

JOURNAL OF HEALTH COMMUNITY SERVICE



Real Work Lecture: (GERMAS) Zero Waste Healthy House Movement Through Maggot Cultivation Innovation and as a New Superior Entrepreneurial Product in Improving the Welfare of MSMEs in Glindah Village

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ARTICLE INFORMATION

Received: May 29, 2023

Revised: August 9, 2023

Available online: September 2023

KEYWORDS

The Zero Waste Healthy Home, Maggot, Innovation, Economic

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A B S T R A C T

The Zero Waste Healthy Home Movement has become the main focus in efforts to create a clean, healthy and sustainable environment. In an effort to achieve this goal, maggot cultivation innovation is a promising solution. This study aims to describe the role of maggot cultivation as part of the Zero Waste Healthy Home Movement and its potential as a new leading entrepreneurial product in improving the welfare of MSMEs. Maggot, as a processed product from organic waste, has high economic and ecological added value. Maggot-based products can be marketed as high quality organic fertilizers that are environmentally friendly, as well as various other products such as animal feed and health products. Through maggot cultivation innovations, MSMEs have the opportunity to earn additional income and improve the welfare of residents in Glindah Village.

INTRODUCTION

Today, environmental and health issues have become a serious concern around the world. The accumulation of plastic and organic waste in households causes environmental pollution and various health problems. Many regions face limited landfills, resulting in the accumulation of waste in public areas and the surrounding environment (Olabi et al., 2019).

As we know, organic waste that accumulates will rot and emit an unpleasant odor, thus inviting various disease vectors such as flies, mosquitoes, rats and cockroaches. In addition, waste that is disposed of carelessly, for example to ditches or rivers will obstruct the flow of water (Gesriantuti, et al., 2017).

Organic waste, such as food scraps, has great potential to be recycled into useful resources. One way is through the cultivation of insect larvae, such as maggots, which can process organic waste into a source of high nutrients (Handayani et al., 2021). "Healthy Homes " include not only aspects of human health, but also the health of the environment around the area. Minimizing waste and keeping the environment clean is an integral part of this concept. Maggot cultivation as a method of organic waste processing is a promising innovation. Maggot larvae can eat organic waste efficiently, converting them into pupa rich in protein and fat, which can be used as animal feed or raw materials for other products (Cheng et al., 2021).

This movement provides an opportunity to empower local communities, especially Micro, Small, and Medium Enterprises (MSMEs), by providing training in maggot cultivation and waste management. This can help increase their income through value-added products. Maggot products can reduce dependence on imported animal feed ingredients, because maggot larvae have a high nutritional content. This can support national food security and reduce livestock production costs (Ahmad & Sulistyowati, 2021).

By developing value-added products from maggot larvae, such as pupa as animal feed or raw materials for other processed products, MSMEs can experience an increase in sales and income. This movement also has the potential to increase environmental awareness in the community. By practicing maggot cultivation and reducing waste, people can become more aware of the positive impact on the environment.

By looking at the background above, we KKN 27 students of Nahdlatul Ulama University Surabaya carried out the "Zero Waste Healthy House " movement through maggot cultivation innovations have the potential to overcome environmental problems, support the welfare of MSMEs, and have a positive impact social and economic in an effort towards a cleaner and healthier environment.

METHOD

1. Preparation of Tools and Preparatory Materials needed in BSF maggot cultivation are:

- a. Bran 5 kg
- b. 1 liter of water
- c. EM4 (can be replaced with 1 bottle yakult)
- d. Maggot enlargement container
- e. Prepupa Basin
- f. Egg hatching container
- g. Banana fronds

2. Implementation Flow

The BSF maggot cultivation program by utilizing organic waste as a feed medium is planned and carried out by Nahdlatul Ulama University Surabaya, the implementation flow is as follows:

- a. Conducting location surveys and data collection from target communities
- b. Meeting and assignment with members of the Healthy House Movement Program team who are members of KKN Group 27 of Nahdlatul Ulama University Surabaya
- c. Confirm with the Glindah village apparatus as the place to carry out activities regarding implementation technicians, venues, and goals
- d. Prepare the necessary tools and materials for socialization and training

- e. Conducting socialization and training to PKK women and residents around Glindah Village totaling 46 people. The following are Maggot Cultivation activities and as New Superior Entrepreneurial Products in Improving the Welfare of MSMEs in Glindah Village
- f. Measuring the success rate of the program



Figure 1 Presentation of maggot cultivation socialization material



Figure 2 Maggot Cultivation Demonstration

3. Time and Place of Implementation

The time for the implementation of socialization and training activities on Maggot cultivation as a new MSME business opportunity in Glindah village is Tuesday, August 1, 2023, with a total of 30 participants. This socialization activity was carried out at the Glindah Village Hall.

4. BSF Maggot Cultivation

The steps to cultivate BSF maggots are as follows:

- a. Prepare tools and materials.
- b. Put 5 Kg of organic waste that has been cut into small bags into the reactor (Sundari, et al., 2012).
- c. Dissolve one cup of a farm EM4 bottle with up to 1 liter of water.
- d. Put the EM4 solution and water evenly into the reactor containing organic waste.

