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Utilization of Ginger to Increase Community Welfare in Singapadu Kaler Village

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A B S T R A C T

Ginger is an untapped commodity in Singapadu Kaler Village. To empower rural communities through increasing knowledge, attitudes, skills, and behaviors, activities and mentoring programs are needed that are under the needs of the community. Processing of ginger into various products such as candied ginger and instant ginger has been produced and marketed by PKK women. PKK women do not yet have adequate entrepreneurial, production management, and marketing skills. The solution to overcome partner problems is to provide the right technology for processing candied ginger and instant ginger, equipment assistance, knowledge of product packaging and labeling, marketing, and entrepreneurship. Based on the evaluation results, this group mastered the technology of making candied ginger and instant ginger up to 75%.

INTRODUCTION

Singapadu Kaler Village is one of the villages located in Sukawati District, Gianyar Regency, Bali. Geographical conditions Singapadu Kaler Village is located in a lowland area, at an altitude of 129 meters above sea level with a relatively flat topography. The settlements of Singapadu Kaler Village are categorized as rural settlements because the residents of Singapadu Kaler Village still tend to be farmers or agriculturalists (Krisnandi, 2017). Singapadu Kaler Village is one of the tourist villages in Sukawati District, Gianyar Regency, Bali Province. The orbital distance to the sub-district capital is 7 km, to the district capital is 17 km, and to the provincial capital is 25 km. The land area of Singapadu Kaler Village is mostly a rice field area of 171.92 ha, cultural heritage land of 20 ha, and tourism potential land of 150 ha (Tonga et al., 2021). The government has made efforts to empower women by involving various parties such as the Ministry of Women, women's institutions, and universities including BUMN to facilitate training and financing for women's development (Pangan, 2021). The target partners in Community Service (PkM) this time are PKK women in Singapadu Kaler Village by conducting training on the use of ginger. Ginger contains gingerol, ginger oil (zingeron), zingeberon, borneol, cineol, dextro-camfena and beta-phelandrena. Ginger also contains essential oils, in the form of a greenish-yellow liquid with a spicy taste and distinctive odor. Ginger contains 48 to 60 percent volatile, 7 to 11 percent fiber, 3 to 10 percent fat, 12 to 18 percent water, and 8 to 9 percent ash content. There are several types of ginger known, namely white ginger, red ginger, and yellow ginger (Sukadi et al., 2021). The ginger used in this training is elephant ginger. Generally, elephant ginger is medium in size and is used for various kinds of medicine (Yuriani, 2012).

Aspects of quality management and safety of raw materials and products need to be studied for business development, and product marketing development (Othman et al., 2013). With the problem of various ginger processing processes, it is necessary to apply the basic feasibility of GMP (Good Manufacturing Practice) or CPMB (Good Food Production Methods) and SSOP (Sanitation Standard Operating Procedures) in order to produce quality processed ginger (Vita Yanuar, 2023). PKK Women's Group Singapadu Kaler Village. This group does not yet have books to record the finances and savings and loan activities of group members. With community service activities funded by Warmadewa University, the Singapadu Kaler Village PKK Group hopes to have skills and insight in managing natural resources and have an entrepreneurial spirit, and be able to open wider business opportunities. It is hoped that the training activities for processing candied ginger and instant ginger will be able to produce and market their processed products more broadly with good packaging processes, and better marketing and production management. Candied ginger and instant ginger products are expected to have a permit for food production from the Health Office in the form of a PIRT certificate so that the resulting product has legal production has a wider market reach. Partners are also given knowledge about work management, and business management, so that they are able to manage their time and run their business as

well as possible, thereby increasing family income and welfare (Syamsul Huda, Robi Andoyo, Siti Nurhasanah, 2021).

Ginger is a spice plant that is widely found in Indonesia. There are various types of ginger, for example, emprit ginger (Zingiber officinale var. amarum), red ginger (Zingiber officinale var. rubrum), and elephant ginger (Zingiber officinale var. officinarum. Apart from being a cooking spice, ginger is usually used to warm the body, soothe the throat, and reduce coughing. Gingerol content has anti-inflammatory, antipyretic, gastroprotective, antioxidant, and anticancer effects (Badriyah et al., 2023). The active compounds contained in ginger such as gingerol, shogaol, and zingerone compounds are a group of phenolic compounds. The total content of phenolic compounds in fresh ginger water is 4.77 mg/g (Aisyah, 2020). According to (Fidela et al., 2021) ginger juice has antioxidant activity that is very beneficial for humans, whereas 8% of ginger juice has antioxidant activity that is better than 200 ppm BHT. According to (Purnomo et al., 2010), ginger contains compounds that are antioxidants. Antioxidants are compounds that can inhibit oxidation reactions by binding to free radicals and highly reactive molecules (Suhendy, 2021). According to the research of (Nishidono et al., 2018), red ginger contains starch (52.9%), essential oil (3.9%) and alcohol-soluble extract (9.93%) higher than emprit ginger (41.48%, 3.5% and 7.29%) and elephant ginger (44.25%, 2.5% and 5.81%). The bioactive components of ginger can function to protect fats or membranes from oxidation, inhibit cholesterol oxidation, and increase immunity (Botahala et al., 2023).

