



Auxiliary farm pond-based integrated system of rice intensification for augmenting farm income

TECHNOLOGY BRIEF

During the rainy season, there is no control over water for rainfed rice, and waterlogging in the rice field reduces the yield. It is also difficult to use any water-saving irrigation methods in the rice field during this season. To enhance the land and water productivity of rainfed rice, 10% of the SRI rice field area was converted into a refuge for harvesting rainwater; the refuge pond was used for supplementary irrigation and short-duration fish culture. In this way, the SRI field was kept moist (not flooded) during the rainy season. Rice productivity was enhanced from 2.36 to 6.22 t/ha, and water productivity was raised from ₹ 0.31 per m³ of water to ₹ 18.91 per m³ of water under the Integrated SRI (ISRI) system compared to conventionally flooded rainfed rice.

Comparing yield from rainfed conventional vs. SRI methods between drought and normal-rainfall years indicated that the latter methods are more drought-tolerant and productive. Greatly expanded and active root systems with SRI have been important contributing factors.

IMPACT / UTILITY

This technology is ready for commercialization [Agricultural Technologies: Natural Resource Management, ICAR 'Technology Ready for Commercialization' page 23]. Producing 'more crop per drop' and 'doubling incomes' for farming households can be accomplished in rainfed areas by integrating SRI rice production methods with aquaculture and horticulture. Such a strategy has great and demonstrated potential for utilizing a seasonally-abundant resource (monsoon rainfall) to raise water productivity, increase farm incomes, and provide greater food security for smallholder households who are now struggling under difficult and changing climatic conditions.

HIGHLIGHTS

- Grain yield enhanced (by 52%) under SRI as compared with conventional rainfed methods.
- Integrating aquaculture and horticulture with SRI (ISRI) increased yield and water productivity further.
- SRI methods make the rice crop more drought-tolerant and productive due to expanded and more active root systems.
- ISRI greatly raised the net income/unit of water compared with conventional rainfed rice.



Project Details

Enhancing water productivity through integrated system of rice intensification (Project Code: WTCER/08/132)

Publications

Agricultural Technologies: Natural Resource Management (ICAR), page 23
Thakur et al. (2015) *Agricultural Water Management*, 161:65-76. <http://dx.doi.org/10.1016/j.agwat.2015.07.008>



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