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"Reconcile land system changes
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Unlocking sustainable intensification: Farmer insights from Senegal's river valley

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Abstract

Rapid population growth and limited agricultural resources in sub-Saharan Africa (SSA) challenge sustainable agricultural productivity. Sustainable intensification (SI) practices offer a promising approach to improve food security and livelihoods while reducing environmental degradation. The core goal of SI is to boost productivity and efficiency within existing farmland while minimising environmental impacts. Practices like Integrated Soil Fertility Management (ISFM) and the System of Rice Intensification (SRI) show promise, but adoption remains limited due to unmet expectations, context-specific challenges, financial constraints, and perceived shortcomings.

This study explores the perceptions of small-scale farmers regarding the effects of SI practices, with a particular focus on ISFM and SRI in two regions of northern Senegal. Specifically, the study i) examines farmers perception of ISFM and SRI effects on productivity, resource use, production costs and effort, quality of life, and well-being; ii) evaluates the gap between trainings received and expected, iii) assesses effects on gender and youths, and iv) identifies reasons for dis-adoption and limited scaling.

Data was collected via a standardised questionnaire through a jotBi digital platform from 500 farmers in Podor and Dagana, in the Senegal River Valley. Responses varied across regions. Crop rotation was the most common ISFM practice in both areas, followed by crop association and organic fertilisers in Podor, and crop-livestock integration in Dagana. ISFM in Dagana is linked to higher yields, lower costs, and better quality of life, though water use remains a concern. In Podor, ISFM benefits were less apparent, with many farmers reporting no yield or quality-of-life improvements. Most farmers received minimal or no SRI training, despite expecting at least three sessions. Practices like plant replication and soil drainage are common; however, line seeding and mechanical weeding are rarely used. Youth participation in SRI is growing, though they are underrepresented in Farmers

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Field Schools. Farmers note SRI reduces women's labour but increases men's workload. Key barriers to SRI adoption include lack of equipment, trained labour, irrigation issues, and the labor-intensive nature of the practice.

These findings underscore the need for context-specific training and interventions to support broader SRI adoption in the Senegal River Valley

Keywords: Adoption and scaling, farmers' perception, integrated soil fertility management (ISFM), sustainable intensification (SRI), system of rice intensification (SRI)