

Empowerment of Women Farmers' Groups in the Production of Instant Ginger with Butterfly Pea Flower Combination and Business Legality Education

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Abstract

This Community Service Program (PkM) was designed to empower the Cemara Women Farmers Group (KWT) by combining the development of practical skills with the enhancement of business acumen. The core focus of the program was to provide comprehensive training in the production of instant ginger powder, enriched with the beneficial properties of butterfly pea flower, and to deliver essential education on business legality. To achieve these objectives, the program followed a structured methodology that included initial surveys to thoroughly assess the needs and existing knowledge of the participants, careful coordination of activities, informative counseling sessions, hands-on training and mentoring to cultivate effective production techniques, targeted education on business legality to foster sustainable business practices, and a rigorous evaluation process to accurately measure the program's overall impact. The results of the PkM demonstrated a marked improvement in the knowledge levels of the participants, evidenced by a statistically significant increase in average scores from the pre-test (80.34%) to the post-test (92.47%), alongside a notable rise in enthusiasm and active engagement among the KWT Cemara women. In conclusion, the program effectively empowered the KWT Cemara members by providing them with the necessary skills and knowledge to enhance their production capabilities and establish sustainable business operations.

A. Introduction

Data from the WHO shows that 65% of the world's population relies on traditional medicine, and more than 80% of the world's population uses natural ingredients as health therapies. The use of plants as medicinal ingredients is empirically believed by the community to support health. This is in line with the goal of the Family Medicinal Plants program to improve disease prevention (preventive), health status (promotive), and disease cure (curative) (Agustina et al., 2023). However, the processing of herbal preparations using fresh raw materials such as ginger, temulawak, turmeric, and others, often causes problems in long-term storage because raw materials are easily damaged/rotted, moldy, and contaminated with microbes (Suharmiati, 2003). Therefore, processing herbal medicine into powder form is a solution to overcome this problem. Thus, the development of innovative herbal products and increasing business capacity is an important strategy in empowering farmer groups, especially farmer women groups.

Some of the considerations of the public as consumers in choosing food products include nutritional composition, practicality in presentation, long storage life, and not requiring large storage containers. This is in accordance with the reason for making food products in the form of instant powders which have advantages in terms of small size structure, good solubility in water, non-settling, practical, and fast in presentation (Rahayu & Wulandari, 2025). Ginger contains antioxidants, namely oleoresin, which is better

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known as gingerol. Ginger is used as a functional drink (Agustina et al., 2021). Ginger contains antioxidants, namely oleoresins which are better known as gingerol. Ginger is used as a functional drink (Dion & Purwantisari, 2020). Butterfly nut flowers contain antioxidants by inhibiting oxidation reactions due to free radicals. Flavonoids and phenols are antioxidants (Mahbub et al., 2023). This can be seen from the color of the crown because it contains anthocyanins. The current tendency of people is to prefer to use products with more practical and fast packaging and presentation, because it does not take much time to prepare them. The advantage of this formulated health drink is that it consists of a combination of butterfly pea flower, simplicia and ginger in the form of instant powder packaging (Andayani et al., 2024).

Data in 2017 shows that in Landasan Ulin Tengah District, where KWT Cemara is located, most of the people work as private employees (6,501 people), with a small number as farmers (342 people). The Cemara Women Farmer Group (KWT) consisting of 25 members is one of the KWTs in Landasan Ulin Tengah District within the scope of the work area of the Liang Anggang Agricultural Extension Center (BPP) in the agricultural sector. The products produced by KWT are limited to vegetables and fruits. There are several snack products produced, but there are not many and they have not varied. The KWT already has a Business Registration Number and some products already have a Home Food Industry Permit. The obstacle experienced by KWT is the licensing process to obtain a Home Food Industry Permit for products whose previous application was submitted last year.

KWT members can process ginger flowers and butterfly nuts into instant powders that are popular and potentially beneficial to the community (Nurlita et al., 2018). Business legality assistance is intended to provide education to business actors so that they can create business legality in accordance with the needs and products to be produced, such as products that must meet criteria such as packaging or business registration numbers through a risk-based online single submission. Departing from these problems, this Community Service activity also aims to increase public knowledge through education, socialization, and training on product making and business legality for women who are members of KWT Cemara. The development of business opportunities cannot be separated from the development of the creative economy. Entrepreneurs play an important role in creating and providing value-added products through risk-taking courage, creativity, and innovation, as well as management skills to look for and read opportunities, create a market place with a business plan, and how to plan finances well to create a market place with a business plan (Puspitasari et al., 2021). Based on the above background, the community service activity was entitled "Empowerment of Women Farmers' Groups in the Production of Instant Ginger with Butterfly Pea Flower Combination and Business Legality Education".

