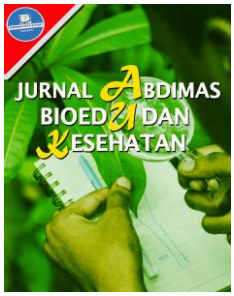


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# The assistance of A Real Maggot Cultivation Group in Preparing Maggot and Compost Sop

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Abstract

Garbage is solid waste. Its existence in society cannot be avoided. Therefore, what can be done is to manage it so that waste generation is controlled. One way of managing waste in the community is by establishing maggot and compost house groups. One of the existing maggot and compost house groups is the SEJATI group located in Bukik Apik Puhun, Bukittinggi City. The problem is that this group does not yet have an SOP (Standard Operating Procedure) for maggot and compost cultivation activities. This service aims to assist the SEJATI group in preparing SOPs for maggot and compost cultivation. There are stages in this SOP preparation method, namely (1) forming an SOP drafting team, (2) deepening the material, (3) determining the flow of activities, (4) simulation, (5) evaluation and (6) socialization. The results of this assistance obtained SOPs for maggot houses and compost houses which were used as standard references for the SEJATI group in the future.

Keywords: compost sop, cultivation, maggot

**Acknowledgment:** Thanks to all parties who have supported the implementation of this research. I hope this research can be useful.

**For citation**:
Danhas, Y., Asih, W., M., Zeswita, A., L., & Herlina, Y. (2023). Assistance of A Real Maggot Cultivation Group in Preparing Maggot and Compost Sop. *Jurnal Abdimas Bioedu dan Kesehatan, 1*(1), 27-34.

## Introduction

Waste has always been a topic of discourse and issue in society. This is because the generation and presence of waste in the community have never been resolved. Meanwhile, the impact of the presence of waste in the residential environment can reduce the level of public health (Suma'mur, 2014) and reduce aesthetic values (Danhas and Danhas, 2021). Considering the impact that waste has on the environment and the efforts made so far have not been able to overcome this

problem, it is necessary to strengthen the aspect of community empowerment as one aspect of waste management. Metcalf (2018) states that the factors in integrated waste management are (1) institutional, (2) rules and policies, (3) financial, (4) technology and (5) community participation. These five aspects must be simultaneous and integrated in its implementation. Sulistiyorini (2015) reported the results of his research that community participation in waste management in the environment greatly determines the success of waste management.

One form of community participation is through community service in the environment. One of the waste management efforts that has become a trend lately is through maggot cultivation. Maggots, which are Black Soldier Fly larvae, are not disease vectors. Amandanisa (2020) stated that the nutrients contained in maggots (Hermentia Illuciens L) are optimal for livestock nutrition. So maggot cultivation efforts, apart from improving the community's economy, also act as an agent for controlling organic waste. Maggot cultivation requires community participation. Without community participation, the maggot cultivation business will not run optimally. Maggot requires nutritional raw materials from sorted organic waste. If people get used to sorting waste at the source, the maggot food supply process will run efficiently. Guguk Panjang Village is one of the sub-districts in Bukittinggi City.

At this location, there is a community group that carries out maggot cultivation and compost making. The community group was called "Sejati Group". Precisely located in Bukik Apik Puhun. So far, group activities have not been optimal because SOPs are not yet available to carry out systematic cooperation from each person in the group. In the concept of community empowerment, it is certainly necessary to have awareness of each individual in expressing the needs of the group. This can be realized if there is an SOP for each focus of activities that will be carried out to achieve common goals. So far, the activities taking place in the SEJATI group have not been well coordinated. In other words, there is still overlap among group members in carrying out one type of activity. Apart from that, one activity does not yet have an SOP that guides each member in doing the same thing.

