



MAKING OF NATURAL PLANT GROWTH REGULATOR (PGR) IN THE TELADAN FARMER'S GROUP OF SUMBERJAMBE DISTRICT, JEMBER, EAST JAVA

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Abstract. Some organic ingredients are known to contain nutrients and natural plant growth regulators (PGR), such as coconut water, young corn, sprouts, banana weevil, bamboo shoots. These materials are also a substrate for multiplying local microorganisms that are good for the soil. Therefore, the purpose of this activities in the Teladan's Farmers Group, is to introduce, improve skills and implement local microorganism fermentation technologies (bio activators) using organic materials that contain natural plant growth regulators. This activity uses direct methods and practices for making natural PGR. The training participants attended by 100% participants. Besides, during the extraction and fermentation activities of organic materials, it was seen that participants knew the sequence of procedures for making natural PGR from the results of discussions and questions and answers. The results obtained in the pre-test mean the understanding of natural PGR is 53, while the post-test mean score after implementation is 80. There is a significant increase in participants' knowledge about organic growth regulators.. In practice, about 80% of participants have been able to extract and mix ingredients for the fermentation process. The indicator of successful the natural PGR well-fermented material is characterized by a brown colour and smell sour.

1. Introduction

In line with technological advances, agricultural modernization should continue to harmonize with local wisdom through the balanced use of available resources, thereby reducing dependence on inorganic fertilizers and pesticides. The most important thing is also to prepare human resources who remain environmentally friendly and sustainable in managing their farming. Sumberjambe Village, Sumberjambe District, Jember Regency, East Java, in general, more than 66% of the population earn a living as farmers [1]. The problem faced by farmers is decreased production and fertilizer scarcity often occurs. It is also known that farmers are very dependent on the use of inorganic fertilizers and pesticides, and indirectly it has an impact on decreasing crop productivity due to declining soil quality. Therefore an alternative to reducing the use of chemical fertilizers is to increase farmers' awareness to reuse organic materials natural to be used as fertilizer and plant growth regulators (PGR).

The application of technology in this activity is by utilizing organic materials that are around us to be processed into nutrients and natural PGR which can be reused by plants. Some organic ingredients are known to contain nutrients and natural PGR that can stimulate plant growth, such as coconut water [2], young corn, sprouts, banana weevil, bamboo shoots [3] - [5]. These materials are also a substrate for multiplying local microorganisms that are good for the soil.

At present, the group of local microorganisms / bio activators can be easily obtained in the market, but how to use them also requires special skills so that hormones and local microorganisms can be put to good use by plants. Therefore the purpose of this community service activity is to introduce, improve skills and apply local microorganism fermentation technology (bio activators) using organic materials that contain natural plant growth regulators. Besides, to support the increase in farmers' income, training is also needed for the packaging and marketing of natural PGR produced.

2. Targets and Outside

The target of community service is farmers from the Teladan Farmers Group Sumberjambe Village, Jember Regency. Community service activities are carried out on the consideration that the importance of natural resource management that is environmentally sound by reducing the use of inorganic materials for agriculture. It is precisely around us that many organic materials can be used as a source of natural PGR to stimulate the growth and development of plants such as young corn, sprouts, coconut water, banana weevil. The output obtained is an increase in farmer skills. Also, other outputs are manuscripts published in journals or articles published in electronic mass media.

3. Implementation Method

3.1. Preliminary preparations

Initial preparation includes coordination with the team regarding the division of tasks. And coordinate with the head of the farmer group and prepare the facilities and infrastructure that will be used for extension activities and organic PGR manufacturing activities.

3.2. Counseling

At this stage, counseling is done by interactive lectures using video and powerpoint media. The material will be delivered in the form of a basic understanding of fertilizers and hormones. In the middle of the lecture, a question and answer session was conducted to assess the farmers' understanding of the material provided.

3.3. The practice of Making Organic Growth Regulating Substances

Making organic PGR begins with the extraction process then continued with the fermentation process for 2 weeks.

3.4. Packaging and Marketing

This activity is carried out by providing guidance related to entrepreneurship, packaging design, and packaging of products and applications on plants.

3.5. Evaluation

The evaluation was carried out verbally with direct questions and answers and in written form using a questionnaire.

4. Result and Discussion

The community service program implemented in Sumberjambe Village, Jember Regency on the preparation of liquid organic growth regulators (PGR) in the Teladan Farmers Group can be assessed as going well and scheduled. The program begins with an activity is an initial location survey to find out the problems and potential that exists in the village.

Based on information from farmers, village apparatuses representatives and members of the Field Experience Program that farmers use chemical fertilizers more than organic fertilizers. The reason for the farmers is because they are used to it and the results are also satisfying, it can be seen directly on the plants. Moreover, farmers worry that production will decrease if they use organic fertilizer. Besides, another problem is the lack of knowledge of farmers about hormones/plant growth regulators. Farmers still think that for plant growth only uses fertilizer.

After that, the dedication team coordinated with the Head of the Teladan Farmers Group for the next step, which was the process of conducting training on making organic growth regulators. The training activities were carried out using lecture methods, discussions and hands-on practice of making liquid organic PGR then packaging and entrepreneurship.

**Figure 1a.** Presentation of material to farmers**Figure 1b.** The direct practice of making PGR

In this activity, the progress of the results that have been achieved is the implementation of extension activities on growth regulators, the practice of making organic PGR and there is a fermentation solution of organic growth regulators. The stages of making organic PGR are still in the process of fermentation and must wait for approximately 2 weeks so that organic PGR can be applied to plants. During the fermentation process, the solution must be stirred every 2 days.

One of the indicators of achievement in the initial stages in the form of training in making liquid organic growth regulators is measured by the response of the attendance of the training participants attended by 30 people or 100% of invitations to attend the training event.

During the extraction and fermentation of organic materials, it was seen that the participants knew the sequence of procedures for making PGR organic from the results of discussions and questions and answers. Also, a quantitative assessment of the success of the briefing activity was carried out through pre-test and post-test. The pre-test is done before the delivery of material and post-test after the practical activities carried out. The results obtained in the initial test mean the understanding of organic PGR was 53, while the average post-test after implementation was 79.2. Based on the pre-test and post-test results, there was a significant increase in participants' knowledge about organic growth regulators. These results can also indicate that this activity can increase participants' knowledge.

In practice, about 80% of participants have been able to extract and mix ingredients for the fermentation process. The indicator of success is evident from the well-fermented PGR organic material which is characterized by a brown color and acidic odor resembling fermentation results.

5. Conclusion

This training can increase farmers' knowledge and skills to make liquid organic PGR from easily available materials.

6. Acknowledgments

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