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“Development on the margin”

Understanding Adoption of System Technologies in Smallholder Agriculture: the System of Rice Intensification (SRI) in Timor-Leste

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Abstract

Against the background of rising food demand, decreasing productivity growth, and environmental degradation, natural resource management technologies, such as the system of rice intensification (SRI), have been propagated, especially in a smallholder farm context. However, system technologies are often location specific and characterised by partial adoption and disadoption. Previous studies were often not able to fully explain this, because they mostly relied on farm and household level data, neglecting plot level differences that may be important. We address this limitation, using SRI adoption in Timor Leste as an example. Regression models are specified and estimated to explain farmers' decision-making processes. Participation in training programs and household labour availability increase the probability and intensity of adoption, as SRI is knowledge and labour intensive. However, many other household variables are not significant, while detailed plot level characteristics have more explanatory power. Our findings reveal that the availability of a technical irrigation system, which can be controlled individually by the farmer, is an important determinant of SRI adoption on a particular plot. Hence, the establishment of improved irrigation systems would be conducive for more widespread SRI adoption. Close proximity of a plot to the homestead, also has a positive effect on adoption, as this facilitates experimentation and monitoring. Improved rural infrastructure would help facilitate plot access and thus SRI adoption. Other plot characteristics that influence adoption include soil conductivity, loam content, and slope. The results suggest that plot level data are important to understand the adoption of system technologies. Moreover, technology adaptation to different plot conditions seems to be a precondition for widespread diffusion. For this, training programs have to be sufficiently flexible and location specific, presupposing new skills set among training and extension agents, including experience with participatory learning.

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