SUSTAINABLE TEA PRODUCTION AT THE NORTHERN MOUTAINOUS REGION IN VIETNAM

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（ベトナム北部山岳地帯の持続可能な茶業生産）

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論　文　内　容　の　要　旨

Tea production has contributed significantly to economic development and poverty reduction in Vietnam, with thousands of rural people, still depending on it for their living. However, problems and challenges such as: low productivity, low price and quality, depending on agro-chemical inputs, land degradation, water scarcity, and climate change have hindered sustainable development of Vietnamese tea sector. For this reason, Vietnamese government is actively seeking solutions to render tea production more sustainable. This study attempts to provide an insight into how Vietnamese smallholder tea farms can reallocate resources and adjust farm practices and management towards sustainability by assessing tea farming system in the Northern mountainous region from four aspects: technical efficiency, environmental efficiency, irrigation use efficiency and profit efficiency. Translog stochastic production and profit frontier models were used to measure efficiencies and separate Tobit models were applied to investigate determinants of efficiencies.

Research results revealed that the improvement in economic, environmental, and social sustainability of the tea sector can be achieved by being more technically, environmentally, irrigation water use and profitably efficient. The mean of output and input-oriented technical efficiency were 92.29% and 82.21%, suggesting that inputs reduction strategy is superior to increasing output one, in term of sustainability improvement. All recent inputs application could be contracted by 17.79% without scarifying the current output level. Specifically, on average, comprehensive environmental efficiency of fertilizer and pesticide were found to be 69.08% and 55.94%, which imply that farmers can reduce use these environmentally detrimental inputs by 30.92% versus 44.06 % without losing output. Similarly, the mean of irrigation water use efficiency was 42.19%, indicating that the observed output can maintain with saving of irrigation water use by 57.81%. Furthermore, 82.03% of profit efficiency indicated that there a room (17.97%) to increase tea farmers ‘profit by improving technical and allocative efficiency. Socioeconomic and psychological factors such as: gender, soil and water conservation practices, agricultural income, off-farm income, access to extension services, water scarcity perception, irrigation by well water, process machineries utilization, linkage with enterprises, direct product marketing activities, and market information access had significant influence on the efficiency measures of tea production. In order to sustain the tea sector, the policies that focus on these farms and farmers’ attributes are very essential.