B. Methods

This community service was carried out in the Cemara Women Farmers Group (KWT), which consists of 25 people and is engaged in processed food and vegetable plantations. Most of the members of KWT Cemara have a secondary education background (junior high school/high school), a previous level of knowledge about instant ginger production and limited business legality (with main experience in growing vegetables and fruits, as well as some who already have a Business Registration Number and a Home Food Industry Permit but there are obstacles in the licensing process to obtain a Home Food Industry Permit), and have high motivation to develop strong skills and traditions of cooperation. This activity aims to increase public knowledge through education, socialization, production training, and business legality training. The method of implementing this activity is carried out in several stages, namely:

1. Survey or Observation of couple's problems

Surveys or observations are the initial process carried out with the aim of exploring problems faced by partners and exploring potential that can be used as a solution to problems for partners. This stage needs to be carried out to provide the right solution for community service activities. The initial survey was conducted with direct observation, semi-structured interviews (5 representatives), and FGD (10 members) to explore the problems and potentials of KWT; coordination with partners; counseling material on the benefits of ginger and butterfly pea flower and how to make instant ginger; training and assistance in making instant ginger; education on business legality; and evaluation using pre-test and post-test.

2. Coordination with partners

Coordination activities are important to be carried out to coordinate the place, time, and target of community service activities to be carried out, as well as to predict the number of participants who will take part in community service.

3. Counseling / delivery of material

The delivery of materials is carried out with the aim that the target can learn and understand the benefits of ginger flowers and butterfly nuts for health. Introduction to the ingredients in making instant ginger. In addition, the presentation of this material is also intended to explain the procedures for making instant herbal medicine that is good and correct. This counseling activity uses tools in the form of posters that are distributed to the public so that they can better understand what is conveyed.

4. Training and mentoring

The training stage aims to improve the participants' skills in making instant herbal preparations from ginger. Participants were guided directly through the steps of making ginger and were given an explanation of each stage of making instant herbal medicine so that they could better understand the process of making mushroom herbal medicine. To support the training, several tools are provided such as knives, blenders/lumping, frying pans, stoves, and containers to accommodate ingredients. In addition to these tools, there are ingredients that must be prepared for the basic ingredients, namely ginger, sugar, and water. In this training, the making of instant herbal medicine was given 2 variations of the addition of butterfly pea flower.

Procedure of making instant herbal medicine:

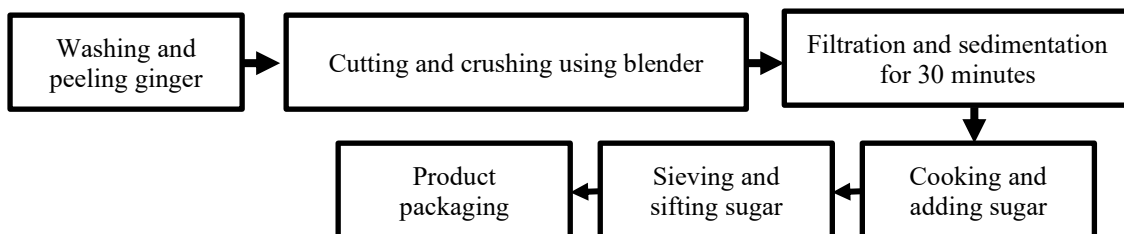


Figure 1. Process Flow of Instant Powder making

5. Business Legality Education

Education was provided by providing socialization to KWT members, by inviting resource persons from the health service regarding the submission process of Business Registration Number and Home Food Industry Permit of products.

6. Evaluation

Evaluation of activities was carried out using pre-test and post-test. The evaluation was carried out with the aim of measuring the success of community service activities through training in making instant powders made from a combination of ginger flowers and butterfly nuts. The evaluation method is a pre-test conducted before the training and a post-test at the end of the activity, with several questions shared with the participants. Evaluation using a pre-test and post-test with 20 multiple-choice questions. The questions measure knowledge about (1) the ingredients and production process of instant ginger and (2) the basic principles and procedures of business legality.

C. Results and Discussion

This training activity was carried out to educate women in Landasan Ulin Tengah District within the scope of the Liang Anggang Agricultural Extension Center (BPP) in the agricultural sector. The results of this activity showed high enthusiasm and active participation from the participants, which consisted of 23 people (3 lecturers, 5 students, and 15 members of KWT Cemara). Evaluation through pre-test and post-test showed an increase in participants' understanding after counseling and training. This increase is reflected in the comparison of pre-test results (average 80.34%) and post-test (average 92.47%). This pretest is useful for determining the level of understanding of participants before the material and learning are given (Zagórska et al., 2023). This activity included coordination with BPP Liang Anggang, counseling on the benefits of ginger, training on making instant ginger powder, and question and answer sessions. The enthusiasm of the participants can be seen from their activeness in asking questions and discussing.



