
Oral sessions | Field Crop Production | O13: Current Issues on Tropical Crops

[O13] Current Issues on Tropical Crops

*Sponsored by the Japanese Society for Tropical Agriculture / The Society of Sago Palm Studies

Chair: Hiroshi Ehara (Nagoya University, Japan)

Chair: Hitoshi Naito (Kurashiki University of Science and The Arts, Japan)

Chair: Rosa Rolle (Food and Agriculture Organization of the United Nations, Italy)

Thu. Sep 9, 2021 5:00 PM - 7:00 PM Room 1 (Oral) (Field Crop Production)

6:40 PM - 6:55 PM

[O13-07] The Effect of Nitrogen and Phosphorus Applications on Rice Yield Can Be Changed by Farmers' Management Practices — Transplanting Dates and Densities—

*Nominated for Presentation Awards

[○]Bruce Haja Andrianary¹, Yasuhiro Tsujimoto², Hobimiarantsoa Rakotonindrina¹, Michel Rabenarivo¹, Herintsitohaina Razakamanarivo¹ (1.Laboratoire des Radioisotopes, University of Antananarivo, Madagascar, 2.Japan International Research Center for Agricultural Sciences, Japan)

Efficient nutrient management is a key for sustainable increases in rice production. However, the effect of fertilizer application has been little understood on smallholder farmers' management practices despite their large variations among nearby fields such as transplanting (TP) dates and TP densities. This study was conducted to identify how these variations can change the effect of fertilizer applications on rice yield. A split-split plot design was established with three replicates in two fields in the central highlands of Madagascar. The treatments consisted of two TP densities (Sparse: 25 hills m⁻², Dense: 50 hills m⁻²), four fertilizer treatments (Control, N, P, NP), and two TP dates (Early, Late). The Late was transplanted one month after Early. The result showed significant interaction of fertilizer treatment and TP date: the effect of N was only significant for Early; the NP increased yield by 95% relative to N for Late while its increased rate was 50% for Early. This interaction was due to that the P application shortened days to heading by 11-15 days and avoided cold stress for LTP while the N application had no effects on phenology development and rather increased cold-induced sterility. A significant interaction was also observed between fertilizer treatment and TP density. There were no differences at high-yielding plots while the Dense had greater yields in low-yielding plots by compensating limited growth of individual hills. The study highlighted the importance of farmer's management practices to improve nutrient use efficiency.