

Making Ecoenzyme Products From Fruit And Vegetable Waste in Rt 007 Rw 02 Meruya Selatan

Dian Meliantari¹ Achmad Tarmizi² Siti Annisa Wahdiniawati³

Management Study Program, Faculty of Business and Social Sciences, Universitas Dian Nusantara, Jakarta, Indonesia^{1,2,3}

Email: dian.meliantari@dosen.undira.ac.id¹ achmad.tarmizi@undira.ac.id²
siti.annisa.wahdiniawati@undira.ac.id³

Abstract

In this community service, the selected partner is the PKK community RT 007 RW 02 South Meruya Village, Kembangan District, West Jakarta. Which is named the Pomegranate Gardening Class which consists of PKK women who use the narrow land in the RT 007 area to create food independence by planting several types of vegetable crops, raising chickens and cultivating catfish. Because the land is narrow, some vegetables are planted hydroponically using chemical fertilizers commonly called AB Mix as well as chemical pesticides that are ready to be purchased. Of course, this requires additional costs to buy these fertilizers. Growing hydroponically means that the vegetables are not organic because they use chemical fertilizers and chemical pesticides. To produce healthier organic vegetables, the Undira PKM team wants to share knowledge so that Partners can produce healthy organic vegetables by making ecoenzymes as an organic fertilizer to replace AB Mix from residual household organic waste.

Keywords: Ecoenzymes, Organic Fertilizers, Hydroponics, Zero Waste



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](https://creativecommons.org/licenses/by-nc/4.0/).

INTRODUCTION

Situation Analysis

South Meruya is one of the villages located in Kembangan district, West Jakarta. It has an area of 2.80 square km² with a population density of 1,227 people/km² per year in 2016. South Meruya Village consists of 84 RTs and 11 RWs and the number of households is 10,882 (*Meruya Selatan, Kembangan Jakarta Barat, 2025*). This village in the north borders North Meruya Village, in the south it borders Joglo Village, in the west it borders the Karang Tengah District Village and in the east it borders Srengseng Village. According to 2024 data, the population of South Meruya is 42,270 people, consisting of 21,171 men and 21,099 women (*Meruya Selatan, Kembangan, Jakarta Barat, 2025*). South Meruya Village is an area with a very dense population density because it is > of 400 people/km². This means that the area does not have more land area to be used as green land because it is filled with dense residential housing. Of course, this is one of the obstacles for urban people to grow crops to meet family food security. One of the RTs that is the location of this service is in RT 007 RW 02 South Meruya.

Partner Problems

The southern Meruya Village is a very dense residential area. One of the problems in a crowded city is related to meeting food needs. So far, the supply of food for urban residents has come from the countryside, while villagers flock to the city to find work for their decent livelihood. This means that food production produced from rural areas tends to decline because fewer farmers in villages are planting these food crops due to urbanization (Daszkiewicz, 2022); (Paramita, M., 2023); (Sitawati, 2019). According to Law Number 18 of 2012, Food Security is the fulfillment of food needs in a country to individuals. This means that food must be available enough for every citizen. Both the amount of food, as well as the quality of the food,

safe means that it is suitable and healthy to consume, various types and affordable. The last is not contrary to religion, culture and health (Republik Indonesia, 2012). Therefore, the Government through the Ministry of Agriculture has suggested that people can grow their own food crops to meet the needs of their families. This can help people who have decreased people's purchasing power due to the impact of increasing vegetable prices due to an unfavorable climate that makes agricultural production decrease, as well as distribution delays so that the supply of vegetables becomes small (Salim, M, N., 2023).

