

## RINGKASAN

Pupuk Nitrogen merupakan pupuk yang mudah hilang melalui aliran air irigasi maupun penguapan sehingga perlu dilakukan upaya untuk meningkatkan efisiensinya. Pupuk NZeo-SR *Plus* merupakan pupuk N yang dapat meningkatkan efisiensi pemupukan Nitrogen karena mempunyai sifat *slow-release* dan mempunyai kandungan Si. Pupuk NZeo-SR *Plus* juga mempunyai potensi untuk meningkatkan pertumbuhan dan produksi pada masa tanam ke II. Penelitian ini bertujuan untuk: (1) Mengetahui pengaruh macam pupuk N terhadap serapan N dan Si pada masa tanam ke II pada tanah entisol. (2) Mengetahui pengaruh dosis pupuk nitrogen (N) terhadap serapan N dan Si masa tanam ke II pada tanah entisol. (3) Mengetahui pengaruh macam pupuk N terhadap pertumbuhan dan produksi tanaman padi pada masa tanam ke II pada tanah entisol. (4) Mengetahui pengaruh dosis pupuk nitrogen (N) terhadap varietas IR36 pada masa tanam ke II pada tanah entisol. (5). Mengetahui pengaruh interaksi macam pupuk dan dosis N terhadap serapan N, Si, pertumbuhan, dan produksi tanaman padi varietas IR36 pada tanah entisol.

Penelitian dilaksanakan di *Screen House* Fakultas Pertanian Universitas Jenderal Soedirman Purwokerto dan Laboratorium Tanah Fakultas Pertanian Universitas Jenderal Soedirman. Penelitian ini berlangsung selama 6 bulan dan dilaksanakan mulai bulan Februari sampai Juli 2021. Rancangan percobaan yang digunakan yaitu Rancangan Acak Kelompok Lengkap (RAKL) yang terdiri dari 2 faktor percobaan. Faktor pertama adalah macam pupuk N pada masa tanam ke II yaitu P1 (pupuk urea), P2 (pupuk NZeo-SR *Plus coating* 1%), P3 (pupuk NZeo-SR *Plus coating* 3%). Faktor kedua adalah 3 dosis pupuk yaitu : N0 : Dosis N 0kg/ha, N1 : Dosis N 100kg/ha, N2 : Dosis N 200kg/ha. Kombinasi perlakuan tersebut menghasilkan 9 kombinasi perlakuan, kemudian setiap perlakuan diulang sebanyak 3 kali ulangan, sehingga terdapat 27 petak percobaan. Data hasil pengamatan dianalisis dengan menggunakan analisis sidik ragam untuk mengetahui pengaruh perlakuan dan apabila hasilnya beda nyata dilakukan uji lanjut *Duncan's Multiple Range Test* (DMRT) 5%. Variabel yang diamati meliputi klorofil tanaman, KTK tanah, N tersedia, N total, Si tersedia, N serapan, Si serapan, dan bobot 1000 butir.

Hasil penelitian menunjukkan bahwa (1) Macam pupuk N mampu meningkatkan N serapan (9,5%) dan Si serapan (0,23%) pada masa tanam ke II tanah entisol. (2) Dosis pupuk N tidak mampu meningkatkan serapan N dan serapan Si pada masa tanam ke II tanah entisol. (3) Macam pupuk N mampu meningkatkan Si tersedia (0,72%), namun tidak mampu meningkatkan klorofil tanaman, KTK tanah, N tersedia, N total, dan bobot 1000 butir pada masa tanam ke II tanah entisol. (4) Dosis pupuk N mampu meningkatkan N total (0,63%), namun tidak mampu meningkatkan klorofil tanaman, KTK tanah, N tersedia, Si tersedia, dan bobot 1000 butir pada masa tanam ke II tanah entisol. (5) Tidak terjadi interaksi macam pupuk N dan dosis N pada semua variabel.

## SUMMARY

*Nitrogen fertilizer is a fertilizer that is easily lost through irrigation water flow and evaporation, so efforts need to be made to increase its efficiency. NZeo-SR Plus fertilizer is an N fertilizer that can increase the efficiency of Nitrogen fertilization because it has slow-release and contains Si. NZeo-SR Plus also has the potential to increase growth and production in the second planting period. This study aims to: (1) determine the effect of the type of N fertilizer on the uptake of N and Si during the second planting period on entisol soils. (2) Knowing the effect of the dose of nitrogen fertilizer (N) on the uptake of N and Si at the second planting period in entisol soil. (3) Knowing the effect of N fertilizer on the growth and production of rice plants during the second planting period on entisol soils. (4) To determine the effect of the dose of nitrogen fertilizer (N) on the IR36 variety at the second planting period on entisol soil. (5). To determine the interaction effect of fertilizer type and N dose on N, Si uptake, growth, and production of IR36 rice on entisol soil.*

*The research was carried out at the Screen House of the Faculty of Agriculture, Jenderal Sudirman University, Purwokerto and the Soil Laboratory of the Faculty of Agriculture, Jenderal Sudirman University. This study lasted for 6 months and was carried out from February to July 2021. The experimental design used was a Completely Randomized Block Design (RAKL) consisting of 2 experimental factors. The first factor was the type of N fertilizer at the second planting period, namely P1 (urea fertilizer), P2 (NZeo-SR Plus coating 1%), P3 (NZeo-SR Plus coatings 3%). The second factor is 3 doses of fertilizer, namely: N0: Dose N 0kg/ha, N1: Dose N 100kg/ha, N2: Dose N 200kg/ha. The treatment combination resulted in 9 treatment combinations, then each treatment was repeated 3 times, so there were 27 experimental plots. Observational data were analyzed using analysis of variance to determine the effect of treatment and if the results were significantly different, the Duncan's Multiple Range Test (DMRT) 5% was further tested. The variables observed included plant chlorophyll, soil CEC, available N, total N, available Si, N uptake, Si uptake, and weight of 1000 grains.*

*The results showed that (1) kinds of N fertilizer were able to increase N uptake (9.5%) and Si uptake (0.23%) during the second planting period of entisol soil. (2) The dose of N fertilizer was not able to increase N uptake and Si uptake at the second planting period of entisol soil. (3) The type of N fertilizer was able to increase available Si (0.72%), but was not able to increase plant chlorophyll, soil CEC, available N, total N, and weight of 1000 grains at the second planting period of entisol soil. (4) The dose of N fertilizer was able to increase total N (0.63%), but was not able to increase plant chlorophyll, soil CEC, available N, available Si, and weight of 1000 grains at the second planting period of entisol soil. (5) No interaction between the type of N fertilizer and the dose of N in all variables observed.*