



FACULTY OF AGRICULTURE AND FORESTRY ENGINEERING

MASTER IN AGRICULTURAL ECONOMICS

**DETERMINANTS OF POST-HARVEST LOSSES IN RICE PRODUCTION AMONGST
SMALLHOLDER FARMERS IN LIBERIA**

BY

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Abstract

Demand for rice remains high in Liberia with low farm-level productivity arising due to Postharvest losses. Insects and rodents as well as spoiling, bruising, disease attack, spillage, contamination, and poor storage practices are major factors influencing rice yield. Rice output has continuously declined with post-harvest losses accounting for about 10 to 40%. The ability of smallholder rice farmers to improve output levels and attain sustainable yield depends on efficient postharvest operations at the farm level, and hence technical post-harvest efficiency. The study described post-harvest losses along the rice value chain, determined the effect of factors influencing post-harvest rice loss, and estimated the effect of post-harvest losses on smallholder rice farmers' Gross Margin in Liberia. A one-way ANOVA was used to describe PHL along the rice value chain, whereas a logistic regression analysis was used to determine factors influencing post-harvest rice loss among smallholder rice farmers in Liberia. The study revealed that rice farmers incurred higher post-harvest losses, particularly at the harvesting and packaging stages of the rice value chain whereas, Age, Household Size, Post-Harvest Training, Climatic Season, Storage Method, and Harvesting Techniques are potential determinants of postharvest losses in Liberia. Furthermore, Lofa, Bong, Nimba, and Grand Bassa counties incurred higher, thus reducing their gross margins. The average gross margin of post-harvest loss was LRD 3,512.475 much lower than the average gross margin without loss LRD 8,826.114. This implied a 39.79% reduction in the gross margin of smallholder rice farmers due to post-harvest loss valued over 2.8 million Liberian Dollars. The study also found birds, climatic conditions, and rodents to be major causes of postharvest rice loss. Therefore, improvement of old-age practices and the development of new technology through organized research efforts is necessary to prevent huge postharvest losses of rice to meet the demand for food. There is an intense need to reduce PHL while promoting efficient resource utilization to improve the livelihood and gross margin of smallholder rice farmers in Liberia.

Keywords: Liberia, Post-Harvest Losses, Rice, Smallholder Farmers