RINGKASAN

Unsur hara yang terdapat dalam pupuk majemuk sedikit diserap oleh tanaman, karena tanaman bersaing menyerap unsur hara yang terkandung dalam pupuk tersebut. Salah satu cara untuk mengatasi masalah ini adalah dengan memperlambat pelepasan unsur hara dalam pupuk, metode ini juga dikenakan pupuk NPK-*SR*. NPK-*SR* yang melepaskan unsur hara secara perlahan (*Slow Release*, SR), memiliki efisiensi N yang tinggi dan tidak mencemari lingkungan. Kandungan unsur hara P dan K dalam pupuk larut atau mudah didapat dalam tanah, sehingga dapat memenuhi kebutuhan unsur hara P dan K yang dibutuhkan oleh tanaman khususnya persawahan. Penelitian ini bertujuan untuk mendapat takaran pupuk NPK-*SR* dan kombinasi jerami kompos yang optimal terhadap P tersedia, serapan P, dan hasil padi sawah, dan interaksi antara takaran pupuk NPK-*SR* dan kombinasi jerami kompos.

Penelitian dilakukan di Rumah Kaca, Laboratorium Ilmu Tanah, dan Laboratorium Agronomi dan Hortikultura, Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Studi dilakukan pada April 2023 hingga November 2023. Penelitian ini menggunakan desain penelitian yang disusun menggunakan Rancangan Acak Kelompok Lengkap (RAKL) yang terdiri dari 2 faktor, yaitu dosis pupuk majemuk NPK-SR grade 7,26-10-7 (6 tingkat) dan persentase kombinasi kompos dan jerami (3 tingkat). Variabel yang diamati dalam penelitian meliputi bobot basah tanaman padi (akar, batang, daun, malai, dan total), berat kering total tanaman padi (akar, batang, daun, malai, dan total), jumlah gabah bernas, bobot kering gabah bernas, jumlah gabah kosong, berat gabah per 1000 biji, P tersedia, P total, serapan P pada daun tanaman, serapan P pada biji tanaman.

Hasil penelitian menunjukkan perlakuan pupuk NPK-*SR grade* 7,26-10-7 meningkatkan serapan P daun dan hasil padi sawah namun tidak efektif terhadap P tersedia, P total, dan serapan P pada biji. Perlakuan kombinasi jerami-kompos meningkatkan P total dan hasil padi sawah namun tidak efektif terhadap P tersedia, serapan P daun dan biji. Interaksi antara perlakuan pupuk NPK-*SR grade* 7,26-10-7 dan kombinasi pupuk jerami-kompos berpengaruh nyata terhadap jumlah gabah bernas, bobot gabah kering bernas, bobot basah batang, daun, dan total tanaman, serta bobot kering malai dan total tanaman. Grafik menunjukkan nilai tertinggi dari variabel P tersedia pada minggu ke 7 pada takaran NPK-*SR* 150 kg N/ha sebesar 215,26 ppm P_2O_5, sedangkan nilai tertinggi serapan P biji pada takaran 200 kg N/ha sebesar 62,58 mg P_2O_5/biji. Nilai tertinggi serapan P daun pada takaran 100 kg N/ha sebesar 28,90 mg/daun. Pada variabel bobot basah total tanaman nilai tertinggi ditunjukkan adalah pada takaran NPK-*SR* 200 kg N/ha yaitu 302,77 g/tanaman, sedangkan variabel bobot kering total nilai tertinggi ditunjukkan oleh takaran NPK-SR 250 kg N/ha yaitu 136,16 g/tanaman. Variebel bobot gabah 1000 biji nilai tertinggi ditunjukkan oleh NPK-SR 250 kg N/ha yaitu 37,28 g.

SUMMARY

The nutrients contained in compound fertilizers are slightly absorbed by plants, because plants compete to absorb the nutrients contained in these fertilizers. One way to solve this problem is to slow down the release of nutrients in fertilizers, this method is also subject to NPK-SR fertilizer. NPK-SR which releases nutrients slowly (Slow Release, SR), has a high N efficiency and does not pollute the environment. The content of P and K nutrients in fertilizers is soluble or easily available in the soil, so that it can meet the needs of P and K nutrients needed by plants, especially rice fields. This study aims to obtain the optimal dose of NPK-SR fertilizer and compost straw combination against available P, P uptake, and rice field yield, and the interaction between NPK-SR fertilizer dose and compost straw combination.

The research was conducted in the Greenhouse, Soil Science Laboratory, and Agronomy and Horticulture Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto. The study conducted from April 2023 to November 2023. This study used a research design prepared using a Randomized Completely Block Design (RCBD) consisting of 2 factors, namely the dose of NPK-SR compound fertilizer grade 7.26-10-7 (6 levels) and the percentage of compost and straw combination (3 levels). The variables observed in the study included wet weight of rice plants (roots, stems, leaves, panicles, and total), total dry weight of rice plants (roots, stems, leaves, panicles, and total), amount of pithy grain, dry weight of pithy grain, number of empty grains, grain weight per 1000 seeds, P available, total P, P uptake in plant leaves, P uptake in plant seeds.

The results showed that the treatment of NPK-SR fertilizer grade 7.26-10-7 increased the absorption of leaf P and rice yield but was not effective against available P, total P, and P uptake in seeds. The combination straw-compost treatment increased the total P and yield of paddy paddy but was not effective against the available P, P uptake of leaves and seeds. The interaction between NPK-SR fertilizer treatment grade 7,26-10-7 and straw-compost fertilizer combination had a real effect on the amount of grainy grain, dry grain weight, wet weight of stems, leaves, and total plants, as well as dry weight of panicles and total plants. The graph shows that the highest value of the P variable was available at week 7 at the NPK-SR dose of 150 kg N/ha of 215.26 ppm P2O5, while the highest value of P absorption of seeds at the dose of 200 kg N/ha was 62.58 mg P2O5/seed. The highest value of leaf P uptake at a dose of 100 kg N/ha was 28.90 mg/leaf. In the variable of total wet weight of plants, the highest value is shown at the NPK-SR dose of 200 kg N/ha, which is 302.77 g/plant, while the variable of total dry weight of the highest value is shown by the NPK-SR measure of 250 kg N/ha, which is 136.16 g/plant. The highest value of the 1000 grain weight variebel is shown by NPK-SR 250 kg N/ha, which is 37.28 g