Figure 2. Coordination with the Liang Anggang Agricultural Extension Center

Coordination was carried out with the Liang Anggang Agricultural Extension Center for the schedule for the implementation of community service and coordination of the material to be delivered and the methods used in the activity. Counseling material is a discussion related to the benefits of ginger from the health field and in treating digestive problems, warming the body and can be used to increase the body's immunity (Yunarti & Majid, 2024). Ginger contains active compounds such as phenolics and shogaol which are useful as antioxidants and promote heart health (Sari & Nasuha, 2021). The content of compounds in ginger is the reason why ginger is used as a medicinal plant. Improper use of traditional medicine can be harmful to health. The dosage and measurement used in taking traditional medicine need to be considered to minimize the side effects caused (Sumayyah & Salsabila, 2017).



Figure 3. Product of Instant Ginger and Butterfly Pea Flower Powder

In this training activity, things that must be considered in making instant herbal powder are explained. Factors that need to be considered are the sugar crystallization method, namely the presence of starch, the acidity level of the ingredients used, heating temperature, and stirring (Yunarti & Majid, 2024). Ginger peel peeling aims to remove the sap contained in the ginger rhizome. In addition, the sedimentation process also needs to be carried out to remove starch. This is because starch can inhibit the sugar crystallization process because heating starch causes gelatinization and increased viscosity, which can slow down the crystallization process and can even lead to caramel formation (Sari & Nasuha, 2021). Crystallization is the process of converting a uniform solution into a crystalline solid. This method uses granulated sugar as a crystallization material. When heated, the granulated sugar will melt and mix with the ginger, then after evaporating, the granulated sugar will reform into solid granules/crystals (Trinovita & Fatmaria, 2021).

The final stage of this socialization is a question and answer session. People are very enthusiastic about learning and actively asking questions about the process of making instant ginger powder herbal medicine. This can be seen when participants are enthusiastic about listening to the material from the beginning to the end of the speaker delivering the material. There are some who actively ask about several things, including the use of herbal ginger powder, whether it is safe for ulcer sufferers, the dosage of instant herbal powder, and whether herbal medicine ginger powder combined with other ingredients either as a variant or in combination with other ingredients can increase the efficacy of herbal instant powder. Before the activity ended, participants were again evaluated through a post-test to measure the effect of counseling and training on the knowledge of KWT women involved in the training. The results can be seen in the table below:

Table 1. Results of pre-test and post-test

Pre-test result			Post-test result		
Score	Amount	Average	Score	Amount	Average
50	1		50	-	
60	1		60	-	
70	-		70	-	
80	3	80,34	80	1	92,47
90	6		90	2	
100	5		100	8	

The results of the activity showed an increase in the knowledge of the participants, which was reflected in the increase in the average score from 80.34% in the pre-test to 92.47% in the post-test. In addition to increased knowledge, observations during training showed a high level of enthusiasm and participation from the participants. This can be seen from the many questions asked during the discussion session and active involvement in the practice of making instant ginger. Participants also succeeded in producing [quantity] of instant ginger products with quality rated [good/medium/poor] based on [assessment criteria]. However, an understanding of the legality aspect of business needs to be explored further, as specific evaluations related to this matter are limited in this study.

Based on these results, community service in the form of counseling and training for KWT women can provide knowledge on how to process medicinal plants in a new way starting from the benefits of medicinal plants in the form of ginger flowers and butterfly nuts, the process of preparing ingredients, and the treatment carried out during the process of crystallizing ginger extract, with the hope that residents will be able to have skills that are able to produce instant ginger powder herbs on a home industrial scale because abundant raw material potential (Sulistiowati et al., 2022). The results of the pre-test and post-test showed an increase in participants' understanding (from 80.34% to 92.47%), indicating the effectiveness of counseling and training. This increase is likely due to several factors. First, the interactive training design, with a combination of exposure to the material and hands-on practice, allows participants to not only understand concepts but also acquire practical skills. Second, the participants' high enthusiasm, reflected in their activeness in the question and answer sessions, indicates active involvement in the learning process, which can strengthen information retention. Third, the focus of the training on specific problems faced by KWT Cemara, namely ginger processing and business legality, makes the material relevant and applicable. This increase is in line with research [mention similar research if available in references] which also emphasizes the importance of practical training and the relevance of the material in improving participants' knowledge and skills. However, this study has limitations in exploring other factors that can influence the improvement of knowledge, such as participants' educational backgrounds or different learning styles."

D. Conclusion

Community service activities succeeded in empowering KWT Cemara through increasing members' knowledge and skills in the production of instant ginger powder with a combination of butterfly nut flowers, which was evident from the increase in pre-test to post-test evaluation scores. This program also succeeded in providing education and socialization about business legality, equipping KWT Cemara members with the necessary knowledge to develop their businesses sustainably. The enthusiasm and active participation of participants reflect the success of knowledge and skills transfer.

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