

Original Research Paper

## Utilization Of Onion Waste Applied To Green Mustard Plants As Liquid Organic Fertilizer (POC) In Kampung Baru Village, Bilah Barat District

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**Abstract:** This socialization and training discusses making liquid organic fertilizer from shallot waste. Shallots are one of the leading horticultural commodities which are included in the spice vegetables which are usually used as cooking spices. Apart from being used as a cooking spice, shallots can also be used as organic fertilizer, because shallots can help plant growth and can stimulate the growth of plant shoots. Organic fertilizer is fertilizer that comes from dead plants, which have gone through a fermentation process, in solid or liquid form. The objectives of this activity are 1) To provide outreach and training about making liquid organic fertilizer. 2) to increase public awareness that shallot waste can be used as organic fertilizer. The method of this activity is to approach the community and farmer groups in Kampung Baru Village by providing knowledge to the community about making liquid organic fertilizer and practicing it directly. This activity involved farmer groups and PKK women in Kampung Baru Village. From the results of the activities that have been carried out, it can be concluded that the socialization and training are very useful because they have provided knowledge and knowledge about making liquid organic fertilizer from shallot waste.

**Keywords:** Fermentation Process; Red onion; Liquid Organic Fertilizer; Shallot Waste; Horticultural Commodities.

## Introduction

Liquid organic fertilizer (POC) is fertilizer that comes from fermented plant remains. This type of fertilizer is in liquid form, not solid, easily dissolved in the soil and carries important elements for plant growth.(kusmarwiyah, 2011). The nutritional content of organic fertilizer is N, P, and K. Apart from that, liquid organic fertilizer has the advantage of being able to provide nutrients quickly because it is easily absorbed by plants through the soil.(Cendekianesti et al., 2022)

Shallots are one of the leading horticultural commodities which are included in the spice

vegetables which are usually used as cooking spices.(Hasnelly, 2021)

People usually use shallots only as a cooking spice, one of which is the people in Kampung Baru Village. In fact, apart from being used as a cooking spice, shallots can also be used as organic fertilizer, because shallots can help plant growth and can stimulate the growth of plant shoots.

Apart from red onion bulbs which have a beneficial function, red onions also leave off their skin which ultimately becomes waste. Usually people in Kampung Baru Village just throw them away, even though onion skin waste can also be used as liquid organic fertilizer. Because red onion

skin contains nutrients such as potassium (K), magnesium (M), phosphorus (P) which can be used to fertilize plants.

The benefit of making liquid organic fertilizer from shallot waste is that it does not use excessive chemical fertilizers and can meet fertilizer needs, therefore the Service Team carries out activities to provide knowledge to the community in Kampung Baru Village about the management of shallot waste through Community Service activities which in the form of Training and Socialization on making liquid organic fertilizer from shallot waste.

Mustard plants can grow in hot or cold places. Mustard greens can withstand rainwater so they can be planted all year round. But in the dry season, watering must be done regularly every day because mustard plants need cool temperatures (Nhang et al., 2018)

In Indonesia, there are many dishes that use mustard greens, as a main ingredient or as a complementary ingredient. Data from the North Sumatra Agriculture Service states that the area of mustard plantations reached 1,074ha in 2014, which decreased by 26.54 percent from 2013's area of 1,462ha. The mustard harvest area was only 1,157ha or down 20.43 percent from 1,454ha in 2013. Likewise with productivity, it fell 5.08 percent to 117.68 quintals per ha from 123.98 quintals per ha in 2013. So in 2014 mustard crop production fell 24.47 percent to 13,616 tonnes from 2013 of 18,027. (Zamriyetti et al., 2019)

Fertilizer is an additional material needed by plants, like humans, who need food for nutrition. Fertilizer can add nutrients needed by plants. (Suhastyo, 2019)

Organic fertilizer is fertilizer that comes from dead plants, which have gone through a fermentation process, in solid or liquid form, can be enriched with minerals or microbes which are useful for increasing the nutrient content and organic matter of the soil and improving its physical, chemical and biological properties. land (Dewi et al., 2012).

The aim of this community service activity is to increase community awareness about the environment around Kampung Baru Village, so that they do not use chemical fertilizers excessively and utilize household waste residues for organic fertilizer and provide knowledge about how to make liquid organic fertilizer.

## Methodhs

The implementation of this activity will last approximately 4 months starting from 25 October 2022 - 25 February 2023. The method in this activity is to approach the community and farmer groups in Kampung Baru Village by providing knowledge to the community about making liquid organic fertilizer. With this community service program, farmers and the community can gain useful new knowledge. The material used in this activity is utilizing shallot waste.

