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Community Service at the "Tabanan Lestari" Farmers Group in Banjar Bugbugan Sari, Senganan Village, Penebel District, Tabanan Regency, Bali

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A B S T R A C T

The solutions offered to overcome the problems faced by the partners are carried out through a community partnership program through farmer assistance, counseling, training, technology transfer, techniques for making biological fertilizer from citrus fruit waste, as well as strengthening group institutions. This Community Service Program is implemented in this farmer group. The method used to achieve this goal is through counseling, training and application of technology with direct practice in the field. The implementation of Community Service has gone well according to plan and the participation and response of all members have been very enthusiastic in its implementation. The output targets are a technology package for managing orange plantation waste into good quality biofertilizer, and strengthening the institutions of integrated agrotourism groups in Senganan village and publishing them in scientific journals.

INTRODUCTION

The "Tabanan Lestari" farmer group is located in Senganan Village, which is one of the villages in Penebel District, Tabanan Regency, Bali Province. Judging from the climatology, Senganan Village has a tropical climate, where the average daily temperature is 280C. The average rainfall is 2,358.572 m/year with 180 rainy days, while the distribution of rain is 6 wet months and 6 dry months a year (Direktorat Pemberdayaan Masyarakat Desa, 2013). Partners are committed to participating in activating healthy, environmentally friendly agriculture by forming the "Tabanan Lestari" Farmers group. Considering that recently the use of synthetic chemical products for agricultural cultivation has greatly increased. In an effort to increase agricultural production, farmers are still very dependent on synthetic chemical products such as chemical fertilizers to fertilize plants and chemical pesticides to control plant pests (OPT). Unwise use of chemical fertilizers and chemical pesticides can damage the environment, especially damaging the agroecosystem in the environment (Roidah, 2013; Arif, 2020; Sulardi, 2020; Djojosumarto, 2008). The unwise use of chemical fertilizers and pesticides in an effort to increase land fertility and control pests causes damage to agroecosystems due to damage to land conditions and decreased fertility as well as an imbalance in the development of biodiversity in the agroecosystem.

The weakness of farmers is that not all farmers clearly understand the conditions of a safe and environmentally friendly agricultural environment so that the use of chemical fertilizers and pesticides can be more precisely targeted, with the right choice, the right dosage and the right way of applying them. If you choose the wrong chemical pesticide, apart from being wasteful, it will also cause the death of natural enemies which are useful for suppressing pest populations. Farmers are more likely to use chemical fertilizers and pesticides because there are many choices of products that are easy to buy and the results can be seen immediately if they are on target and at the right dose in applying them (Kardinan, 2003; Nugraha, 2013, Oktavia, 2020; Setiawan, et al, 2018; Sutrisno, & Priyambada, 2019; Istiqomah & Serdani, 2018; Hasyim, et al., 2015).

Partners have often carried out activities such as making organic fertilizer from entog livestock waste and plant litter waste around their agricultural land, introducing local farmers to how to use these organic fertilizer products (Sutrisno, & Priyambada, 2019; Istiqomah & Serdani, 2018; Hasyim, et al., 2015). Apart from that, they are also trying to make biological pesticides, solid organic fertilizers, liquid organic fertilizers and vegetable pesticides (Elmi Sundari & Rinaldo, 2012; Sinaga, 2009; AK, 2018), but they are still not in accordance with existing theories and are only for the group's own needs. To date, Mitra has not been able to make the organic products in question, let alone sell their products to other farmers because production is still limited and does not have a certificate and has not been tested in a laboratory. The use of organic fertilizers and natural pesticides in the cultivation of various types of plants, both food crops such as rice, corn and secondary crops as well as horticulture has been widely carried out in various other places and can have a positive impact on their development and productivity as well as improving the agricultural environment (Muchtar, et al., 2015; Prihandini & Purwanto, 2007; Prayitno, 2014; , Darmania, 2017; Salaki &

Tarore, 2018; Umbola, et al., 2020; Roidah, 2013; Ramadhani, et al., 2017). However, this has not been done intensively in the partner group.