In this community service, the selected partner is the PKK community RT 007 RW 02 South Meruya Village, Kembangan District, West Jakarta. Named the Pomegranate Gardening Class consisting of PKK women who use the narrow land in the RT 007 area to create food independence by planting several types of vegetable crops, has just started raising chickens (free-range chickens and laying hens) as well as catfish cultivation. Because the land is narrow, some vegetables are planted hydroponically using chemical liquid fertilizers commonly called AB Mix as well as chemical pesticides that are ready to be purchased. Of course, this requires additional costs to buy these fertilizers. The price of chemical fertilizers cannot be said to be cheap for now (Thomas W. Assefa., 2025). In addition, growing hydroponically means that the vegetables are not organic because they use chemical fertilizers and chemical pesticides. To produce healthier organic vegetables, the Undira PKM team wants to share knowledge so that Partners can produce healthy organic vegetables by making their own organic fertilizers from household organic waste. This service aims to improve citizens' knowledge as well as foster interest in partners to try to use household organic waste into ecoenzymes that can be used as organic fertilizers, as natural pesticides as dishwashing materials and others. With the hope that the fertilizer needs of Partners can be met, it means that they can reduce the purchase of fertilizer for the plants planted so that in the end food independence is achieved. The use of organic waste is one way to turn waste that is not useful to the environment into ecoenzymes that have added value.

RESEARCH METHODS

The method in this community service activity is carried out by providing lectures/counseling and training as follows: Giving lectures/counseling on how to process fruit and vegetable skin waste into ecoenzymes. The practice of processing fruit and vegetable skin waste into ecoenzymes. The stages of implementing the service are as follows: Socialization: At this stage, an initial survey was carried out on the target community. The survey results showed that partners still use chemical fertilizers for their hydroponic vegetable plants. Partners have also not processed their kitchen waste to be used as ecoenzymes that can be used as liquid organic fertilizers, natural pesticides and can even be used in households as dish soap and others. The participation of the partners represented by the chairman of RT 007 RW 02 South Meruya Village was in charge of gathering PKK Community members from RT 007 to invite PKK members to listen to socialization to make their own organic fertilizer from household waste. Furthermore, the PKM team socialized how to overcome the problems faced by residents by providing training to solve existing problems. The solution taken is to process household organic waste into ecoenzymes that can be used as organic fertilizers, natural pesticides and others. And residents accept the solutions offered by the PKM Team. The PKM team then prepared the facilities and infrastructure needed to enter the Training stage. Training: Training Making Eco Enzymes Lecturers with expertise as instructors in training in processing household organic waste into ecoenzymes. The team distributed a module followed by a lecture on the importance of utilizing household organic waste so that it can be self-sufficient in fertilizer and save production and can produce healthy organic vegetables for families. Partners and students help the PKM Team prepare tools and materials for training. Furthermore,

training on processing organic waste into eco enzymes was immediately carried out. After it is finished, it is only a matter of waiting for the harvest of eco enzymes. Mentoring and Evaluation: When residents participate in training, the team continues to provide assistance until the desired results are appropriate. Starting from preparing materials and tools, the practice of making ecoenzymes so that finally the harvest is harvested. Program Sustainability: The program should continue by carrying other themes, which are still related such as how to grow food crops vertically as a solution to narrow land use. Or fish farming in buckets to increase family food security. Partner Participation Partners consisting of the PKK community in RT 007 RW 02 South Meruya Village, Kembangan District, West Jakarta have helped a lot in the implementation plan of this PKM. Partner's participation includes: enthusiastically participating in providing his time to attend lectures and trainings.

RESEARCH RESULTS AND DISCUSSION

The Community Service Internal Grant for 2025-2026 with the title "Making Ecoenzyme Products from Fruit and Vegetable Waste in Rt 007 Rw 02 South Meruya" has been carried out on February 14, 2026 until it is completed. The results are detailed in the table and figure below.

Table 1. Percentage of Participants by Gender

No	People	Percentage
Male	0	0
Female	12	100
Total	12	100

From table 1, it is known that all participants or 100% of participants are women, namely 12 people.

