

## RINGKASAN

Pupuk NPK merupakan pupuk penting dalam keberlangsungan hidup dan produksi terhadap tanaman padi. Pemupukan padi sawah yang tepat dan efisien dapat dilihat dengan pemberian pupuk dalam jumlah, macam, jenis dan bentuk yang sesuai dengan kebutuhan tanaman, dengan cara pemberian yang tepat sesuai. NPK-SR merupakan pupuk majemuk yang mengandung unsur hara N, P dan K, melepaskan unsur hara secara perlahan-lahan (*Slow Release*), mempunyai efisiensi unsur hara N tinggi dan tidak mencemari lingkungan. Kandungan unsur hara P dan K di dalam pupuk mudah mengalami pelarutan sehingga meningkatkan P dan K tersedia di dalam tanah yang diperlukan oleh tanaman, khususnya padi sawah.

Penelitian dilaksanakan di *Screen House*, Laboratorium Ilmu Tanah, dan Laboratorium Agronomi dan Hortikultura Fakultas Pertanian, Universitas Jenderal Soedirman, Purwokerto. Pelaksanaan penelitian dilakukan pada bulan April 2023 sampai dengan bulan November 2023. Penelitian ini menggunakan menggunakan rancangan acak kelompok lengkap (RAKL) yang terdiri atas 2 faktor, yaitu takaran pupuk majemuk NPK- *SR grade 7,26-10-7* (6 aras) dan persentase kombinasi kompos dan jerami (3 aras). Variabel yang diamati pada penelitian meliputi pH-H<sub>2</sub>O, pH-KCL, DHL, dan potensial redoks tanah, serapan N biji, bobot kering malai padi, bobot kering total, N total tanah, bobot gabah kering bernas, jumlah anakan produktif, jumlah gabah kering hampa, serta bobot gabah per 1000 biji.

Hasil penelitian menunjukkan perlakuan pupuk NPK-SR *grade 7,26-10-7* memberikan pengaruh efektif terhadap potensial redoks tanah, serapan N biji padi namun tidak berpengaruh efektif terhadap N total tanah. Hasil pengujian terhadap jumlah anakan produktif, variabel bobot kering tanaman padi (akar, batang, daun, malai, dan total), serta 1000 biji menunjukkan hasil yang efektif. Perlakuan kombinasi jerami-kompos memberikan pengaruh efektif terhadap DHL tanah, potensial redoks tanah, seluruh bobot kering tanaman dan hasil padi sawah namun tidak efektif terhadap serapan N biji dan N total tanah. Interaksi antara perlakuan pupuk NPK-SR *grade 7,26-10-7* dan kombinasi pupuk jerami-kompos berpengaruh terhadap variabel DHL dan bobot gabah kering hampa. Grafik menunjukkan nilai tertinggi dari variabel N-total tanah pada takaran NPK-SR 150 kg N/ha sebesar 0,63%, sedangkan nilai tertinggi serapan N biji pada takaran 250 kg N/ha sebesar 1,15 mg/biji. Pada seluruh variabel hasil padi sawah nilai tertinggi ditunjukkan oleh takaran NPK-SR 250 kg N/ha berturut-turut yaitu jumlah anakan produktif sebanyak 21,11 tanaman/rumpun, bobot kering akar sebesar 35,06 g/tanaman, bobot kering batang sebesar 35,60 g/tanaman, bobot kering daun sebesar 26,93 g/tanaman, bobot kering malai sebesar 54,26 g/tanaman, bobot kering total sebesar 169,29 g/tanaman, dan bobot gabah 1000 biji sebesar 37,28 g. Aplikasi takaran pupuk NPK-SR 100 kg N/ha mampu meningkatkan N total tanah sebesar 0,63%.

## SUMMARY

*NPK fertilizer is an important fertilizer in production of rice plants. Appropriate and efficient fertilization of lowland rice can be seen by providing fertilizer in the amount, type, and form that suits the plant's needs, with the appropriate method of application. NPK-SR is a compound fertilizer that contains the nutrients N, P and K, releases nutrients slowly, has high N nutrient efficiency and does not pollute the environment. The P and K nutrient in fertilizer is easily dissolved, thereby increasing the P and K available in the soil which are needed by plants, especially lowland rice.*

*Research was carried out at the Screen House, Soil Science Laboratory, and Agronomy and Horticulture Laboratory, Faculty of Agriculture, Jenderal Soedirman University, Purwokerto. The research was carried out from April 2023 to November 2023. This research used a completely randomized completely block design (RCBD) consisting of 2 factors, namely the dosage of NPK-SR grade 7.26-10-7 compound fertilizer (6 cedar) and the percentage of compost and straw combination (3 cedar). Variables observed in the study included pH-H<sub>2</sub>O, pH-KCL, EC, and soil redox potential, seed N uptake, dry weight of rice panicles, total dry weight, total soil N, dry grain weight, number of productive tillers, number of dry grains. empty, as well as grain weight per 1000 seeds.*

*The research results showed that NPK-SR grade 7.26-10-7 fertilizer treatment had an effective influence on soil redox potential, N uptake of rice seeds but had no effective influence on total soil N. The test results on the number of productive tillers, dry weight variables of rice plants (roots, stems, leaves, panicles and total), and 1000 seeds showed effective results. The straw-compost combination treatment had an effective influence on soil EC, soil redox potential, whole plant dry weight and paddy yield but was not effective on seed N uptake and total soil N. The interaction between the NPK-SR grade 7.26-10-7 fertilizer treatment and the straw-compost fertilizer combination had an effect on the EC variable and empty dry grain weight. The graph shows the highest value of the N-total soil variable at an NPK-SR rate of 150 kg N/ha of 0.63%, while the highest value of seed N uptake at a rate of 250 kg N/ha was 1.15 mg/seed. In all lowland rice yield variables, the highest value was shown by the NPK-SR dose of 250 kg N/ha, namely the number of productive tillers was 21.11 plants/clump, root dry weight was 35.06 g/plant, stem dry weight was 35.60 g/plant, leaf dry weight was 26.93 g/plant, panicle dry weight was 54.26 g/plant, total dry weight was 169.29 g/plant, and grain weight for 1000 seeds was 37.28 g. Application of NPK-SR fertilizer at a rate of 100 kg N/ha was able to increase total soil N by 0.63%.*