The prospects for developing this partner group as producers of biofertilizers and biopesticides are very potential, judging from the enthusiasm and activities that have been carried out so far. Obstacles in developing and increasing the production of biofertilizers and biopesticides are the aspects of lack of facilities and infrastructure, packaging, and product certification. Apart from that, there is also a need for capital support, strengthening institutional management and the ability to market products.

Figure 1. The current condition of the "Tabanan Lestari" Farmers Group which has quite good basic materials for making biofertilizers and biopesticides.

The partners' hope is that there will be technology transfer from academics who can help them with their technological knowledge and skills in producing superior quality and certified biopesticides and biofertilizers through laboratory tests and improved management including packaging and marketing of their products. With technology transfer, it is hoped that the production and quality of the products produced will increase, the continuity of their production will automatically increase economic income, especially for all members and farmers in the surrounding areas, as well as have a positive impact on environmental sustainability and comfort in Senganan Village, which is close to tourist destination areas. Jatiluwih. The technical problems of producing superior quality biofertilizers (organic fertilizers) and biopesticides among partners have not yet been mastered well by members of this group. The members of the "Tabanan Lestari" farmer group really want to be able to master the techniques for making these products so that apart from getting products that are useful for land fertility, they can also handle sanitation and cleanliness as well as environmental sustainability. This community partnership program offers to provide knowledge and technology starting from producing organic fertilizer (biofertlizer) in the form of solid or liquid organic fertilizer (Direktorat Pemberdayaan Masyarakat Desa, 2013) from various waste and plant litter and organic pesticides (biopestiside) as well as

providing labels after analysis in the laboratory (Hasyim, et al., 2015; Elmi Sundari & Rinaldo, 2012; Sinaga, 2009; AK, 2018).

Management problems to strengthen institutions at partners are still not optimal. Through this community partnership program, a minimum of 5 members will be trained as pioneers in their partners, especially so that partners have better mastery of science and technology in order to produce good quality and certified products, and can use them effectively and efficiently in agricultural areas, especially in food crops, secondary crops and cash crops. other horticulture cultivated by this farmer group and other farmers in the surrounding area, even outside the district, or national and managing environmentally friendly farming businesses. Based on this, through this community partnership program we provide assistance, counseling, training and transfer of knowledge and technology, direct practice related to production techniques, especially the manufacture of biofertilizers and biopesticides (Hasyim, et al., 2015) as well as institutional strengthening and marketing of products if they are capable of mass production in partners.

IMPLEMENTATION AND METHODS

The implementation of community service was held at the "Tabanan Lestari" Farmers Group in Senganan Village, Penebel District, Tabanan Regency, Bali Province.

Implementation time starts from May to November 2023.

Method of implementing the PKM program for the "Tabanan Lestari" Farmer group in Senganan Village with socialization, mentoring, training and transfer of knowledge and technology activities. Assistance was provided to 20 members of the farmer group.

The types of activities carried out are as follows:

a. Socialization of the PKM program,
b. Counseling and training,
c. Introduction and transfer of knowledge and technology regarding the manufacture of organic fertilizer in the form of liquid and solid organic fertilizer from plant waste available at partner locations,
d. Introduction and transfer of technology for making biopesticides,
e. Strengthening group institutions

Implementation methods carried out by partners include:

Production Issues

a. Introducing and transferring technology for making environmentally friendly biofertilizers or organic fertilizers to improve the growth and yields of various types of cultivated plants.
b. Introducing and transferring technology for implementing technology packages for cultivating and maintaining food crops, horticulture and plantation crops.

Management Issues

a. Group strengthening.

Carrying out learning and practice for partner groups, so as to create good cooperation between members. Under these conditions, every obstacle in production can be resolved together.

b. Institutional strengthening.

