

STUDY ON THE EFFECTS OF WATER MANAGEMENT ON GREEN HOUSE GAS EMISSION OF CH₄, N₂O AND YIELD OF RICE IN ALLUVIAL SOIL IN QUANG NAM PROVINCE, VIETNAM

Tran Dang Hoa, Hoang Trong Nghia

Summary

Field experiments were conducted on rice variety of HT1 with three different irrigation regimes in summer - autumn 2013 and winter - spring 2013 - 2014 seasons in Duy Xuyen district, Quang Nam province to identify water-saving irrigation regimes, ensure yield and reduced green house gas (GHG) emission (CH₄ and N₂O). The results showed that alternate wetting and dry (AWD) and aerobic rice (AR) did not affect growth, development and yield of rice, but reduced green house gas emission compared to continuously flooding irrigation methods (CF). Emission of CH₄ and total converted CO₂ from AWD treatments decreased by 19.10 – 34.18% and 17.19 - 25.47%; aerobic rice (AR) treatments decreased by 18.19 - 19.33% and 15.08 - 17.92%. Emission N₂O from alternate wetting and dry (AWD) and aerobic rice (AR) regimes higher than continuously flooding irrigation methods (CF). Aerobic rice (AR) regimes saved 31.32 - 34.70%, alternate wetting and dry (AWD) regimes saved 26.19 - 32.04% the amount of irrigation water compared with continuously flooding.

Key word: *AWD, GHG, CH₄, N₂O, rice.*