

RINGKASAN

Fosfor (P) berperan penting bagi tanaman untuk memacu pertumbuhan dan perkembangan sistem perakaran, serta memacu pembentukan bunga dan pematangan biji, sehingga dapat mempercepat masa panen. Kasgot (bekas maggot) memiliki kandungan fosfor yang cukup serta dapat dimanfaatkan sebagai pembenah tanah. Penggunaan unsur fosfor dan kasgot di tanah marginal sebelumnya belum pernah diujikan pada tanaman padi. Oleh karena itu, perlu adanya penelitian tentang aplikasi pupuk P dan kasgot dengan dosis berbeda pada tanah marginal terhadap pertumbuhan dan hasil tanaman padi. Penelitian ini bertujuan untuk (1) Mengetahui pengaruh pemberian dosis kasgot dan pupuk P terhadap pertumbuhan dan hasil padi di tanah marginal, dan (2) Mengetahui pengaruh pemberian kasgot terhadap serapan hara P di tanah marginal.

Penelitian ini dilaksanakan pada Januari hingga Juli 2022 di *screen house* Balai Benih Tanaman Pangan dan Hortikultura (BBTPH), Desa Bojongsari, Kecamatan Kembaran, Kabupaten Banyumas; Laboratorium Ilmu Tanah, Laboratorium Agroekologi, serta Laboratorium Agronomi dan Hortikultura, Fakultas Pertanian Universitas Jenderal Soedirman. Rancangan percobaan yang digunakan yaitu Rancangan Petak Terbagi atau *Split Plot Design* dengan 2 faktor. Faktor pertama adalah dosis pupuk P yaitu P1= 0%, P2= 50%, dan P3= 100% dosis rekomendasi Kementerian Pertanian. Faktor kedua adalah dosis kasgot yang terdiri K1= 5t/ha, K2= 10 t/ha, K3= 15 t/ha, dan K4= 20 t/ha. Masing-masing faktor dikombinasikan dan terdapat 12 kombinasi perlakuan, dengan 3 blok sehingga terdapat 36 percobaan. Variabel yang diamati yaitu tinggi tanaman, jumlah daun, luas daun, bobot kering akar akhir masa vegetatif, bobot kering tajuk akhir masa vegetatif dan menjelang panen, jumlah dan bobot gabah hampa per rumpun, jumlah dan bobot gabah isi per rumpun, bobot gabah per rumpun, presentase gabah hampa dan isi per rumpun, bobot 1000 biji, umur panen, dan indeks panen. Data yang diperoleh dari hasil penelitian dianalisis menggunakan sidik ragam pada taraf $\alpha = 5\%$. Apabila hasilnya berpengaruh nyata, maka analisis dilanjutkan dengan uji *Duncan's Multiple Rangen Test* (DMRT) pada taraf $\alpha = 5\%$. Ada atau tidaknya hubungan antar karakter pertumbuhan dan hasil dilakukan analisis korelasi pearson.

Hasil penelitian menunjukkan pemberian dosis P 100% rekomendasi (P2) memberikan pengaruh terhadap variabel tinggi tanaman dan serapan hara P tanaman. Sedangkan pemberian kasgot 20 t/ha memberikan pengaruh berbeda nyata terhadap variabel luas daun, jumlah anakan produktif, jumlah anakan total, jumlah gabah hampa, jumlah gabah isi, bobot gabah isi, dan bobot gabah per rumpun.

Kata kunci: padi, kasgot, pemupukan, fosfat, marginal

SUMMARY

Phosphorus (P) plays an important role for plants to stimulate the growth and development of the root system, as well as stimulating flower formation and seed maturation, to accelerate the harvest period. Kasgot (former maggot) has sufficient phosphorus content and can be used as a soil enhancer. The use of phosphorus and kasgot in marginal soils has not previously been tested on rice plants. Therefore, there is a need for research on the application of P fertilizer and kasgot with different doses on marginal soils on the growth and yield of rice plants. This study aims to (1) determine the effect of kasgot and P fertilizer on the growth and yield of rice in marginal soils, and (2) determine the effect of kasgot administration on P nutrient uptake in marginal soils.

This research was conducted from January to July 2022 at the screen house of the Center for Food Crops and Horticulture (BBTPH), Bojongsari Village, Kembaran District, Banyumas Regency; Soil Science Laboratory, Agroecology Laboratory, and Agronomy and Horticulture Laboratory, Faculty of Agriculture, Jenderal Sudirman University. The experimental design used is the Split Plot Design with 2 factors. The first factor is the dose of P fertilizer, namely P1 = 0%, P2 = 50%, and P3 = 100% the recommended dose by the Ministry of Agriculture. The second factor is the dose of kasgot which consists of K1 = 5 t/ha, K2 = 10 t/ha, K3 = 15 t/ha, and K4 = 20 t/ha. Each factor was combined and there were 12 treatment combinations, with 3 blocks so there were 36 trials. The variables observed were plant height, leaf number, leaf area, root dry weight at the end of the vegetative period, shoot dry weight at the end of the vegetative period and before harvesting, number and weight of empty grain per clump, number and weight of filled grain per clump, the weight of grain per clump, percentage of empty and filled grain per clump, the weight of 1000 seeds, age of harvest, and harvest index. The data obtained from the research results were analyzed using variance at the level of $\alpha = 5\%$. If the results have a significant effect, then the analysis is continued with Duncan's Multiple Range Test (DMRT) at the level of $\alpha = 5\%$. Whether or not there is a relationship between growth characters and results, Pearson correlation analysis was performed.

The results showed that the recommended 100% P dose (P2) affected plant height variables and plant P nutrient uptake. While giving kasgot 20 t/ha gave a significantly different effect on the variables of leaf area, number of productive tillers, total tiller number, number of empty grains, number of filled grains, the weight of filled grain, and weight of grain per clump.

Keywords: rice, kasgot, fertilization, phosphate, marginal