Table 2. Response of PKM Participants

No	Indicator	STS	KS	CS	S	SS	%	Result
1	Activity materials are useful for participants				1	11	98,3	Very suitable
2	The activity material is a new concept of knowledge for participants to apply				6	6	90	Very suitable
3	Activity materials are suitable for increasing participants' knowledge				2	10	96,7	Very suitable
4	The material presented provides soft skills or hard skills for participants				6	6	90	Very suitable
5	The material was delivered by the resource persons well, sequentially and completely				2	10	96,7	Very suitable
6	The speaker masters the material he or she delivers					12	100	Very suitable
7	Speakers use language that is easy to understand					12	100	Very suitable
8	Speakers use text with easy-to-read letters				3	9	95	Very suitable
9	Speakers make good use of multimedia technology				5	7	91,7	Very suitable
10	Speakers can motivate participants				1	11	98,3	Very suitable
11	The committee organized the activity well				1	11	98,3	Very suitable
12	Effective time running				5	7	91,7	Very suitable
	Recommendations	Need further activities			1	Need new activities		11

	Suggestions	<ol style="list-style-type: none"> 1. Waste management becomes a useful product with selling value 2. Education about Toga (family medicinal plant) 3. Utilization of plants in the surrounding environment 4. Processing banana stems into food
--	-------------	--

Description: STS: Highly Unsuitable; KS: Less Suitable; CS: Quite appropriate; S: Suitable; SS: Very Suitable

The results of table 2 show that the community service organized by the lecturers of Dian Nusantara University is very in line with the expectations of the Partners.

Table 3. Evaluation of Partner cooperation

No.	Indicator	Score					%	Result
		STS	KS	CS	S	SS		
1	Dian Nusantara University responded appropriately to our needs					12	100	Very suitable
2	Dian Nusantara University responded to our needs professionally					12	100	Very suitable
3	The process of making a cooperation script is carried out quickly					12	100	Very suitable
4	Dian Nusantara University provides assistance/ assistance to our agencies when needed					12	100	Very suitable
5	Monitoring and evaluation of cooperation has been carried out well					12	100	Very suitable
6	This cooperation/activity is in line with our expectations					12	100	Very suitable
7	We get useful things from the cooperation between our institution and Dian Nusantara University					12	100	Very suitable
8	The cooperation between Dian Nusantara University and our institution has been carried out in accordance with the MoA/MOU that we have agreed upon together					12	100	Very suitable
9	Cooperation activities with Dian Nusantara University use adequate facilities and infrastructure					12	100	Very suitable
10	Collaborative activities with Dian Nusantara University are beneficial for our institution					12	100	Very suitable
11	Cooperation activities with Dian Nusantara University need to be continued					12	100	Very suitable
	Cooperation activities with Dian Nusantara University that will be carried out in the future are: it is necessary to organize new activities.							

Description: STS: Highly Unsuitable; KS: Less Suitable; CS: Quite appropriate; S: Suitable; SS: Very Suitable

The results of table 3 show that the community service organized by the lecturers of Dian Nusantara University is very in line with the expectations of the Partners.



Figure 1. PKM Activities

Discussion

The existence of technological products and innovations has a positive effect in every field of human life in general. Technological innovation is the application or creation of technology that can be in the form of tools (hard). Equipment which is a technological tool can make work easier and simpler and time efficient. Soft innovation can be in the form of useful scientific ideas that make everything easier (Shabrina, F.I., 2023). This service activity uses technology in the form of hydroponic equipment to make it easier for partners to produce vegetables to meet their family's food needs. This means that with these technological tools, it is hoped that activities will be more effective and efficient. Which ultimately has an impact on good productivity. It also optimizes the use of time, energy and costs needed in the production process. The use of technological tools will speed up the process, meaning that time can be shortened. Then it saves on the use of energy, so the work does not need to require a lot of labor or people. And lastly, it means that it will reduce the amount of costs or expenses (Kurniawan, A.K., 2024). The innovation in the form of a (soft) idea is to provide knowledge on how to process and utilize kitchen waste such as fruit and vegetable peels to become ecoenzymes. Where this ecoenzyme is a liquid organic fertilizer that can be used as a substitute for AB Mix chemical fertilizer in hydroponic plants or conventionally grown plants. The use of this ecoenzyme can certainly reduce the cost of purchasing chemical fertilizers.

