

Entry No. IRRC-0313

Category	: International Rice Research Conference
Select Theme	: Sustainable and equitable farming systems
Endorsement email	:
Keyword 1	: Sustainable management practices
Keyword 2	: Energy efficiency
Keyword 3	: Decision support tools
Title of Entry	: What are the best practices of rice straw management for irrigated rice production? Implications of cost-benefits, energy efficiency, and environmental footprint
Presenting author	: Nguyen Van Hung
Presenting author email	: hung.nguyen@irri.org
Co author 1	: Bjoern Ole Sander
Co author 2	: James Quilty
Affiliation presenting author	: Scientist, Sustainable Impact Platform, IRRI
Affiliation 1	: Senior Scientist, Integrative Research Support Platform, IRRI
Affiliation 2	: Senior Scientist, Sustainable Impact Platform, IRRI
Select only one type of presentation	: 15 minute oral presentation
Abstract	: Rice straw management plays a critical role in rice production in terms of economics and environmental impacts. In intensive rice systems with two or three crops per year, the large amounts of rice residues produced can impede land preparation, crop establishment, and early crop growth if these are left in the field. Long-term research at the International Rice Research Institute (IRRI) in the Philippines has shown that with careful and effective crop, soil, and water management, all straw can be removed from flooded rice fields after harvest without reducing the level of soil organic matter or soil fertility. However, these studies have

not considered the various straw management practices utilized by farmers. The current study was conducted to investigate the cost-benefits, energy balance, and environmental footprint of rice production under contrasting rice straw management scenarios using a Life-Cycle Assessment approach. The analysis was conducted based on the three main scenarios: (1) spread rice straw burned in the field, (2) rice straw incorporated into the field, and (3) rice straw removed from the field. Under the third scenario, the sub-scenarios of using rice straw for mushroom, cattle feed, compost, and bioenergy productions were also investigated to illustrate the better practices among these off-field options. The on-farm experiments were conducted at IRRI from 2015 to 2017. Economic factors of the off-field rice straw value chains were analysed based on the case studies in Vietnam in 2016-2017. The study resulted in implications on the best practices and decision tree comprising of recommendations for rice straw management to mitigate the negative impacts and reduce the environmental footprint of rice production.

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