

INTISARI

Upaya dalam meningkatkan produktivitas lahan sawah tadah hujan dapat dilakukan dengan memberikan pemupukan seperti pupuk NPK, pupuk kandang dan kombinasi NPK dan pupuk kandang. Informasi mengenai jenis pupuk yang optimal untuk meningkatkan produktivitas di lahan sawah tadah hujan sangat diperlukan. Tujuan penelitian yaitu mengetahui pengaruh pemberian pemupukan dan perbandingan jenis pupuk yang diberikan dalam jangka panjang terhadap hasil gabah dan emisi GRK dan mendapatkan perlakuan terbaik yang memiliki hasil tinggi dan ramah lingkungan. Penelitian dilaksanakan pada MT 1 dari bulan November 2022 sampai Juni 2023 di Kebun Percobaan Balingtan, Kecamatan Jaken, Kabupaten Pati, Jawa Tengah. Penelitian ini menggunakan Rancangan Acak Kelompok (RAK) dengan satu faktor perlakuan pemupukan dan 3 ulangan. Penelitian ini menggunakan petak yang sudah diberikan pupuk dalam jangka panjang sejak 2015. Pupuk yang diberikan yaitu kontrol (tanpa pupuk), NPK spesifik lokasi, Pukan 10 ton ha⁻¹, kombinasi pukan 10 ton ha⁻¹ + NPK spesifik lokasi, pukan 20 ton ha⁻¹ dan kombinasi pukan 20 ton ha⁻¹ + NPK. Hasil penelitian menunjukkan pemupukan meningkatkan hasil gabah 131,55 % dan indeks emisi GRK/hasil tidak berbeda nyata dari kontrol. Pemberian pukan menghasilkan gabah dan indeks emisi GRK/hasil yang tidak berbeda nyata dengan NPK. Pemberian pukan 20 ton ha⁻¹ menghasilkan gabah lebih besar 18,56 % tetapi indeks emisi GRK/hasil yang tidak berbeda nyata dengan pukan 10 ton ha⁻¹. Pemberian kombinasi pukan + /hasil NPK menghasilkan gabah yang lebih besar 35,02 % dari NPK dan indeks emisi GRK/hasil yang tidak berbeda nyata dengan NPK. Pemberian kombinasi pukan + NPK menghasilkan gabah yang lebih besar 19,455 % dari pukan tetapi menghasilkan indeks emisi GRK yang lebih kecil 41,92 % dari pukan. Pemberian kombinasi pukan 10 ton ha⁻¹ + NPK dan pukan 20 ton ha⁻¹ dapat menjadi pilihan dalam kegiatan budidaya padi di lahan sawah tadah hujan.

Kata kunci: Lahan sawah tadah hujan, Pemupukan jangka panjang, Pemupukan berimbang, Padi

ABSTRACT

Efforts to increase the productivity of rainfed rice fields can be made through the use of fertilizers such as NPK fertilizer, manure, and a combination of NPK and manure. Information on the optimum type of fertilizer to increase the productivity of rainfed rice fields is much needed. The objective of this research to get information the effect of fertilizer application, compare the types of fertilizer applied in the long term on grain yield and greenhouse gas emissions, and identify the best treatment that gives high yields and environmentally friendly. The research was conducted on rainy season from November 2022 to June 2023 at Jakenan Experimental Station of Indonesian Agricultural Environment Research Institute, Jaken District, Pati Regency, Central Java. This research used specific plots which had been given inorganic and organic fertilization treatments since 2015. This study used a Randomized Block Design with 6 fertilization treatment (control (no fertilizer), NPK, 10 tons ha⁻¹ of manure, a combination of 10 tons ha⁻¹ of manure + NPK, 20 tons ha⁻¹ of manure, and a combination of 20 tons ha⁻¹ of manure + NPK) each with 3 replications. The results showed that the fertilization treatments had 131.55% the production of the control treatment and GHG emission/yield index was not significantly different from control treatment. The manure treatments resulted in grain yields and GHG emission/yield index that were not significantly different from NPK treatment. The application of 20 tons ha⁻¹ of manure yielded 18.56% more grain production, with GHG emissions/yield index remaining statistically similar to those from the 10 tons ha⁻¹ of manure treatment. The combination of manure + NPK treatments resulted in a 35.02% increase of grain yield compared to the NPK only treatment, with the GHG emissions/yield index showing no significant difference. Furthermore, the combination of manure + NPK treatments produced grain 19.455% greater than that of the manure-only treatments, while the GHG emissions/yield index were 41.92% less. The research suggested that the combination 10 tons ha⁻¹ of manure + NPK treatment and the 20 tons ha⁻¹ of manure treatment are viable options for rice cultivation in rainfed rice fields.

Keywords: Balanced fertilization, Long-term fertilization, Rainfed rice field, Rice