The tools used in this activity are jars, wood, buckets, pots, markers and other tools. The ingredients used are: 1.2 kg of red onion waste, 1 kg of brown sugar, 1 can of bear brand milk, rice washing water, 1 duck egg, 2 glasses of coconut water, ¼ kg of green beans.

This liquid organic fertilizer (POC) is made by fermenting for approximately a month. In this activity, trials were carried out on green mustard plants (*Brassica Juncea L.*) using the Completely Randomized Design (CRD) method with 3 Treatments 4 Replications with 12 trials in polybags with the concentration of shallot waste liquid organic fertilizer, namely P0 = Control (Without shallot waste POC), P1 = 30ml/L water, P2 = 65ml/L water. Poly bag size 25x20 cm. The factor that will be observed is the growth of mustard greens where liquid organic fertilizer from shallot waste is implemented every 7 days with different doses.

## Results and Discussion

Community service activities have been carried out. The results of the service are socialization and training on liquid organic fertilizer from shallot waste. Before the socialization activity, the Community Service Team distributed socialization invitations to farmer group fathers and PKK mothers in Kampung Baru Village, so that they were aware of the socialization and training activities on liquid organic fertilizer.

The socialization activity began with direct delivery of material. The material provided included the use of organic fertilizer, the advantages of using organic fertilizer and the use of shallot waste. With this outreach, it will help farmer groups in their efforts to reduce the use of chemical fertilizers and help PKK women in keeping the

environment clean by utilizing leftover waste from housewives.

### Training on Making Liquid Organic Fertilizer from Red Onion Waste

Before carrying out this liquid organic fertilizer training, the Service Team first carried out samples of organic fertilizer at the Agriculture, Fisheries, Forestry Extension Commission (KP3K) Deli Serdang Regency, Agricultural Land Clinic, to find out what content is contained in liquid organic fertilizer from shallot waste. has gone through the fermentation process.

After the laboratory results came out, liquid organic fertilizer from shallot waste contained, Ph = 6.24%, N\_Total = 2.11%, P\_Total = 4.11%, K\_Total= 3.12%. Then the Service Team carried out outreach and training to farmer group fathers and PKK mothers in Kampung Baru Village.

This training activity was practiced directly in front of the farmer groups present. During the onion waste liquid organic fertilizer training activity, the ladies and gentlemen who attended this socialization and training were very enthusiastic and enthusiastic about this activity from the beginning of the opening of the socialization until the completion of the socialization and training. The farmer groups also held discussions and asked questions, showing that this liquid organic fertilizer training activity was very useful. This training attracted the interest of farmer groups in making liquid organic fertilizer from shallot waste, because people thought the materials used were easy to get and were available in their living environment.



Figure 1 Acitivity

This socialization and training activity was carried out by distributing assessment questionnaires which were then filled in by the fathers/mothers who took part in the activity. It is known that all the fathers/mothers who took part in the training wrote that the onion waste POC training was satisfactory for them.

This socialization and training activity also provided experience for the service team in having the courage to get involved directly by providing knowledge to farmer groups and providing experience to farmer groups in making liquid organic fertilizer from shallot waste. Apart from that, making liquid organic fertilizer from onion waste is very easy and doesn't require a lot of money and the ingredients are environmentally friendly.

Table 1. Results of the Liquid Organic Fertilizer Assessment Questionnaire distributed to participants who took part in the training.

No	Question	Answer
1.	Have you ever made liquid organic fertilizer before?	a. Ever: 85% b. Never: 15%
2.	Are you interested in trying to make this liquid organic fertilizer?	a. Interested: 95% b. No: 5%
3.	Do you think that making liquid organic fertilizer can have a good environmental impact on the community in terms of reducing waste in our village?	a. Well: 90% b. No: 10%
4.	What do you think about how to make this liquid organic fertilizer?	a. Easy: 100% b. Difficult: 0%

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5. What do you think about the socialization of this liquid organic fertilizer?
- a. Very Good: 80%  
b. Good: 15%  
c. Sufficient: 5%
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Before this socialization and training activity was carried out, a trial was carried out on green mustard plants (*Brassica Juncea L.*) with 12 experimental polybags, with 3 treatments and 4 replications using the Completely Randomized Design (RAL) formula. The results of trials carried out on green mustard plants (*Brassica Juncea L.*) showed good and optimal plant results.

### Conclusion

Socialization and training activities for farmer groups and PKK women regarding liquid organic fertilizer in Kampung Baru Village, West Bilah District, namely training activities for making liquid organic fertilizer from shallot waste, the results of these socialization and training activities show that the community has been greatly helped. With this training, people gain knowledge about how to make liquid organic fertilizer from onion waste and understand the benefits of waste that is usually just thrown away.

The advice from the community service team in making liquid organic fertilizer is that ongoing training activities are needed to increase farmers' awareness of the importance of organic fertilizer and keeping the environment healthy and clean.

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