



## PGPR Fertilizer Processing Training in Banyuresmi Village, Jiput District, Pandeglang Regency, Banten Province

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### Abstrak

Ketersediaan pupuk organik adalah salah satu kunci keberhasilan program go-organic yang diagendakan pemerintah. Dengan meningkatkan penggunaan pupuk organik dan mengurangi penggunaan pupuk pestisida diharapkan dapat meningkatkan hasil tani bambu di Desa Banyuresmi. Pupuk Plant Growth Promoting Rhizobacteria (PGPR) adalah salah satu cara untuk mengembalikan kesuburan tanah, karena beberapa bakteri dari kelompok PGPR adalah bakteri penambat nitrogen. Dengan demikian, perlu dilakukan sosialisasi dan pendampingan pembuatan pupuk PGPR di Desa Banyuresmi. Metode pelaksanaan kegiatan ini meliputi: 1) tahap persiapan, yaitu mempersiapkan panduan sederhana, persiapan alat dan bahan untuk pembuatan kombinasi mikoriza-PGPR. 2) tahap pelaksanaan yang terdiri dari: a) (Metode Ceramah/Penyuluhan); b) Pelatihan Pembuatan kombinasi mikoriza-PGPR; Diskusi dan tanya jawab; serta Evaluasi. Kesimpulan dari pelatihan ini adalah warga Desa Banyuresmi sangat terbantu dengan adanya pelatihan pembuatan pupuk PGPR. Melalui pelatihan tersebut warga Desa Banyuresmi mendapat informasi tentang pengolahan pupuk PGPR sebagai salah satu cara peningkatan produksi komoditas tanaman bambu.

**Kata kunci:** Pupuk; Organik; PGPR, Pelatihan.

### Abstract

*The availability of organic fertilizer is one of the keys to the success of the go-organic program that is scheduled by the government. Increasing the use of organic fertilizers and reducing the use of pesticide fertilizers, it is expected to increase the yield of bamboo farming in Banyuresmi Village. Plant Growth Promoting Rhizobacteria (PGPR) fertilizer is one way to restore soil fertility because some bacteria from the PGPR group are nitrogen-fixing bacteria. Thus, it is necessary to socialize and assist the manufacture of PGPR fertilizer in Banyuresmi Village. The method of implementing this activity includes 1) the preparation stage, namely preparing a simple guide, and preparing tools and materials for the manufacture of mycorrhizal-PGPR combination. 2) the implementation stage consists of a) (Lecture/Counseling Method); b) Training for the manufacture of mycorrhizal-PGPR combinations; Discussion and question and answer; and Evaluation. This training concludes that the residents of Banyuresmi Village are greatly helped by the training in making PGPR fertilizer. Through the training, the residents of Banyuresmi Village received information about processing PGPR fertilizer as a way to increase the production of bamboo plant commodities.*

**Keywords:** Fertilizer; Organic; PGPR, Training.



## **Introduction**

The availability fertilizer organic is one of the keys to the success of the go organic program planned government in 2011 (Juarsah, 2014). Since 2011 government has focused return practice cultivation plants by experience from practice cultivation conventional who have been in progress since the order new. Practice cultivation experience this known with agriculture organic or returning farm to nature. The approach is to increase organic ingredients and reduce the use of fertilizers and pesticides chemistry. The goal is to produce product quality with security sigh.

Principle main from agriculture organic too is continuity effort farming and balance sustainable ecosystem by good (Act - Law No. 32 of 2009 concerning protection and management environment live). This thing, of course, must be accompanibyith the existence of counseling and training routine toforerpetrator effort the farmer especially the group's farmer who has formed at each village. Accompaniment to farmer important conducted start from upstream until downstream including in Thing provision fertilizer organic by independent.

Village Banyuresmi is one of the villages included to within the area of rural priority which is located in the District Jiput, District Pandeglang Province Banten. The village this has an area of 1.98 km with eye search residents by the general in the field of agriculture, plantation, and fisheries (BPS Kabupaten Pandeglang 2019). Based on the results observation field show that most of the villagers in Banyuresmi work as a bamboo farmer. Bamboo is one of the best commodities produced by Banyuresmi villagers. Bamboo agricultural products are processed into several handicrafts such as chairs or bamboo decorations.

In the cultivation process, the increase in plant production can be done agronomic, namely through fertilization. Fertilization can be done by using inorganic fertilizers or organic fertilizers. Inorganic fertilizers are more widely used for reasons of faster supply of nutrients compared to organic fertilizers. The continuous use of inorganic fertilizers can disrupt the chemical balance of the soil so that soil productivity decreases. The continuous use of chemical fertilizers causes excessive residue in the soil.

