

Construction Of The Production Of Granule Bat Fertilizer In Smk Muhammadiyah 5 Panceng Gresik

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ABSTAK

Fertilization is an action in plant care. Fertilization provides additional nutrients for the soil. Fertilization has a large influence on plant growth and production. Fertilization consists of organic and inorganic fertilizers. Both of these fertilizers must be balanced so that the nutrient content can be maintained properly. The use of fertilizers an organic fertilizer that is widely used, but the use of chemical fertilizers on an ongoing basis will reduce the level of soil fertility. This must be balanced with organic fertilizer. One of the organic fertilizer is guano fertilizer. This fertilizer is fertilizer made from animal waste, namely bats. This fertilizer has a very good content including nitrogen, phosphorus, and potassium. Knowledgethis fertilizer will still be low, so that an introduction and practice about guano fertilizer is needed. Therefore a community service activity was carried out on the development of the manufacture of guano fertilizer. Guano fertilizer development is carried out in the form of granules (granules). The targets of this service are vocational students who are related to agriculture. Vocational students are selected as the young generation to know about organic fertilizers and are able to contribute to the implementation of the agricultural industry. Community service activities were carried out with a presentation of the theory and practice of making guano fertilizer. As a result of this activity, students learned about organic fertilizer, namely guano fertilizer and its contents, nutrient content in the soil, balance in maintaining nutrient content in the soil, the practice of making guano fertilizer, and the creation of granule form from guano fertilizer.

Keywords : Guano Fertilizer, Granule, Nutrient, Organic Fertilizer.

ABSTRAK

Pembuahan adalah tindakan dalam perawatan tanaman. Pembuahan memberikan nutrisi tambahan untuk tanah. Pemupukan memiliki pengaruh besar pada pertumbuhan dan produksi tanaman. Pemupukan terdiri dari pupuk organik dan anorganik. Kedua pupuk ini harus seimbang sehingga kandungan gizinya dapat terjaga dengan baik. Penggunaan pupuk organik yang banyak digunakan, tetapi penggunaan pupuk kimia secara berkelanjutan akan mengurangi tingkat kesuburan tanah. Ini harus diimbangi dengan pupuk organik. Salah satu pupuk organik adalah pupuk guano. Pupuk ini merupakan pupuk yang terbuat dari limbah hewan, yaitu kelelawar. Pupuk ini memiliki kandungan yang sangat baik termasuk nitrogen, fosfor, dan kalium. Pengetahuan pupuk ini masih akan rendah, sehingga diperlukan pengenalan dan praktik tentang pupuk guano. Oleh karena itu kegiatan pengabdian kepada masyarakat dilakukan pada pengembangan pembuatan pupuk guano. Pengembangan pupuk Guano dilakukan dalam bentuk butiran (butiran). Sasaran dari layanan ini adalah siswa kejuruan yang terkait dengan pertanian. Siswa kejuruan dipilih sebagai generasi muda untuk

mengetahui tentang pupuk organik dan mampu berkontribusi pada pelaksanaan industri pertanian. Kegiatan pengabdian kepada masyarakat dilakukan dengan pemaparan teori dan praktik pembuatan pupuk guano. Sebagai hasil dari kegiatan ini, siswa belajar tentang pupuk organik, yaitu pupuk guano dan isinya, kandungan gizi dalam tanah, keseimbangan dalam menjaga kandungan gizi dalam tanah, praktik pembuatan pupuk guano, dan pembuatan bentuk butiran dari pupuk guano.

Kata kunci : Guano Pupuk, Butiran, Nutrisi, Pupuk Organik.

INTRODUCTION

Fertilization is a plant maintenance action. Fertilization has a major influence on crop production and growth. The purpose of fertilization is to provide additional nutrients to the soil content. The addition, will help the availability of plant needs in absorbing nutrients in the soil according to plant needs (Norasyifah, Ilyas, Herlinawasti, Kani, & Mahdiannoor, 2019) .Fertilization in this day and age uses a lot of chemical fertilizers. The use of chemical fertilizers continuously can cause harm because it pollutes the environment and creates residue in the soil. The use of chemical fertilizers has an effect on microorganisms in dead soil . Organic decomposition in the soil due to the remnants of fertilizer is not able to absorb and provide interference. However, in order for nutrients to remain available, organic fertilizer is needed (Milyana, P, & S, 2019) .

One of the organic fertilizer is guano fertilizer. This fertilizer is fertilizer made from animal feces namely bats or seabirds. These fertilizers contain nutrients that N at 15%, P by 54 %, K by 1 , 7 % . Guano fertilizer is a fertilizer that has a P content and is a fertilizer that is not inferior to other organic fertilizers (Suhartono, Sholehah, & Murdianto, 2020) .Guano fertilizer which is fertilizer from bat droppings that has been deposited in the cave and has been mixed with decomposing bacteria and soil. This fertilizer has a very good content for growth. This fertilizer contains nitrogen, phosphorus, and pota sium (Karnilawati, Fadhi, & Muksalmina, 2020) . Guano fertilizer derived from bats contains nutrients, namely C, N, minerals. It is able to fertilize the soil and improve soil texture (Taofik, Setiati, & Purnama, 2018) .