In strengthening institutional institutions, partners are able to develop a minimum of 5 potential partner members as pioneers for the sustainability of partners in managing livestock businesses and cultivating various types of plants in accordance with the conditions of their planting land.

Activity Procedures

To launch work plans in the field, in implementing PKM activities, work procedures are prepared as shown in Figure 2. From the flow chart in Figure 2, the stages of implementing PKM activities can be explained as follows.:

a. Exploring the location, approaching local livestock farmer groups, and at the same time selecting participants to be given education, referred to as students.
b. Interviews, exploring the problems faced by students and at the same time carrying out socialization and planning activity plans and solution steps to the problems faced. And students are first given material that has been prepared by the team.
c. Empowerment of available tools and materials used to produce biofertilizer products through the application of technology packages for making these products.
d. Implementation of knowledge and technology transfer practices for making certified (labeled) organic fertilizer products as a result of laboratory analysis
e. Final evaluation of the implementation of service to partner groups starting from the assessment process, until partner farmers can improve their abilities, skills and added product value to increase the economic income of partner groups. Ends by compiling and publishing the output of the activity in the target media/journal.

RESULTS AND DISCUSSION

PKM program activities for the "Tabanan Lestari" Farmers Group in Senganan Village, Penebel District, Tabanan Regency, Bali Province can be carried out well, namely according to plan...Direct counseling and practice during the activities of the "Tabanan Lestari" Farmer Group in Senganan Village, Penebel District, Tabanan Regency, Bali Province, was carried out for around 8 weeks or more, starting on Monday, May 16, 2023 to June 23, 2023 (for the first check of the success of making organic fertilizer) and can be continued for the next few days. Counseling and direct practice of the process of making organic fertilizer is located in Senganan Village, Penebel District, Tabanan Regency. This activity was attended and participated by most members of the "Tabanan Lestari" Farmers Group as well as several village officials, such as the village head and

also local PPL. Direct counseling and practice during PKM activities in the "Tabanan Lestari" Farmer Group includes:
a)Introducing and transferring technology for making environmentally friendly biofertilizers or organic fertilizers to improve the growth and yields of various types of cultivated plants.

Development of Performance Evaluation Form

The problem faced by KUD Tani Makmur is that employee performance has not been measured properly. This causes KUD Tani Makmur to not receive optimal feedback to improve employee performance. To develop the questionnaire instrument, the community service team conducted interviews with KUD Tani Makmur to find out the aspects that need to be measured in assessing employee performance. To create a Microsoft Office-based employee performance assessment database, the community service team used the Microsoft Excel program. This database contains employee data, and employee performance assessments which consist of three aspects, namely personality assessment, discipline assessment, and technical skills assessment. To provide counseling to all employees, the community service team uses lecture and discussion methods. This counseling aims to provide employees with an understanding of how to use the employee performance assessment database with Microsoft Excel.

Figure.2 Extension activities and direct practice of the process of making and fermenting organic fertilizer from citrus fruit waste and Muscovy cattle (kuwir)

Management Issues

a. Group strengthening.

