

Knowledge and Practice Managing of Liquid Organic Fertilizer from Waste in Tourism Village Bonjeruk, Central Lombok, West Nusa Tenggara

Sukandriani Utami, I Putu Dedy Arjita, Rozikin, Dany Karmila,
Ayu Anulus, Made Rika Anastasia Pratiwi

Faculty of Medicine, Universitas Islam Al-Azhar

ABSTRACT

Background: Garbage is a major issue in many countries throughout the world, including Indonesia. Every year, the amount of waste produced rises in tandem with population growth. As a result, it is vital to manage liquid fertilizer made from household waste, which will aid in the reduction of community problems. The general public still has little knowledge of how liquid fertilizer is made from household garbage. This study aimed to increase community understanding and practice through training and help in the processing of household trash into liquid organic fertilizer in the tourist village of Bonjeruk, Central Lombok, West Nusa Tenggara.

Subjects and Method: This was a cross-sectional study conducted in the tourist village of Bonjeruk, Central Lombok, West Nusa Tenggara, from March to December 2021. A total of 27 subjects were selected in this study. The variables in this study were knowledge and behavior. The training in management household waste into organic liquid fertilizer was carried out for 4 months. The stages of intervention were as follows: 1) Education and simulation of sorting organic and non-organic waste; 2) Separating vegetable and fruit waste from rice, meat, and bone residue. Vegetable and fruit waste was transferred into composer barrels; 3) Spraying diluted bio-activator every time they enter organic waste; 4) Filling cans continuously with garbage; 5) Every 14th day, the liquid fertilizer can be harvested; 6) Liquid fertilizer can be used after being left for 14 days outside the composer barrel by dilution. The data were collected by questionnaire and analyzed descriptively.

Results: After 4 months of training, the community was able to process liquid fertilizer from the use of compost barrel and natural bio-activators from household waste. Community knowledge related to liquid fertilizer after training (Mean= 91.48; SD= 11.12) was higher than before training (Mean= 85.56; SD= 12.57). Household waste management practice after training (Mean= 94.07; SD= 11.94) was better than before training (Mean= 45.93; SD= 22.32).

Conclusion: Community knowledge and practice increase after going through training in processing household waste into liquid organic fertilizer in the tourist village of Bonjeruk, Central Lombok, West Nusa Tenggara.

Keywords: organic liquid fertilizer, tourist village, household waste.

Correspondence:

Sukandriani Utami. Faculty of Medicine, Universitas Islam Al-Azhar. Jl. Unizar No.20, Turida, Kec. Sandubaya (83232), Kota Mataram, West Nusa Tenggara. Email: sukandriani@gmail.com. Mobile: +62 819-9938-8636.

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BACKGROUND

The generation and accumulation of household waste is a major environmental problem and public health risk all over the world, including in Indonesia. Food waste, plastics, textiles, fluorescent lamps, paint, and batteries are all examples of solid waste produced as a result of consumer purchases (World Bank, 2012). Until now, household waste has been discarded in piles by the side of the road, rice fields, or gardens. The longer this garbage piles up, the worse it will become. As a result, the smells produced by this household waste will be unpleasant. In addition, this waste will produce fluids that will harm groundwater, soil structure, and soil nutrients.

Household waste that is easily decomposed can be used as raw material for making liquid fertilizer. Liquid fertilizer is an organic fertilizer that is very beneficial for sustainable soil quality, reducing environmental pollution. This liquid fertilizer has several advantages compared to compost, including: the concentration of nutrient content is very high, its application is easier, that is, it is enough to sprinkle or spray it on the soil and the selling price on the market is usually higher than ordinary compost products. Many studies have recently shown that organic fertilizers can be produced from organic waste, such as the organic fraction of municipal waste (Campuzano and González-Martnez, 2017).

Waste management program must include public awareness and participation. Similarly, researchers have found a link between knowledge of waste's negative health effects and good waste management practices in the home. Although a variety of factors may contribute to poor waste management, it is critical to emphasize the community's role, as well as their knowledge and practices (Hasan, 2004; Okechukwu et al., 2012; Aroj et al., 2004).

Making liquid fertilizer from household waste will help reduce problems in society caused by waste. Information on the manufacture of liquid fertilizer from household waste is still rarely known by the public, especially the manufacturing technique. This is in line with the West Nusa Tenggara provincial government program, namely zero waste. Therefore, through this community service activity, training and assistance will be carried out in processing household waste into liquid organic fertilizer in the tourism village area of Bonjeruk, Central Lombok. This study was to determine the level knowledge and practice about the management of household waste among respondents of Tourism Village Bonjeruk after intervention (training).