So far, ginger is only consumed as a refreshing drink by brewing the rhizome directly, which has generally been crushed first. However, this is considered less practical if we want a ginger drink to drink at any time. Therefore, one of the suitable preparations to overcome these problems is the manufacture of instant ginger drinks because it is practical it is preferred by the public. According to (Srianta & Trisnawati, 2015) the manufacture of instant drinks can result in lower distribution costs when compared to the manufacture of liquid drinks. Efficiency in distribution costs will result in instant drink marketing being able to reach a wider area so that we as consumers can find instant beverage products anywhere.

IMPLEMENTATION AND METHODS

Implementation of Community Service Activities is carried out in several stages, namely: 1) Survey of the location of the implementation of extension activities and processing processes. 2) Interviews and Questions and Answers about the problems encountered, as well as planning activities that show the steps for solving the problems encountered. 3) Partners are given materials that have been prepared in the form of modules for processed ginger and instant ginger products, given counseling on sanitation and processing, packaging and labeling, marketing, entrepreneurship, and business management. 3) Problems in the production sector are overcome with partner equipment to support the processing of ginger and instant ginger as well as training on the application of Good Food Processing Methods (CPMB/GMP) and Hygiene Sanitation (SSOP). 4) Problems in the field of management are overcome by developing an entrepreneurial spirit and management training, as well as more organized

bookkeeping. 5) Constraints in the field of marketing are overcome by making PIRT production certificates so that processed products of candied ginger and instant ginger can be marketed more widely.

Partner participation in community service activities is required for the implementation of the activation process, namely: 1) Partners are expected to comply with all agreements that have been made. 2) Partners are expected to be disciplined and serious in carrying out all series of activities until all activity plans end. 3) After the community service activity ends, partners can continue well and the business being initiated can develop. 4) Assistance, evaluation, and monitoring will continue even after the community service program has ended.

Materials and Equipment

The objectives of this community service activity include: 1) Increasing the income of the Singapadu Kaler Village PKK Group and utilizing ginger in several products that have economic value such as candied ginger and instant ginger. 2) Help provide appropriate ginger processing technology. 3) Help provide knowledge about good packaging and labeling. 4) Help provide knowledge about marketing and entrepreneurship. 5) Help facilitate the manufacture of ginger processing equipment so that processing can run well, more efficiently in time, and according to SOPs and can increase profits.

The raw material used is Elephant Ginger, which is purchased in the vicinity of Singapadu Kaler Village. Additional ingredients such as ginger, sugar, lemongrass, water, pandan leaves, cloves, cinnamon, salt, and lemon juice are obtained from shops around Singapadu Kaler Village. The equipment used are pots, blenders, pans, ovens, and several other types of equipment.

RESULTS AND DISCUSSION

The community service program activity with the title Using Ginger to Improve Community Welfare in Singapadu Kaler Village, Bali, Indonesia, has been running smoothly. These activities are carried out in the form of counseling or theoretical studies to provide an understanding of appropriate technology for processed products of candied ginger and instant ginger, provide equipment assistance, and provide knowledge about product packaging, labeling, marketing, and entrepreneurship. (Image 1). The activity then continued with hands-on practice of making candied ginger and instant ginger. 10 participants took part in this activity from the Singapadu Kaler Village PKK Group. The extension team also donated tools and materials to make candied ginger and instant ginger products.

Ginger can be used in various industries, including the following: beverage industry (ginger syrup, instant ginger), cosmetic industry (perfume), food industry (ginger candy, ginger preserves, ginger enting), traditional medicine industry or herbal medicine, kitchen spice industry (Wisnu Broto, 2022). Ginger can reduce blood glucose, cholesterol, and triacylglycerol levels in mice induced by streptozotocin (Al-Amin et al., 2006) and also reduce blood glucose levels in white rats induced by alloxan (Olayaki et al., 2007). Ginger which contains flavonoids can normalize serum levels of creatinine, urea, and uric acid in experimental rats (Suminar et al., 2022). (Stoilova et al., 2007) stated

that CO_2 extract from Zingiber officinale contains polyphenols, thus ginger CO2 extract can be used as an antioxidant.

