities. 2) Provide facilities and production tools including drying butterfly pea flowers, sancha inchi leaves which are still traditional, because what is currently available can borrow a dryer with a low capacity. This does not guarantee quality and quantity. 3) Encourage production from what is still just for the needs of members, to mass production because the potential and needs of the wider community are very high. by improving packaging (Imaroh, 2024).

METHODS

Activities are carried out in five stages of PKM implementation: **Socialization** Providing an understanding of the Value Chain to members to increase awareness of the product Value Chain so that it can be accepted by consumers, **Training:** Training involves all members of the Women Farmers Group. Training is carried out to improve skills that can be implemented in product processing activities. Training includes: organization and marketing, production and quality, production processes and efforts to increase productivity and business sustainability

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through an understanding of the importance of the Supply Chain and Value Chain. **Application of Technology**, providing appropriate technology assistance in the form of production machines in the form of dehydrators and automatic vertical sealers so that they can be implemented, it is hoped that it will be able to increase production results and increase turnover towards more productive and independent women farmers groups, and provide selling value. **Mentoring and Evaluation.** Mentoring and evaluation will be carried out after one week, one month and the following month from the training activities. This is done to monitor the benefits of activities and assistance with production tools. community. **Sustainability** Monitoring is carried out periodically for confidence in the sustainability of the program. In addition, the Coaching and training activities carried out were attended by 34 members of the Cempaka Women's Farmers Group and 5 people from Mercubuana University. Women's Farmers Group in the Batan Indah area and the South Tangerang City Agriculture Service were carried out and evaluated, so that the sustainability of this program can continue to be monitored.

RESULTS AND DISCUSSION

This community service activity took the theme of Mentoring and Assistance of the South Tangerang City Women Farmers Group to Increase Results and Sustainability through the Value Chain. This activity was attended by members of the Cempaka Women Farmers Group on Wednesday, September 18, 2024.

This Community Service is a real form of commitment from universities together with the Ministry of Education, Culture, Research and Technology of the Republic of Indonesia in providing positive contributions to the surrounding community which is included in the Tridharma of Higher Education. The aim of this activity is not only to motivate women farmers who are mostly housewives and retirees. But also, to create a positive impact on sustainability, increasing production in quality and quantity for the progress of business and the welfare of WFG Cempaka members.

This activity is also strongly supported by the Head of RW.04 Batan Indah considering that he is also enthusiastic about building Proklim in the Batan Indah area. WFG Cempaka also contributes to environmental conservation programs. In its business activities, WFG Cempaka has many garden products for the needs of members and the community and serves the surrounding services, especially for WFG's superior products. The superior products that received appreciation from external institutions including the South Tangerang City Agriculture Service are 3 types of products, namely cumin plants, butterfly pea flowers, and sanca inchi plants. Processed products from these 3 types of superior plants produce various processed products including cumin plants into: cumin chips, detergent mixtures, soap, antiseptic shampoo. Butterfly pea flowers are processed into tea with various flavors. While from the sanca inchi plant can be processed into: drinks, chips, and from the seeds of the sanca inchi plant can be fried and ovened. The superior products of WFG Cempaka are widely produced considering the greater demand and easier cultivation process, members and the community are also easily educated to carry out independent planting and processes, and the benefits and variations of processed products are more numerous. If the results of the production process continue to increase with the increasing number of consumers, but the raw materials are limited or insufficient, then plants that are easy to cultivate have also been planted in the homes of residents or members of WFG Cempaka, so that they can become suppliers of WFG Cempaka.

Efforts to increase production in both quantity and quality can be done by partnering with suppliers, distributors or business institutions or sellers, this is in line with learning supply chain management and increasing results through the value chain. WFG Cempaka can partner with communities producing swallow flowers, cumin, and sancha ichi. While the distribution chain

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can partner with sales institutions such as Toko Amanah 1 and Toko Amanah located in the Batan Indah complex area, in addition, WFG Cempaka which has also partnered with the Tangsel Industry Service can be upgraded with other services. The effectiveness of training in community service activities is also carried out with simulations and explanations of the use of appropriate technology tool s in the form of production machines (dryers) in the form of dehydrators and automatic vertical seeler machines. The coaching and training event that has been conducted was attended by 34 members of WFG Cempaka and 5 teams from Mercubuana University. There were obstacles in the presence of WFG Cempaka members because some members could not attend because they were attending an event that coincided with this training event.

The drying activity of butterfly pea flowers, sancha inchi leaves is a process carried out to reduce the water content of butterfly pea flowers or sancha inchi leaves, so that it can improve the quality of the dried butterfly pea flowers and sancha inchi leaves produced. The drying process if carried out using a dehydrator machine needs to pay attention to the temperature and drying time. Temperature settings and the length of the drying process can affect the quality, color, and content of active compounds contained in dried butterfly pea flowers and sancha inchi leaves. Based on the results of the study (Ayu Martini et al., 2020) temperatures that are too high and long drying times can cause a decrease in the quality of butterfly pea flowers, sancha inchi leaves, and reduce the content of active compounds, including phenol content, flavonoids, and antioxidant activity of dried butterfly pea flower products.