- e. Cover the reactor with banana fronds.
- f. Waiting for approximately 14 days, the BSF maggot is ready to harvest.

With the fermentation process from organic waste with the help of EM4, it will create a distinctive aroma that is liked by BSF insects. Thus, the female insect will hatch her eggs inside the reactor. The eggs will hatch into BSF maggots for 3 days after the insects hatch their eggs. For approximately 14 days, BSF maggot is ready to harvest (Suciati, et al., 2017).

5. Data Collection Method

In this BSF maggot cultivation training, the socialization method used is used to equip the trainees by fostering participants' motivation on the importance of using organic waste as an alternative to animal feed and demonstrate and explain directly the stages of BSF maggot cultivation. Data on the level of understanding of trainees was taken from the results of questionnaires given to participants before and after BSF maggot cultivation training.

RESULT AND DISCUSSION

By using the lecture method, we obtained data results through questionnaires so that we were able to measure the level of understanding of participants, monitor the development of BSF maggots, and help provide solutions to obstacles that the community faces while cultivating BSF maggots. The following is a table of the percentage level of understanding of participants before the training was carried out.

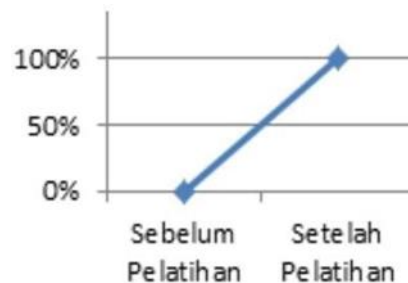


Figure 3 Percentage of Participants ' Understanding Level Before and After Training.

Before the training, all participants did not know how to cultivate BSF maggot (0%). This is due to the lack of knowledge of participants and the uneven distribution of science in Indonesia. The lack of tips for participants to find information about alternative feeds also has a big impact on people's ignorance.

After the training, the participants' understanding increased to 100%. This indicates an increase in the overall understanding of participants. Participants began to know how to cultivate BSF maggot, the benefits of BSF maggot, and how to harvest it. Overall, the benefits of this KKN are to increase the economic income of Glindah villagers. The knowledge and skills of residents and cultivators can increase in processing organic waste for maggot cultivation. We hope that our involvement in the field of

community service in Glindah village, Kedamean District, Gresik Regency will contribute to the progress of Glindah village. And the creation of opportunities a new business of maggot cultivation with waste used maggot (Kasgot) for manure with high economic value. Economic income will increase with the addition of new businesses for residents. This is the next program of community service in the future.

CONCLUSION

With the implementation of (GERMAS) the Zero Waste Healthy House Movement Through Magot Cultivation Innovation and as a New Superior Entrepreneurial Product. This movement provides an opportunity to empower local communities, especially Micro, Small, and Medium Enterprises (MSMEs), by providing training in maggot cultivation and waste management. Through the results of the questionnaire given to participants, we can measure the level of understanding of participants, monitor the development of BSF maggots, and help provide solutions to obstacles that the community faces while cultivating BSF maggots. Previously, the participants understood how to cultivate BSF maggot (0%). Then after the training was carried out, the participants' understanding increased to 100%. This shows an increase in the overall understanding of the trainees.

UNKNOWLEDGEMENTS

Thank you to UNUSA for providing the opportunity to carry out this activity.

REFERENCES

- Ahmad, S. M., & Sulistyowati, S. (2021). Pemberdayaan masyarakat budidaya maggot BSF dalam mengatasi kenaikan harga pakan ternak. *JE (Journal of Empowerment)*, 2(2), 243-260.
- Alabi, O. A., Ologbonjaye, K. I., Awosolu, O., & Alalade, O. E. (2019). Public and environmental health effects of plastic wastes disposal: a review. *J Toxicol Risk Assess*, 5(021), 1-13.
- Cheng, Z., Yu, L., Li, H., Xu, X., & Yang, Z. (2021). Use of housefly (*Musca domestica* L.) larvae to bioconversion food waste for animal nutrition and organic fertilizer. *Environmental Science and Pollution Research*, 28(35), 48921-48928.
- Gesriantuti, N., Elsie, Harahap, I., Herlina, N., & Badrun, Y. (2017). Pemanfaatan Limbah Organik Rumah Tangga dalam Pembuatan Pupuk Bokashi di Kelurahan Tuah Karya, Kecamatan Tampan, Pekanbaru. 1(1).
- Handayani, D., Naldi, A., Larasati, R. R., Khaerunnisa, N., & Budiarmaka, D. D. (2021). Management of increasing economic value of organic waste with Maggot cultivation. In *IOP Conference Series: Earth and Environmental Science* (Vol. 716, No. 1, p. 012026). IOP Publishing.
- Suciati, R., Faruq, H., Biologi, J. P., & Timur, J. (2017). Efektifitas Media Pertumbuhan Maggots *Hermetia Illucens* (Lalat Tentara Hitam) Sebagai Solusi Pemanfaatan Sampah. 2(1), 0–5.