This community service activity has been published on electronic media. The Community Partnership Program activity with the title "Utilizing Ginger to Improve Community Welfare in Singapadu Kaler Village" has been running well and smoothly. The activity was held on Tuesday, May 31, 2022, in the form of an extension webinar or theoretical study to provide an understanding of the material for developing variations of processed candied ginger and instant ginger. Packaging techniques, marketing techniques, and strategies for how to make products that consumers like are also presented.

The activity was then continued with hands-on practice of making candied ginger and instant ginger. The participants who took part in this activity were 10 people from PKK Singapadu Kaler Village. The extension team also donated tools and materials to make candied ginger and instant ginger. This community service activity has been published in electronic mass media. This international community service activity is carried out by the Study of Food Science and Technology Study Program, Faculty of Agriculture, Warmadewa University, Indonesia in collaboration with the Department of Agronomy, Faculty of Agriculture, National University of Timor Lorosa'e Dili. The implementation of this activity involved several lecturers from Warmadewa University and one lecturer from the Department of Agronomy, Faculty of Agriculture, National University of Timor Lorosa'e Dili. The implementation of activities by the Food Science and Technology Study Program, Faculty of Agriculture, Warmadewa University with the Department of Agronomy, Faculty of Agriculture, National University of Timor Lorosa'e Dili can be seen in Figure 1. Implementation of an international webinar between Warmadewa University of Indonesia in collaboration with the Department of Agronomy, Faculty of Agriculture, National University of Timor Lorosa 'e Dili can be seen in Figure 1.

Training and socialization are carried out with the practice of making food products to increase the family's economic income. Knowledge of food processing is carried out because food processing is a very influential factor in the quality of food served to consumers. Partners have used masks, gloves, aprons, and head coverings. Thus, it is expected that the food products produced are of higher quality in terms of food safety (Kusuma Wardani et al., 2023). The benefits obtained from this community service activity are in terms of Economic and Social Impacts. The group acquired skills in processing candied ginger and instant ginger. Of the 10 people group 8 people have mastered the manufacturing technology so that 75% can make candied ginger and instant ginger products. In addition, the benefit of partners' contributions to implementers is that partners are very enthusiastic about participating in the process. All partners (100%) actively participate in direct practice in activities and partners expect continuous assistance in the development of sweets and instant ginger. The implementation of this community service activity increases turnover. From 1 product into 2 kinds of processed products, namely Candied Ginger and Instant Ginger. Various processed products of candied ginger and instant ginger can be seen in Figure 2.

There was an increase in sales turnover of processed taro products by the PKK partner group in Singapadu Kaler Village compared to before carrying out community service activities. Bookkeeping with a simple system started with recording raw materials, processing costs, packaging, and labels so that the group knows the benefits obtained.

Figure 1. Implementation of activities by the Food Science and Technology Study Program, Faculty of Agriculture, Warmadewa University.

Figure 2. Processed products of candied ginger and instant ginger

Outcomes

In detail, the results achieved from this community service activity include appropriate technology, mass media publications, videos of activities, and processed products of candied ginger and instant ginger.

Benefits

The group acquired skills in the development of candied ginger and instant ginger. Of the 10 people in the group, 8 people have mastered the technology of making candied ginger and instant ginger, so 75% can make processed candied ginger and instant ginger well.

Partner's contribution to implementation

Partners are very enthusiastic about participating in the training process. All partners (100%) actively participate in direct practice in activities and partners expect continuous assistance in the development of processed products of candied ginger and instant ginger.

Implementation of Community Service

The supporting factor in this activity was the group's great desire to participate in further training on the development of candied ginger and instant ginger which are healthy and rich in benefits. In addition, amid the COVID-19 Pandemic, which makes tourism quiet, members get additional income by producing processed candied ginger and instant ginger and selling them online around Gianyar.

CONCLUSIONS AND RECOMMENDATIONS

The conclusion that can be drawn from this activity is that community service activities have been running smoothly. The group has mastered the technology of making candied ginger and instant ginger up to 75%. It is necessary to provide further assistance to the group so that quality candied ginger and instant ginger products are produced and the group can have a p-IRT business license. The strategic steps to realize the next plan are assisting the group in managing the p-IRT permit and assisting in completing the administration so that the p-IRT permit can be owned by the group.

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