

RINGKASAN

Pemupukan merupakan upaya penting dalam budidaya tanaman karena berperan dalam menyediakan unsur hara yang dibutuhkan untuk pertumbuhan dan perkembangan tanaman. Pemupukan yang tepat guna meningkatkan unsur hara dan kebutuhan tanaman. Unsur hara mikro esensial yang dibutuhkan oleh tanaman salah satunya adalah kalium yang dibutuhkan tanaman pada fase vegetatif dan generatif. Data mengenai unsur hara kalium di Kecamatan Karangmoncol belum tersedia dan belum pernah dilakukan penelitian sebelumnya. Pengetahuan tentang kadar kalium pada tanah dan tanaman padi diperlukan untuk menentukan kebutuhan pupuk yang optimal. Penelitian ini bertujuan untuk 1) mengetahui pola sebaran unsur hara kalium di lahan sawah DAS Serayu Tengah Kecamatan Karangmoncol, 2) mengetahui korelasi antarvariabel pengamatan di lahan sawah yang digunakan untuk budidaya tanaman padi di DAS Serayu Tengah Kecamatan Karangmoncol, 3) mengetahui rekomendasi pemupukan Kalium (K) yang optimal untuk meningkatkan hasil tanaman padi di lahan sawah Sub DAS Serayu Kecamatan Karangmoncol, Kabupaten Purbalingga.

Penelitian dilaksanakan pada sawah irigasi wilayah DAS Serayu, Kecamatan Karangmoncol, Kabupaten Purbalingga dan analisis sampel dilaksanakan di Laboratorium Tanah, Fakultas Pertanian, Universitas Jenderal Soedirman. Penelitian ini dilaksanakan pada bulan Oktober 2024 hingga Mei 2025. Metode deskriptif dengan teknik survei disertai dengan pengambilan sampel tanah metode *purposive random sampling*. Penentuan lokasi titik sampel didasarkan atas Satuan Lahan Homogen (SLH) serta dengan menggunakan metode transek yang memotong DAS Serayu. Variabel yang diamati adalah pH H_2O , pH KCl, Daya Hantar Listrik (DHL), Potensial Redoks, K-tersedia, serapan K daun, serapan K gabah, serapan K tanaman, dan hasil tanaman padi.

Hasil penelitian menunjukkan bahwa sebaran kalium pada lokasi penelitian memiliki harkat berkisar rendah $0,279 \text{ cmol (+) kg}^{-1}$ sampai sangat tinggi $0,947 \text{ cmol (+) kg}^{-1}$. Lahan sawah kedalaman 0-25 cm memiliki kadar K $0,565 \text{ cmol (+) kg}^{-1}$ yang tergolong harkat sedang. Lahan sawah kedalaman 25-50 cm memiliki kadar K $0,489 \text{ cmol (+) kg}^{-1}$ yang tergolong harkat sedang. Korelasi K-tersedia dengan hasil tanaman mempunyai korelasi positif sangat lemah dan nilai $r^2=0,133$. Berdasarkan analisis regresi hubungan antar variabel K-tersedia tanah dengan hasil tanaman padi pada regresi memiliki $R^2 = 0,0385$ yang artinya hasil tanaman dipengaruhi oleh K-tersedia tanah 3,85%. K-tersedia tanah dipengaruhi oleh serapan K pada tanaman utuh 5,67%. Kadar K pada tanah dan tanaman yang diperoleh dapat digunakan sebagai dasar rekomendasi pemupukan di lokasi penelitian diberikan pada kedalaman 0 – 25 cm adalah 44 kg/ha atau 84 kg KCl/ha.

SUMMARY

Fertilization is an important practice in crop cultivation because it plays a role in providing the nutrients needed for plant growth and development. Proper fertilization increases nutrients and plant requirements. One of the essential nutrients needed by plants is potassium, which is needed by plants in the vegetative and generative phases. Data on potassium nutrients in Karangmoncol District is not yet available and no previous research has been conducted. Knowledge of potassium levels in soil and rice plants is necessary to determine optimal fertilizer requirements. This study aims to 1) determine the distribution pattern of potassium nutrients in rice fields in the Central Serayu River Basin, Karangmoncol District, 2) determine the correlation between observation variables in rice fields used for rice cultivation in the Central Serayu River Basin, Karangmoncol District, 3) to determine the optimal potassium (K) fertilization recommendations to increase rice yields in the rice fields of the Serayu Sub-watershed, Karangmoncol District, Purbalingga Regency.

The research was conducted on irrigated rice fields in the Serayu River Basin, Karangmoncol District, Purbalingga Regency, and sample analysis was carried out at the Soil Laboratory, Faculty of Agriculture, Jenderal Soedirman University. This research was conducted from October 2024 to May 2025. A descriptive method with survey techniques was used, accompanied by soil sampling using purposive random sampling. The determination of sample locations was based on Homogeneous Land Units (SLH) and using the transect method that cut across the Serayu River Basin. The variables observed were pH H₂O, pH KCl, Electrical Conductivity (EC), Redox Potential, available K, leaf K uptake, grain K uptake, plant K uptake, and rice yield.

The results showed that the distribution of potassium at the study site ranged from low (0.279 cmol (+) kg⁻¹) to very high (0.947 cmol (+) kg⁻¹). Rice fields with a depth of 0-25 cm had a K content of 0.565 cmol(+) kg⁻¹ which was classified as moderate. Rice fields with a depth of 25-50 cm had a K content of 0.489 cmol (+) kg⁻¹ which was classified as moderate. The correlation between available K and crop yield is very weakly positive, with an r^2 value of 0.133. Based on regression analysis, the relationship between soil available K and rice yield has an R^2 value of 0.0385, which means that crop yield is influenced by soil available K by 3.85%. Available K in the soil is influenced by K uptake in whole plants by 5.67%. The K content in the soil and plants obtained can be used as a basis for fertilizer recommendations at the research site at a depth of 0–25 cm, which is 44 kg/ha or 84 kg KCl/ha.