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Adoption of Sustainable Rice Farming Technologies: Perceptions of “one Must Do, Five Reductions” Technologies

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Abstract

Vietnam’s rice sector has been growing rapidly over the past decades due to the fast intensification of rice production. Nevertheless, this development has come with increased environmental degradation. Today, Vietnamese rice farmers face several constraints, especially regarding climate change adaptation. Therefore, the national programme ‘One Must Do, Five Reductions’ (1M5R) was introduced to mitigate the negative effects of intensive rice farming by introducing farmers to sustainable rice farming practices and technologies. The objective of this study was to determine the adoption and diffusion rate of the recommended 1M5R technologies and examine farmers’ perceptions of the technologies. Furthermore, perceived input savings and 12 dimensions of livelihood change were analysed to evaluate the different elements of economic, social, and environmental change. Data were collected by means of a digital survey questionnaire application in An Giang and Can Tho Province in the Mekong River Delta. A farmers’ perception survey was conducted in 2019 interviewing 465 farmers. Data were analysed using uni- and multivariate statistics. The findings show that most farmers adopted at least one recommended technology and that they were satisfied with it. The most highly rated benefits were “easy to apply” and “satisfies my preferences”. Most farmers had adopted the 1M5R technologies for more than 8 years on average and perceived a reduction in input use as well as beneficial livelihood changes. Nevertheless, the results demonstrate that even with a broad diffusion of 1M5R technologies, it is difficult for farmers to reduce inputs to the recommended amounts. The seed rate and fertiliser application rate remain particularly high. As a result, farmers continue to overuse inputs which negatively affects their agricultural profitability and further deteriorates natural resources. Additionally, considering the devastating effects of climate change on the Mekong River Delta, the long-term adoption of such technologies in combination with attaining the 1M5R input requirements are crucial in helping farmers in their climate change adaptation process. Therefore, extension needs to be adapted to better support farmers in attaining the 1M5R requirements through technology use, and continued research is needed to determine the effects on farmers’ socioeconomic situation and the rice agroecosystem.

Keywords: Adoption, input use, sustainable rice farming, technology perceptions, vietnam

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