

Evidences

Study #3495

Contributing Projects:

- P1572 - IRRI Contribution to RICE Flagship Project 2

Part I: Public communications

Type: OICR: Outcome Impact Case Report

Status: On-going

Year: 2019

Title: Combine harvesting: spreading success in South East Asia

Short outcome/impact statement:

IRRI spearheaded facilitation of technology improvement and multi-sectoral collaboration through public-private partnerships. Activities involved assessment of harvesting systems and promotion of mechanized options to address labor shortage and high cost of traditional harvesting. Business models were established with special focus on marginalised groups, women and youth. Analysis of the existing harvesting system within a value chain context, harvesting and postharvest losses, identification and demonstration of mechanised options and stakeholder analysis conducted. Used Life Cycle assessment for sustainability criteria in different harvesting systems.

Outcome story for communications use:

Combine harvesters allow farmers to mechanically harvest the rice crop instead of manually harvesting it (i.e., cutting, threshing, cleaning, and bundling). Thus, one potential economic impact of this technology on rice farmers is the reduction in harvest labor required. The reduced labor requirement is especially important when labor is scarce due to out-migration of rural workers to urban areas in key times of the year (including harvest). Ryan (2007) suggests that about 50% of labor costs in Cambodia can be saved with CH, while Banks et al. (2011) suggest that harvesting costs can be reduced by 30–40% in Cambodia.

In Asian countries, observes that harvesting losses are reduced from 2–6% for manual harvesting to about 1–2% when using CH (i.e., 50–66% reduction in harvest losses). Prices of better quality rice harvested using CH were also observed to be up to 30% higher when properly dried (Gummert 2012a). Despite the higher prices and lower costs, a group of farmers (~12) investing in CH would not find CH financially viable in Cambodia (with a BCR of 0.3–0.9:1), while farmer groups investing in Vietnam would only find CH marginally viable (with BCRs of 0.5–1.9:1 in north).

Links to any communications materials relating to this outcome:

- <https://tinyurl.com/y42u6bxx>
- http://books.irri.org/RT9_3_content.pdf

Part II: CGIAR system level reporting

Link to Common Results Reporting Indicator of Policies : Yes

Policies contribution:

- 262 - The practice of 1M5R, that is One Must Do (certified seeds) Five Reductions (seed rate, fertilizer use, pesticide use, water use, postharvest losses), is promoted through Vietnam sustainable rice programs (<https://tinyurl.com/2o4f2clw>)

Stage of maturity of change reported: Stage 1

Links to the Strategic Results Framework:

Sub-IDs:

- Reduce pre- and post-harvest losses, including those caused by climate change

Is this OICR linked to some SRF 2022/2030 target?: Yes

SRF 2022/2030 targets: <Not Defined>

Description of activity / study: <Not Defined>

Geographic scope:

- Multi-national

Country(ies):

- The Socialist Republic of Viet Nam
- Indonesia
- Cambodia
- Myanmar
- Philippines

Comments: <Not Defined>

Key Contributors:

Contributing CRPs/Platforms:

- Rice - Rice

Contributing Flagships: <Not Defined>

Contributing Regional programs: <Not Defined>

Contributing external partners:

- CLAAS - CLAAS
- MAFF - Ministry of Agriculture, Forestry and Fisheries (Cambodia)
- NLU - Nong Lam University
- PhilRice - Philippine Rice Research Institute

CGIAR innovation(s) or findings that have resulted in this outcome or impact:

Methodology for assessing the evolution / trajectories of harvesting systems, field days, round tables, South-South technology transfer and capacity building

Innovations: <Not Defined>

Elaboration of Outcome/Impact Statement:

<Not Defined>

References cited:

- 1.) Gummert M., Quilty J., Nguyen-Van-Hung, Leigh V., 2018. Engineering and Management of Rice Harvesting. In Advances in Science & Engineering of Rice, Edited by: Zhongli Pan and Ragab Khir, 978-1-60595-191-1, June 2018, 690 pages, 6-9, HC book, Destech Publication. (Link)
- 2.) Gummert, M. 2016. The Introduction of Combine Harvesting in Southeast Asia: Trends, Markets, and Support needs. ACIAR International Workshop of Rice harvesting and drying in Cambodia, Nov 2-4, 2016. CARDI, Phnom Penh, Cambodia.
- 3.) Gummert, M., Phan-Hieu-Hien, Tran-Van-Khanh, Myo-Aung-Kyaw. 2013. Combine Harvesting in South and Southeast Asia: Current Status and Trends. VDI-MEG Kolloquium Mhdrescher 12./13. September 2013. University of Hohenheim, Germany.

Quantification:

Type of quantification: a) Actual counts or estimates from a particular study (please provide reference)

Number: 12000.00

Unit: Combine Harvesters

Comments: In Mekong Delta

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Gender, Youth, Capacity Development and Climate Change:

Gender relevance: 0 - Not Targeted

Youth relevance: 0 - Not Targeted

CapDev relevance: 1 - Significant

Main achievements with specific **CapDev** relevance: Harvesting module in Postproduction to Market training course, training of IRRI counterparts on combine harvesting.

Climate Change relevance: 0 - Not Targeted

Other cross-cutting dimensions: Yes

Other cross-cutting dimensions description: Income generating in the value chain support service sector through business models for combine harvesting as a service provision for farmers.

Outcome Impact Case Report link: [Study #3495](#)

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