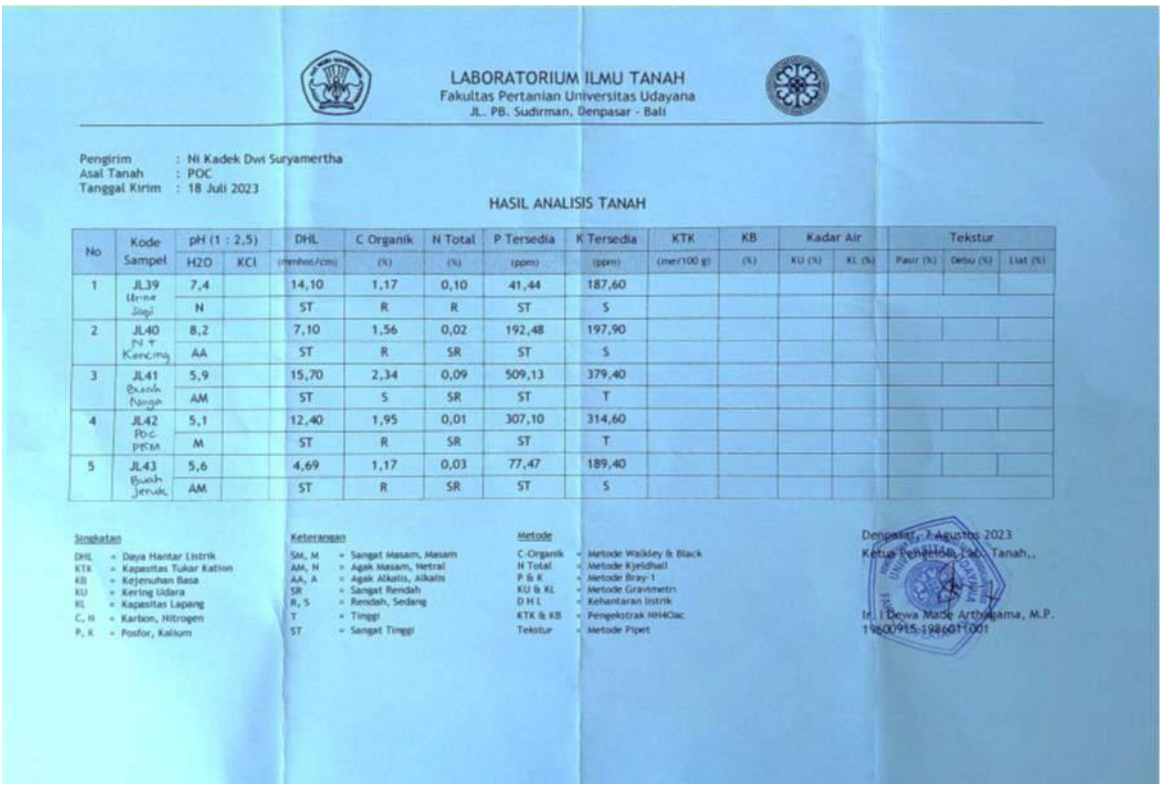
Carrying out learning and practice for partner groups, so as to create good cooperation between members. Under these conditions, every obstacle in production can be resolved together.

b. Institutional strengthening.

In strengthening institutional institutions, partners are able to develop a minimum of 5 potential partner members as pioneers for partner sustainability in managing livestock businesses and cultivating various types of plants in accordance with the conditions of their planting land. All members of the "Tabanan Lestari" Farmers Group in Senganan Village, Penebel District, Tabanan Regency who were present were very enthusiastic and eager to take part in training on the process of making organic fertilizer (made from fermented orange fruit waste). For them, this is very encouraging, because so far they do not really understand the process of making organic fertilizer (fermented cow barn compost) as well as the benefits and of course the application of this fertilizer, even though they have heard about it through PPL and also one of the group members who understands and have attended training on this matter. So that the desire to carry out safe, healthy and environmentally friendly agricultural activities can be immediately put into practice and even in the future, this knowledge and skills can be transmitted to other farmers around this group's agricultural area. Several activity agendas still need to be continued, such as testing or evaluating organic compost fertilizer produced in the field/planting area and also in a competent laboratory. Apart from that, furthermore of course the application of this organic fertilizer to various food and horticultural crops, as well as observing its effectivenes

Economic and Social Impact.

The economic impact of PKM on the "Tabanan Lestari" Farmer Group in Senganan Village, Penebel District, Tabanan Regency is expected to be in the form of an increase in income later after making good quality organic compost fertilizer products that have been analyzed in this laboratory (Figure 5.1), which can be marketed well in the environment. farmers around this group and if it can be mass produced it can be marketed more widely to other areas.