## Methodology

The method used in preparing the SOP for maggot and compost cultivation is to follow the steps in preparing the SOP, which consists of:

1. Formation of an SOP Preparation Team
2. Exploration of material about Maggots and Compost
3. Determining the flow of activities and steps
4. Simulation
5. Evaluation
6. Agreement
7. Socialization of SOPs

## Results

*Formation of an SOP Preparation Team*

The formation of the SOP Drafting Team was carried out on Saturday 16 December 2023 at the SEJATI Group Maggot House Workshop. There are 6 (six) people selected and agreed to be on the SOP drafting team.

Figure 1. Team for Compiling SOP for Maggot and Compost Cultivation

Next, this team carried out the second step in the form of deepening the material regarding the series of work on maggot and compost cultivation.

*Exploration of material about Maggots and Compost*

The second step, in the form of deepening the material, was carried out by brainstorming which was facilitated by Dr Yunhendri Danhas as a facilitator who provided material on maggot and compost cultivation by arranging the flow of activities together with the preparation team.


Figure 2. Delivery of Maggot and Compost Cultivation Materials

After delivering material about maggot and compost cultivation, the drafting team then discussed and compiled a series of works in their respective working papers.

*Determining the flow of activities and steps*

The next step is to determine the flow of activities and detailed steps for each activity. In this case, the group leader carries out opinion gathering and leads the group to determine agreement on the flow of maggot cultivation activities and compost preparation.

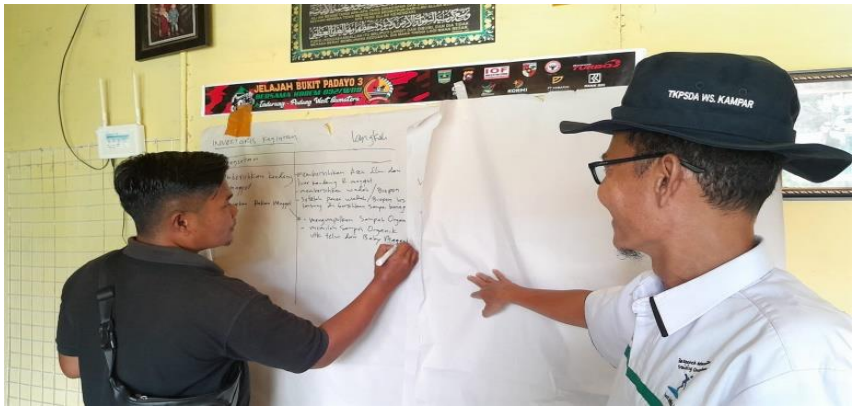


Figure 3. The Group Leader is guiding the preparation of the flow of activities and detailed implementation steps

As a result of this activity, an agreement was obtained regarding the structure of activities and steps in cultivating maggots and making compost. After that, all members agreed and signed the draft SOP for the maggot cultivation group and compost house.

*Simulation*

The next step is a simulation of each activity. This was carried out on the second day, namely Sunday 17 December 2023. The simulation results had good value, because no member failed to carry out the activity by referring to the activity flow that had been prepared.

Gambar 4. simulasi di rumah kompos

*Evaluasi*

Langkah selanjutnya adalah melakukan evaluasi terhadap hasil simulasi yang baru saja dilaksanakan. Hasil evaluasi bernilai baik karena tidak ada kesalahan dalam melaksanakan langkah langkah kegiatan dalam budidaya maggot dan pembuatan kompos yang telah dilakukan.


Figure 5. Evaluation Process

*Agreement*

The next step is an agreement to produce an SOP that has been prepared, simulated and evaluated. Symbolically, the SOP document is handed over by the facilitator to the group representatives.

Figure 6. Submission of SOP documents to the SEJATI Group

*Socialization of SOPs*

The final step is socialization of the SOP which is carried out by the SOP drafting team to all group members. Henceforth, this SOP will be used as a reference for the group in carrying out maggot cultivation and compost house activities.