This pile of fertilizer residues in the soil will become soil poison which causes the soil to become sick. In diseased soil, this will encourage the loss of certain nutrients, environmental pollution, and damage to natural conditions. The association of plants with fungi or known as mycorrhizae is a symbiotic mutualism interaction that is very common in the plant world. Arbuscular mycorrhizal fungi are root fungi or soil microorganisms that are associated with almost all types of soil and plants and have a very large function to increase plant growth and improve soil aggregation (Warouw and Kainde, 2010).

Plant Growth Promoting Rhizobacteria (PGPR) can be used as a way to restore soil fertility because some bacteria from the PGPR group are nitrogen-fixing bacteria (Biswas et. Al., 2000). Plant Growth Promoting Rhizobacteria (PGPR) or Plant Growth Promoting Rhizobacteria (RPPT) are a group of beneficial soil microorganisms. PGPR is a group of bacteria that live and thrive in soils rich in organic matter (Compant et al., 2005).

These bacteria are known to actively colonize the root area of plants and have 3 main roles for plants, namely: (1) as a biofertilizer, PGPR can accelerate the process of plant growth through accelerated absorption of nutrients, (2) as a biostimulant, PGPR can stimulate plant growth through production. phytohormones and (3) as a bioprotectant, PGPR protects plants from pathogens (Rai, 2006).

## Implementation Method

### Target activity

Target in activity devotion to Public this groups bamboo farmer Village Banyuresmi, Jiput District, Pandeglang Regency.

### Location of activity

Activity by general implemented in the village Banyuresmi, Jiput District, Pandeglang Regency.

### The method used:

Implementation activity devotion this conducted through method lectures/counseling, tutorials, training making combination mycorrhizal -PGPR, and discussions carried out in

location partner. As for the plan activity devotion, this is as follows:

1. Stage preparation: prepare guide simple, preparation tools and materials for making combination mycorrhizae -PGPR.
2. Stage implementation:
  - a. (Method Lectures / Counseling): definition and benefits of mycorrhizae PGPR as trigger growth plants.
  - b. Training: Making combination mycorrhizal -PGPR
  - c. Discussion.
  - d. Evaluation: Fill in a questionnaire for knowing how participants ' responses and knowledge about material that has been given

## Result and Discussion

In skeleton apply Covid19 procedures, that is no to-do collection mass, then team to-do PKM counseling and tutorials in 3 stages, with the first and second stages use zoom media as a medium for delivering training materials through webinars, as well the third stage was the team did direct practice with the residents of Banyuresmi Village on the bamboo farm directly. Based on the results counseling, interview, ask the answer, and observation direct During activity counseling and training ongoing, this PKM activity gives results as follows:

### Outreach Results

- a. Increase knowledge and skills of farmer bamboo about making combination mycorrhizae PGPR.
- b. Increase knowledge and understanding of farmer bamboo abothe ut definition and benefit mycorrhizal PGPR as trigger growth plants.

### Training Results

- a. Increase skills farmer bamboo in making combination mycorrhizae PGPR.
- b. Increase the skills of bamboo farmers in managing and using combination mycorrhizal PGPR, which can help farmers increase the production of bamboo.

Activity counseling and practice in the field of bamboo farming as well as making combination mycorrhizal PGPR can be seen in Figure 1 and Figure 2 below.



Figure 1. Extension Activities on PGPR Fertilizer Processing through Zoom



Figure 2. Direct Extension Activities on PGPR Fertilizer

After this service was carried out, a positive response was obtained from the residents of Banyuresmi Village. Where the residents of Banyuresmi Village were greatly helped by the training. Through the training, the residents of Banyuresmi Village received information about processing PGPR fertilizer as a way to increase the production of bamboo plant commodities.

Based on the results of the evaluation of the training during the practice, the following results were obtained: the level of understanding of bamboo farmers about the material on how to process PGPR fertilizer, it turned out that of the 30 people who took part in the practice, there were 28 people who had a very good understanding and 2 people had a good understanding. During the discussion and evaluation

activities, the training participants were very enthusiastic about participating in this training. This activity is expected to build a positive life attitude to start using biological fertilizers on agricultural land, as an effort to maintain the sustainability of agricultural land.

### Conclusion

Partnership Program (PKM) for giving knowledge about the role of mycorrhizal - PGPR as a trigger growth plant to group farmer Bamboo in Banyuresmi Village, Jiput District, Pandeglang Regency, has been conducted in simple forms of socialization/counseling and tutorials on how to make mixture mycorrhizae -PGPR.

Activity results in devotion this show happening enhancement of knowledge of the bamboo farmer about the benefit use mycorrhizae PGPR, which partly at first big part farmer the not enough knowledge and even someone no knowledge about that that mycorrhizae PGPR.

Enhancement skills too demonstrated by the farmers, through the ability they mix mycorrhizal -PGPR and apply it to land bamboo farming.

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