Making fertilizer consists of granules and non-granules. Knowledge will be fertilizer guano is still low among the public. Society is still much dependent on chemical fertilizers such as urea fertilizer and so on. The long process of organic fertilizer makes people not interested and prefer chemical fertilizers. Public knowledge about the balance of nutrient content in the soil is still minimal, so people do not know that the use of chemical fertilizers continuously causes nutrient reduction and reduces soil fertility. One thing that must be done is to provide guidance on education and practice on the introduction and manufacture of guano fertilizer. There are two types of guano fertilizer, granule (granular) and non-granule. The industrial engineering study program through its lecturer carries out an internal service, namely the formation of granule fertilizer guano. Devotion is done to provide education , training and introduction and benefits of making granular fertilizer guano. In addition, this provides information that organic fertilizer other than guano can also be used as granules. The target of internal service is vocational students related to agriculture. The selection of vocational high school students to appeal to the younger generation about agriculture. The existence of this training is expected to be able to implement young people in the world of agriculture and go directly to the community. The object of this internal service is students of SMK Muhammadiyah 5 Gresik.

METHOD

The method of implementation of this internal service is as follows:

- Presentation and presentation of explanation on the knowledge and function of fertilizer in general.
- Presentation on nutrient content in the soil

- Explanation of the strengths and weaknesses of organic and inorganic fertilizers.
- A description of guano fertilizer.
- A description of the ingredients, strengths and weaknesses of guano fertilizer
- The practice of making guano fertilizer in a laboratory.

Location of internal service activities at Muhammadiyah Vocational High School 5 Gresik within the University of Muhammadiyah Gresik by the Industrial Engineering Study Program will be held at the Auditorium 3rd floor of Muhammadiyah University Gresik and the practice of making fertilizer in the manufacturing process laboratory on February 25, 2020. Equipment and materials for community service in the University of Muhammadiyah Gresik environment for SMK Muhammadiyah 5 Gresik as follows:

- Auditorium room for the seminar Prosman laboratory of Industrial Engineering Study Program for the practice of making fertilizer.
- LCD
- The laptop
- Mixing machine mixer fertilizer ingredients
- Fertilizer molding machine
- Bat poop
- EM4 liquid
- Water
- Place fertilizer so (tarpaulin).

PROCEDURE

The purpose of the activities of this internal service are:

1. Provide education about the agricultural industry about both organic and inorganic fertilizers,
2. Provide knowledge about the nutrient content in the soil, and how to balance so that the soil content of the nutrients is maintained.
3. Introducing about guano fertilizer, the content and form of the type of guano fertilizer.

4. Conducting practical guano manufacturing activities for the knowledge and implementation of fertilizer fertilization.

RESULTS AND DISCUSSION

In the results and discussion, it explains about activities in conducting coaching regarding internal service activities :

Education about fertilizer

The education process about fertilizer in general covers organic fertilizer, organic fertilizer, an explanation of guano fertilizer, nutrient content in guano fertilizer , and an explanation of tools for making guano fertilizer. In addition, explaining the importance of balance in managing fertilizer in plants so that nutrients in the soil content remain available. The composition of fertilizers is 40% inorganic and 60% organic. In this session also conducted question and answer with the students of SMK Muhammadiyah 5 Gresik.

Fertilizer manufacturing practice activities

In this activity, the practice of making granule fertilizer is guano. Materials used include water, soil, bat droppings and EM4 liquid. The guano manufacturing process includes the process of mixing all the ingredients in a mixer machine namely soil, bat droppings and EM4 liquid. The stirring process is carried out until all ingredients are mixed. Water is given slowly to produce granules from guano fertilizer. The more water the granules of guano will be, the more irregular . Good granules, depending on the composition of the ingredients and the dose of the treatment process in the procedure of making fertilizers such as water administration. The function of the water is to glue the mixture of ingredients to the mixer. The results of the tyrants from the stirring process on the mixer machine into granules, then the screening process is carried out to select the guano fertilizer granules according to the desired shape. In addition, this process will separate appropriate and inappropriate guano grains in certain places. Rotating filter machin with 360 0 rotation . Following the guano fertilizer fertilizer filtering process .

The results of making fertilizer.

In this activity, merupakan results from the filtering process of guano granules. The guano grains that have been filtered are then dried. The drying process can be done with open sunlight. This is so that the guano granules dry out, getting stronger and not easily damaged. This process can be used as an alternative if you want granular fertilizer to remain granular. The use of guano filtering results can also be used directly in agriculture, especially rice fields and does not need drying.

CONCLUSION

Based on the results of internal service activities regarding the development of granule fertilizer (granules), the students were able to recognize and know that there are organic fertilizers that have excellent content for plant growth and production. Students also understand how to regulate and manage the balance of nutrients in the soil. The students also know that there are alternative materials that can be used as organic fertilizer from animal waste such as bats. It can also be used as a fertilizer that is potential in the agricultural industry. Adding insights that organic fertilizer can be processed in the form of granules (granules).

SUGGESTION

Suggestions for the next, do education and practice socialization for the wider community, especially farmers who deal directly with agriculture.

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