The application of drying butterfly pea flowers, sancha inchi leaves with a dehydrator machine is carried out to optimize the drying process carried out by WFG. Simulation activities and implementation of butterfly pea flower and sancha inchi leaf drying machines with dehydrators are socialized to WFG Cempaka partners, simulations are carried out according to the instructions on the dehydrator machine with variations in temperature and drying time. According to (Anwar Fauzi et al., 2022), the best temperature for drying butterfly pea flowers so that the antioxidant activity in them remains high is at a temperature of 45°C to 60°C. The range of temperature intervals can produce drying of butterfly pea flowers and sancha inchi leaves of good quality, and certainly produces a faster drying time compared to the manual drying process, from the simulation showing that production results increased 3 times.

The effectiveness of training in community service activities is also carried out with simulations and explanations of the use of appropriate technology tools in the form of production machines (dryers) in the form of dehydrators and automatic vertical sealer machines.

Training with an introduction to the dehydrator machine. The dehydrator machine functions to dry by removing water content. And track with time and temperature. Drying in any weather conditions. Does not damage the active compound content contained in the butterfly pea flower. The dehydrator is specially designed to remove moisture from food or plants by circulating dry warm air. This tool has several shelves in it where the material can be placed evenly to be dried. Benefits and Advantages of using a dehydrator

- Temperature Control: Dehydrators allow precise temperature control, which helps maintain the color and nutritional value of the flower.
- Energy Efficiency: This method is more energy efficient than oven drying or open air drying
- Quality of Results: Drying results using a dehydrator tend to be more consistent and of high quality.

The production activity begins with the harvest which is done in the morning before 09.00, then washed, drained, and dried with a dehydrator for 2 hours, (can be done 3 times) the dehydrator production process, because the drying process with a dehydrator only takes 2 hours, each

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production process with traditional drying or using a dehydrator produces 10 grams of dried butterfly pea flowers.

After the production activity of drying butterfly pea flowers, sancha inchi, and cumin leaves, the packaging is continued with an automatic vertical sealer to maintain the consistency of the product results so that they become standard and hygienic quality and durable products, and more attractive, thus the Value Chain will be achieved, and production is more effective and quality. Likewise with the production of sancha inchi, almost the same process is carried out. While cumin plants are processed into chips and can be dried for mixed cooking.

So, members of WFG Cempaka have been producing butterfly pea flower tea and sancha inchi by drying it naturally in the wind or with sunlight that is not too hot. This traditional production is done once a day or for a long time and this drying activity is unstable or not standard in its results, and its quality is not guaranteed. There is also a risk that if the weather is cloudy, it will last longer and there is even a possibility of rotting.

Natural/traditional drying or with a single-rack dehydrator will produce one production. This is less effective in terms of quantity and quality is not standard, or the production results can be different which can affect the taste and level of hygiene.

At the time of the handover of 2 appropriate technology tools in the form of a dehydrator machine and an automatic vertical sealer, socialization was also carried out on how to use it, which includes operation and temperature and effective time used for drying butterfly pea flowers and sancha inchi leaves. Assistance was also provided during the use of the dehydrator and automatic sealer by partners. Assistance was provided to ensure that partners were able to operate the machines. Assistance was also provided to minimize failure and damage to production and packaging results.

Figure 4. Dehydrator Machi

Figure 5. Use of Automatic Vertical Seeler

Figure 6. Photo Together

Source: Implementation of community service

DISCUSSION

Dehydrator machines are used to dry butterfly pea flower products, sancha inchi leaves, lemons, or other food ingredients. Dehydrator machines can dry faster and more consistently than traditional drying methods such as drying in the sun. The temperature and drying time can be set automatically, minimizing the risk of damaged or over-dried products. Products dried with dehydrator machines tend to have better quality, such as color, aroma, and nutritional value. Proper temperature settings help maintain the nutritional content of food ingredients, in addition, dehydrator machines help overcome dependence on weather and increase efficiency, product quality, and economic benefits.

Automatic Vertical Sealer: can carry out the packaging process in one automatic flow. increase production speed and allow large-scale packaging in a short time. a more modern and

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efficient process, the use of vertical sealer machines in packaging helps increase productivity and provide better quality results. This makes this technology a more effective solution in increasing product value and increasing business

CONCLUSION

Butterfly pea flowers, sancha inchi, and cumin are shrubs that are easy to grow. The effectiveness of processing with a drying process that can be done with the help of a dehydrator machine. Testing a dehydrator as an appropriate technology tool shows that butterfly pea flowers, sancha inch i leaves are dried at a temperature of 40°C - 60°C with a time of 2 hours as a good time to produce quality products. Imposition with an automatic vertical sealer machine helps increase productivity and provide better quality results, increasing product value and encouraging business sustainability

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