

RINGKASAN

Tanaman Padi (*Oryza sativa* L.) merupakan tanaman semusim dengan morfologi berbatang bulat dan berongga yang disebut jerami. Pemupukan yang belum sesuai kebutuhan dan belum berimbang adalah salah satu penyebab rendahnya produksi padi. Upaya peningkatan tanaman padi akan semakin bergantung pada pemenuhan beberapa unsur hara dalam tanah, salah satunya adalah unsur hara kalium (K). Penelitian ini bertujuan untuk: (1) mengetahui sebaran unsur hara kalium di Lahan sawah di DAS Serayu Tengah, Kecamatan Mandiraja, Kabupaten Banjarnegara, (2) mengetahui hubungan dengan variabel penelitian di DAS Serayu Tengah, Kecamatan Mandiraja, Kabupaten Banjarnegara, (3) mengetahui ketersediaan kalium tanah dan serapannya pada daun dan biji tanaman padi di DAS Serayu Tengah, Kecamatan Mandiraja, Kabupaten Banjarnegara, dan (4) menentukan takaran pupuk kalium yang optimal untuk meningkatkan hasil tanaman padi sawah di DAS Serayu Tengah, Kecamatan Mandiraja, Kabupaten Banjarnegara.

Penelitian ini dilaksanakan secara survei di lahan sawah pada budidaya tanaman padi Kecamatan Mandiraja, Kabupaten Banjarnegara dan Laboratorium Ilmu Tanah, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Penentuan titik sampel didasarkan atas Satuan Lahan Homogen (SLH) dengan memperhatikan penyebaran lokasi yang didasarkan pada garis tegak lurus memotong aliran sungai utama (Sungai Serayu). Pengambilan sampel tanah dan jaringan tanaman dilakukan secara komposit di setiap lokasi pengamatan. Variabel yang diamati meliputi, pH (H_2O), pH (KCl), Daya Hantar Listrik (DHL), potensial redoks, K-tersedia tanah, serapan K oleh jaringan tanaman, dan wawancara dengan petani.

Hasil penelitian menunjukkan bahwa rerata status unsur hara kalium di lokasi penelitian termasuk ke dalam harkat sedang sebesar $0,43 \text{ cmol}(+)\text{kg}^{-1} \text{ K}_2\text{O}$. Hubungan K-tersedia tanah dengan hasil tanaman padi sawah didapatkan nilai korelasi positif. Hubungan serapan K dengan hasil tanaman padi sawah didapatkan nilai korelasi positif. Hal ini berarti K-tersedia tanah dan serapan K oleh jaringan tanaman berpengaruh terhadap hasil tanaman padi. Rekomendasi pemupukan K di lokasi penelitian diberikan pada kandungan K-tersedia tanah yang termasuk ke dalam harkat rendah sampai sedang yaitu berkisar antara $9,36\text{--}79,56 \text{ kg K}_2\text{O/ha}$ atau setara dengan $15,60\text{--}132,60 \text{ kg KCl/ha}$.

Kata kunci: kalium, sifat kimia tanah, dan lahan sawah

SUMMARY

Rice (*Oryza sativa* L.) is a seasonal plant with a morphology of round and hollow stem called straw. Inadequate and unbalanced fertilization is one of the causes of low rice production. Efforts to increase rice plants will increasingly depend on the fulfillment of several nutrients in the soil, one of which is the nutrient potassium (K). This research aims to: (1) to know the distribution of potassium nutrient in paddy fields in Middle Serayu Watershed, Mandiraja Subdistrict, Banjarnegara Regency, (2) to know the relationship with the research variables in Middle Serayu Watershed, Mandiraja Subdistrict, Banjarnegara Regency, (3) to know the availability of soil potassium and its uptake in the leaves and seeds of rice plants in Middle Serayu Watershed, Mandiraja Subdistrict, Banjarnegara Regency, and (4) to determine the optimal dose of potassium fertilizer to increase the yield of paddy rice plants in Middle Serayu Watershed, Mandiraja Subdistrict, Banjarnegara Regency.

This research was conducted by survey in paddy fields in rice cultivation in Mandiraja Subdistrict, Banjarnegara Regency and Soil Science Laboratory, Faculty of Agriculture, Universitas Jenderal Soedirman, Purwokerto. Determination of sample points was based on Land Unit (LU) by considering the distribution of locations based on a perpendicular line cutting the main river flow (Serayu River). Soil and plant tissue samples were collected compositely at each observation location. The observed variables include, pH (H₂O), pH (KCl), Electrical Conductivity (DHL), redox potential, soil K-availability, K uptake by plant tissues, and interviews with farmers.

The results showed that the average status of potassium nutrients in the research location was included in the medium level of 0.43 cmol (+) kg⁻¹ K₂O. The relationship between soil K-availability and yield of paddy rice was found to be positive. The relationship of K uptake with the yield of paddy rice plants obtained a positive correlation value. This means that soil K-availability and K uptake by plant tissues affect the yield of rice plants. K fertilization recommendation in the research location is given to the content of soil K-available which is included in the low to medium level which ranges from 9.36-79.56 kg K₂O/ha or equivalent to 15.60-132.60 kg KCl/ha.

Keywords: potassium (K), soil chemical properties, and paddy fields.