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Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Yield gaps
Keyword 2	: Sustainable management practices
Keyword 3	: Ecological approaches
Title of Entry	: Using sustainable performance indicators to assess opportunities to improve rice crop management in Southeast Asia
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Select only one type of presentation	: 15 minute oral presentation
Abstract	: The intensification of rice production in Southeast Asia has helped to address food security in the region and due to a growing human population and a reduction in agricultural land area, there is growing pressure to further reduce rice yield gaps to meet future food demands. However, it is widely recognized that this can only be achieved by simultaneously improving the sustainability of rice cultivation. As part of an adaptive farmer participatory research platform, we established replicated production-scale field trials of best management practices (BMPs) for rice in irrigated lowland rice ecosystems in Central Thailand; Yogyakarta, Indonesia; and the Mekong delta, Vietnam. Field trials were conducted over at least two rice cropping seasons per site and BMPs included site-specific nutrient management, integrated pest management, alternate wetting and drying, and drum seeder technology to reduce seed rates in direct-seeded systems. In comparison with actual farmers' practice, we assessed the sustainability performance of BMPs using farm-level Sustainable Rice Platform (SRP) performance indicators. Following the application of BMPs, mean nitrogen use efficiency, phosphorous use efficiency and profitability per season increased in all three locations, whilst yields were maintained in the Mekong delta and in C. Thailand. In Yogyakarta, the mean grain yield per season increased by 8% for the BMP treatment as compared to farmers' practice. In the Mekong delta, greenhouse gas emissions in the dry season and mean pesticide frequency per season also decreased by 39% and 57%, respectively for the BMP treated fields. These results demonstrate that the adoption of BMPs in intensive rice production areas of Southeast Asia can substantially improve the sustainability of rice production whilst maintaining or even improving yields.

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