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Tanggal Kirim : 18 Juli 2023

HASIL ANALISIS TANAH

No	Kode Sampel	pH (1 : 2,5)		DHL	C Organik	N Total	P Tersedia	K Tersedia	KTK	KB	Kadar Air		Tekstur		
		H2O	KCl	(mmhos/cm)	(%)	(%)	(ppm)	(ppm)	(me/100 g)	(%)	KU (%)	KL (%)	Pasir (%)	Debu (%)	Liat (%)
1	JL39 Urine Sapi	7,4		14,10	1,17	0,10	41,44	187,60							
		N		ST	R	R	ST	S							
2	JL40 N + Kencing	8,2		7,10	1,56	0,02	192,48	197,90							
		AA		ST	R	SR	ST	S							
3	JL41 Buah Naga	5,9		15,70	2,34	0,09	509,13	379,40							
		AM		ST	S	SR	ST	T							
4	JL42 Poc pcm	5,1		12,40	1,95	0,01	307,10	314,60							
		M		ST	R	SR	ST	T							
5	JL43 Buah Jeruk	5,6		4,69	1,17	0,03	77,47	189,40							
		AM		ST	R	SR	ST	S							

Singkatan
DHL = Daya Hantar Listrik
KTK = Kapasitas Tukar Kation
KB = Kejenuhan Basa
KU = Kering Udara
KL = Kapasitas Lapang
C, N = Karbon, Nitrogen
P, K = Posfor, Kalium

Keterangan
SM, M = Sangat Masam, Masam
AM, N = Agak Masam, Netral
AA, A = Agak Alkalis, Alkalis
SR = Sangat Rendah
R, S = Rendah, Sedang
T = Tinggi
ST = Sangat Tinggi

Metode
C-Organik = Metode Walkley & Black
N Total = Metode Kjeldhall
P & K = Metode Bray-1
KU & KL = Metode Gravimetri
D H L = Kehantaran listrik
KTK & KB = Pengekstrak NH4Oac
Tekstur = Metode Pipet

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Figure.3 Results of quality analysis of liquid organic fertilizer (POC) produced from the fermentation process of citrus fruit waste and cow urine at the PKM location of the Tabanan Lestari Group.

The social impact of this PKM is in the form of increasing partners' understanding of the use of organic fertilizer in healthy and environmentally friendly agricultural management efforts, as well as being able to disseminate the knowledge and skills in question, so that the scope of agricultural management is safe, healthy and environmentally friendly which is the current trend in the world of agriculture. could occur more massively.

Partner Contribution to Implementation

Mitra's contribution to the implementation of this PKM is in the form of the main ingredients of orange fruit waste and manure (entog droppings) which coincidentally, this group has 200 muskrat livestock which are penned and occasionally released in the understory of Siamese orange trees and several equipment for the processing and fertilizer fermentation. organics such as hoes, rakes and other supporting equipment owned by members of this farming livestock group

CONCLUSIONS AND RECOMMENDATIONS

Based on the interim results of community service at the "Tabanan Lestari" Farmers Group in Senganan Village, Penebel District, Tabanan Regency, the following conclusions can be drawn:

1. The implementation of PKM in the "Tabanan Lestari" Farmer Group can be carried out well according to plan.
2. Organic fertilizer products that are successfully made in the implementation of this PKM activity are then analyzed at the Soil Fertility Laboratory at the Faculty of Agriculture, Udayana University, which are then included as labels on the packaging of the organic fertilizer that will be produced.
3. The application of organic fertilizer that has been made to several types of horticultural plants such as oranges, chilies and ginger at plantations and nurseries belonging to one of the Farmer Groups in Senganan can be carried out well.

This kind of community service activity needs to be carried out more intensively and over a wider area, as well as by seeking funding assistance to support equipment and other infrastructure needs so that the target is to realize an economic increase in income as a result of marketing organic fertilizer products which are a by-product of the plantation business. orange and entog farms in order to create healthy and environmentally friendly agriculture as the forerunner of tourist destinations with an agrotourism model.

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