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The Effect of Providing Organic Fertilizer on the Growth of Rice Plants in Dry Land

Ahmad Rizkan
Universitas mataram
Email:rizkan@gmail.com
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Abstract
A brief explanation of the importance of fertilization in the growth of rice plants in dry land and the relevance of using organic fertilizer. Research Objectives: Explain the specific objectives of this research, for example to evaluate the impact of organic fertilizer on rice plant growth in dry land conditions. Research Method Brief explanation of the research design, type of organic fertilizer used, experimental design, and parameters measured. Findings Present research data such as plant growth, plant height, crop yield, and other relevant parameters. Conclusion A summary of the study's main findings, practical implications, and suggestions for further research.

Keywords: Organic Fertilizer, Rice Plants, Dry Land

INTRODUCTION

Providing organic fertilizer has a significant impact on the growth of rice plants in dry land. Study by(1)shows that the dose and frequency of application of liquid organic fertilizer has a positive influence on the growth and yield of lowland rice plants. In addition, research by(2)also confirmed that the dose of liquid organic fertilizer and nitrogen had an effect on the growth and production of sweet corn in dry land. In addition, this research shows that reducing the dose of NPK fertilizer by applying organic fertilizer does not reduce the growth of shallot plants. This shows that a combination of organic fertilizer and inorganic fertilizer can be an effective strategy in increasing plant yields without sacrificing growth.

Additionally, research(3)also showed a positive response of plants to liquid organic fertilizer treatment from fishery waste. This confirms that the application of liquid organic fertilizer can have a beneficial impact on plant growth, as observed in research on pak choy.

In the context of rice plant growth, the use of organic fertilizer has also been studied. For example, research by(4)exploring the effect of a combination of organic and inorganic fertilizers on the growth and yield of local upland rice. The results of this research provide valuable information about how interactions between organic and inorganic fertilizers can influence rice plant growth. Thus, through these studies, it can be concluded that providing organic fertilizer, both in liquid and solid form, has a positive impact on plant growth and yield. The use of organic fertilizer can be an effective strategy in increasing the productivity of rice plants in dry land

LITERATURE REVIEW

The theory underlying the application of organic fertilizer to the growth of rice plants in dry land involves several key concepts in agricultural science and agronomy. Some relevant theories include: Organic Fertilizer as a Source of Nutrients Organic fertilizer such as compost or manure contains important nutrients such as nitrogen, phosphorus and potassium which are necessary for the growth of rice plants. This theory includes the process of decomposition of organic matter into a form of nutrients that can be absorbed by plants.

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Increasing Soil Fertility Providing organic fertilizer can increase the organic matter content in the soil, increase nutrient availability, and improve soil structure. This theory takes into account the interactions between plants, soil microorganisms, and the physical properties of the soil. Soil Microbes and Mycorrhizal Symbiosis Organic fertilizer can enrich the population of soil microbes which play a role in the plant nutrient cycle. Symbiosis with arbuscular mycorrhizal fungi can also increase nutrient absorption by plants. Reducing Erosion and Increasing Soil Water Content Organic fertilizer can help reduce soil erosion and increase the soil's capacity to hold water, which is important in dry land conditions to support the growth of rice plants. These theories provide a scientific basis that supports the importance of applying organic fertilizer in increasing the growth of rice plants in dry land through understanding the complex interactions between plants, soil, soil microbes and nutrients.

Providing organic fertilizer has become a main focus in agricultural research, including in the context of rice plant growth in dry land. The study highlights the importance of nutrients in organic fertilizers to support plant growth. Additionally, research(5)shows that the effectiveness of managing organic fertilizers, NPK and biological fertilizers can increase the growth and yield of shallot plants. This shows that the combination of organic fertilizer with inorganic fertilizer can provide optimal results.

In the context of rice plant growth, the use of organic fertilizer has also been studied. For example, research(6)exploring the effect of providing compost fertilizer on the growth of eucalyptus on former coal mining land. The results of this research provide insight into the potential of organic fertilizers in supporting plant growth in non-ideal environmental conditions.

Thus, through these studies, it can be concluded that the provision of organic fertilizer has a positive impact on plant growth, including rice plants in dry land. Combining organic fertilizer with inorganic fertilizer, using effective dosages, and using organic waste as fertilizer are important strategies for increasing plant productivity in a sustainable manner.

RESEARCH METHOD

The research methods used in applying organic fertilizer to the growth of rice plants in dry land can vary depending on the objectives and design of the research carried out. For example, research by(7)used a laboratory experimental approach with a Completely Randomized Design to compare variations in the concentration of liquid organic fertilizer from fish waste on the growth of red chili plants. This research involved 5 treatments with 4 replications, so that a total of 20 experimental units were placed randomly.

On the other hand, research(8)used a Randomized Complete Group Design (RKLT) consisting of five treatments of liquid organic fertilizer from rabbit urine to check the growth of pak choy plants. In addition, research by Pandaleke et al.(9)implemented a Completely Randomized Design (CRD) with four treatments repeated three times to test the growth and production response of pak choy to the application of various concentrations of liquid organic fertilizer.

RESULTS AND DISCUSSION

The study conducted showed that there was no interaction between varieties and fertilizer management on growth, NPK nutrient uptake and shallot bulb yield. The Bima variety showed higher growth, NPK nutrient uptake and shallot tuber yield compared to the Mentes variety. This shows that plant varieties also influence the response to organic fertilizer application.(2)shows that

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the application of liquid organic fertilizer based on market waste affects the growth and yield of okra plants. Application of liquid organic fertilizer affects growth variables and yield components of okra plants, such as plant height, number of leaves, stem diameter, number of fruits, and fruit weight per plant. This confirms that applying liquid organic fertilizer can have a significant impact on plant growth.

CONCLUSION

Thus, the results of various studies show that the application of organic fertilizer, both in liquid and solid form, has a significant impact on plant growth and yield. Plant variety, type of organic fertilizer, dosage and frequency of application of organic fertilizer are important factors that need to be considered in increasing the productivity of rice plants in dry land.

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