The next stage to foster the target community (PKK Delima) can be more active by utilizing leftover kitchen ingredients to be used as ecoezim as a substitute for AB Mix chemical fertilizer in order to get organic vegetables that are good for body health. The next stage is to demonstrate the use of ecoenzymes as alternative nutrients in hydroponic plants. The demonstration was carried out by comparing plant growth using ecoenzymes and AB Mix nutrients. The results seen directly will increase public confidence in the benefits of ecoenzymes as organic fertilizers that are safe for health and the environment. The next stage is to make the pilot garden function as a means of education as well as proof of the benefits of ecoenzymes. This garden can be managed jointly by members of the Pomegranate PKK by planting various types of vegetables such as lettuce, pakcoy, kale, and mustard greens. The success of the pilot garden will be a motivation for other members to apply the technology in their respective homes.

CONCLUSION

Based on the results of a questionnaire given to Community Service respondents entitled "Making Ecoenzyme Products from Fruit and Vegetable Waste In Rt 007 Rw 02 South Meruya"

can be concluded as follows: (1) The participants' responses to the 12 indicators listed stated that the results were very in line with the participants' expectations; (2) The Partner's response to the 12 indicators listed stated that the results were in line with the Partner's expectations; (3) Mitra hopes that there will be new activities for PKM in the future.

Suggestions

PkM participants hope that PkM activities will continue with other interesting and useful themes. From the results of the questionnaire filled out by the participants, they wanted the following themes for the next PkM: (1) Waste management becomes a useful product with selling value; (2) Education about Toga (family medicinal plant); (3) Utilization of plants in the surrounding environment; (4) Processing banana stems into food.

BIBLIOGRAPHY

- Daszkiewicz, T. (2022). Produksi Pangan dalam Konteks Tantangan Pembangunan Global. *Agriculture*, 12(6). <https://doi.org/https://doi.org/10.3390/agriculture12060832>
- Kurniawan, A.K., et al. (2024). Pengaruh Berbagai Jenis Eco Enzyme Sebagai Pupuk Organik Cair Terhadap Produktivitas dan Kadar Gizi Sawi Hijau (*Brassica juncea* L). *Jurnal Cendikia Ilmiah*, 3(6). <https://doi.org/https://doi.org/10.56799/jceki.v3i6.5334>
- Meruya Selatan, Kembangan, Jakarta Barat. (2025). https://p2k.stekom.ac.id/ensiklopedia/Meruya_Selatan,_Kembangan,_Jakarta_Barat
- Meruya Selatan, Kembangan Jakarta Barat. (2025). https://id.wikipedia.org/wiki/Meruya_Selatan,_Kembangan,_Jakarta_Barat
- Paramita, M., et al. (2023). *Masterplan Desa*. Yayasan Hunian Rakyat Caritra Yogya.
- Republik Indonesia. (2012). *Undang-Undang No 18 Tahun 2012*. <https://www.kemhan.go.id/ppid/wp-content/uploads/sites/2/2016/09/uu18-2012bt.pdf>
- Salim, M, N., et al. (2023). Urban Farming Competitiveness in Jakarta City in the Digital Era. *International Journal of Science and Society (IJSOC)*, 5(4).
- Shabrina, F.I., et al. (2023). Pemanfaatan Eco Enzyme Sisa Sayuran sebagai Alternatif Pupuk cair Kimia (AB Mlx). *Yayasan Asih Putra*. <https://asihputera.sch.id/User/ContentDetail/pemanfaatan-eco-enzyme-sisa-sayuran-sebagai-alternatif-pupuk-cair-kimia-ab-mix/1798>
- Sitawati, el al. (2019). *Urban Farming Untuk Ketahanan Pangan*. UB Press.
- Thomas W. Assefa., et al. (2025). Fertilizer demand and profitability amid global fuel-food-fertilizer crisis: Evidence from Ethiopia. *ScienceDirect*, 133. <https://doi.org/https://doi.org/10.1016/j.foodpol.2024.102785>