SUBJECTS AND METHOD

1. Study Design

This was a cross-sectional study conducted in the tourist village of Bonjeruk, Central Lombok, West Nusa Tenggara, from March to September 2021.

2. Population and Sample

The population studied was people living in the tourist village of Bonjeruk, Central Lombok, West Nusa Tenggara. Sampling was carried out using a purposive sampling. A total of 27 subjects were included in this study from total population of 30 subjects.

3. Study Variables

The study variables were knowledge and behavior on household waste management.

4. Study Process

The training on how to manage household waste and turn it into organic liquid fertilizer lasted four months. The intervention was divided in 6 stages: 1) Sorting organic and non-organic waste education and simulation; 2) Separating vegetable and fruit waste from rice, meat, and bone residue education and simulation 3) Spraying diluted bio-activator every time they enter

organic waste; 4) Constantly filling garbage cans; 5) Liquid fertilizer can be harvested every 14th day; 6) Liquid fertilizer can be

used after being left outside the composer barrel for 14 days and diluted.



Figure 1. The training process about on management of household waste into liquid fertilizer

5. Operational Definition of Variables

Knowledge is subjects’ knowledge of household waste management, especially on household trash into liquid organic fertilizer process.

Behavior is subjects’ actions or reactions in response to knowledge about house hold waste management.

Household waste management is management effort to process household trash into liquid organic fertilizer.

6. Instruments

The data were collected by self-reported item questionnaire to measure their knowledge and behavior on household waste management.

7. Data Analysis

The data were about respondent’s knowledge and practice on management of

household waste into liquid fertilizer, before and after the intervention (training). The data were collected using questionnaire and analyzed descriptively.

RESULTS

1. Sample Characteristic

This study was conducted in Tourism Village of Benjorok, Central Lombok, West Nusa Tenggara. A total of 27 respondents were contributed in the training and questionnaire filling process. The data then analyzed descriptively and reported on tables showed below.

Subjects in this study were mostly around 31 years old (average). The oldest was 68 years old and the youngest was 13 years old. Male was more likely to join this training (15 subjects) than female (12

subjects). The data were reported that most of the respondents were graduated from senior high school (15 subjects).

Table 1. Study characteristics (dichotomous data).

Variable	Category	n	%
Gender	Female	12	44.44
	Male	15	55.56
Last Education	No education	2	7.41
	Elementary school	2	7.41
	Junior high school	4	14.81
	Senior high school	15	55.56
	College	4	14.81

Table 2. Study characteristics (continous data)

Variable	n	Mean	SD	Min	Max
Age (year)	30	30.92	13.13	13.00	68.00

Table 3. Knowledge on management of household waste into liquid fertilizer among subjects

Variables	Categories	Mean	SD
Knowledge	Before	85.56	12.57
	After	91.48	11.12
Household waste management practice	Before	94.07	11.94
	After	45.93	22.32

After training, household waste management practice was better (Mean= 94.07; SD=11.94) than before (Mean= 45.93; SD= 22.32).

DISCUSSION

Respondent’s knowledge on management of household waste into liquid fertilizer

Subjects level of knowledge was measured by using post-test and pre-test. This study determines whether respondents had acquired a particular level of knowledge or competence by the end of the training, but you won't know whether their learning had changed. At the beginning of the instruction, learners may have previously possessed the necessary information or competence (CDC, 2019). This study showed that training on household management helps them to increase their knowledge.

Subjects practice on management of household waste

After four months of training, the community was able to produce liquid fertilizer and natural bio-activators from household waste using a compost barrel. The majority of the participants in this study had never received any formal training on how to manage household waste. Inadequate training may have an impact on awareness, implying that the less training on household waste management, the lower the awareness and practice of managing waste. Adogu et al. (2008) discovered the same conclusion in a previous study.

According to a previous study, community awareness programs were effective in increasing people's practice levels. According to another study, people who received formal training had more experience managing household waste (Yasmin and Rahman, 2017). The previous

studies support the results of this study. The data reported in this study shows that knowledge and practice about how to manage household waste and turn it into organic liquid fertilizer are increase after training.

A study summarizes that family size, education, and income are important indicators to consider when analyzing waste generation at the household level. Solid waste segregation, sorting, collection, recycling, reusing, reducing, composting, and waste disposal were all challenges on an individual and community level. It is the responsibility of both the government and individuals to achieve proper waste management. More efforts are needed to raise awareness about waste management practices in order to protect people and the environment and achieve sustainable living (Usha et al., 2021).

AUTHOR CONTRIBUTION

All of the authors were equally contributed in this study.

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CONFLICT OF INTEREST

There is no conflict of interest in this study.

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