Table 1. The SOP for Maggot Cultivation

| Activity | Activity Steps |
|---|---|
| Clean the cage and Biopond | 1. Sweep the floor<br>2. Clean the shelves for maggots (bipond), livestock media and so on.<br>3. Clean the walls and windows of the maggot house |
| Providing Maggot Food | 1. Collect organic waste<br>2. Sorting |
| Maggot Production | A. Prepare Livestock Media:<br>1. Prepare the tray according to size<br>2. Sprinkle rice bran 2 cm thick |

| | |
|---|---|
| | 3. Place vegetable and fruit waste on top of the rice bran until the tray is almost full.<br>4. The livestock media is placed in a pen in a shady place, with good air and light circulation.<br><br>B. BSF Fly Farming Process<br>1. BSF activities 8.30 – 11.00<br>2. BSF mates on day 3<br>3. Optimum temperature 27 – 38<br>4. BSF lays eggs after 3 days of mating, in the morning and evening.<br>5. Place the maggot egg laying area on the livestock media. It can be in the form of boards, multiplex or cardboard.<br><br>6. Eggs are taken after 2 days at the laying place.<br>A. Egg Hatching<br>1. Fill a box measuring 15 cm x 20 cm with livestock media.<br>2. Move the eggs located in the egg holder to the hatching box.<br>3. Check the temperature of the box so that it is not too hot and not too cold<br>4. Eggs hatch after 2 – 4 days<br>5. Maggot larvae that are 6 days old are transferred to the biopond. |
| Maggot Care and Maintenance in Biopond (A place where larvae consume organic waste) | 1. Prepare livestock media (return to point A)<br>2. Larvae that are 6 days old, move them to a biopond containing livestock media.<br>3. Maggots are spread densely, weighing 8 – 10 kg per square meter.<br>4. The size of the biopond is adjusted to the capacity of the maggots being farmed.<br>5. Maggots are fed regularly.<br>6. The amount of maggot food is 7 kg per day for maggots weighing 8 – 10 kg.<br>Food is always given every day until the maggot is 25 days old or before it becomes a pupa. |
| Maggot Harvest | 1. The size of the larvae harvested is 27 mm long, 6 mm wide and weighs 220 mg<br>2. For fish food maggots, they can be harvested when they are 35 days old. |
| Packaging | Maggots can be packaged in plastic bottles, or in plastic packaging |
| Marketing | 1. Wet maggot<br>2. Dried maggots, by oven |

Table 2. The Compost SOP

| Activity | Activity Steps |
|---|---|
| Collecting and Sorting Waste | 1. The existing waste is collected in one container<br>2. Waste is sorted to separate organic from others<br>3. Separated organic waste is placed in containers. |
| Enumeration | 1. Organic waste in the form of vegetables, fruit and food waste is chopped or chopped.<br>2. The enumeration is stopped until the organic waste measures 1 – 2 cm |
| Settling and mixing of mixed ingredients | 1. Fine organic waste is stored in tightly closed containers.<br>2. The composting process can be accelerated in a tightly closed container using EM4<br>Mixing Ingredients:<br>a. 1 block of livestock manure<br>b. 1 block fine bran<br>c. 1 block of husk charcoal<br>d. Sawdust 1 block<br>e. Sugar cane molasses 5 spoons<br>f. EM4 15 ml<br>g. Water 10 liters |
| Closing | 1. Organic waste is left in a watertight and airtight place.<br>2. Close the container tightly to avoid air circulation, because<br>Air can cause the decomposition process to not run completely.<br>3. A closed bucket can be used. |
| Ripening and Mixing | 1. Leave it for 14 days.<br>2. Every 3 days stir thoroughly.<br>3. Wet and dry compost will form. |
| Packaging | 1. Dry compost fertilizer can be packaged in plastic or sacks<br>2. Wet compost can be packaged in plastic |
| Sale | 1. Able to sell directly to users<br>2. Can be sold to fertilizer sellers |

## Conclusion

The SOP that has been formed can be revised depending on developments in the activities taking place at the Maggot House and the SEJATI Group Compost House located in Bukik Apik

Puhun, Bukittinggi City. This is because maggot and compost cultivation activities will always develop over time.

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