Hybrid Maize for Food and Feed Security in Mixed Farming Systems of Western Nepal: An *ex-ante* Assessment

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Abstract

Mixed crop-livestock farming systems are predominant in South Asia and play a vital role in meeting the food security challenges. Maize is especially important in marginal areas, where poverty is greatest. Hybrid maize technology can increase crop productivity leading to multiple benefits, especially in regions where it is used as food, feed and fodder. The study area surveyed in western Nepal is characterised by small farm sizes and a high livestock density. The present study uses a minimum data Trade-off Analysis for Multidimensional Impact Assessment (TOA-MD) approach to assess ex-ante the economic viability of hybrid maize in three districts of western Nepal. A household survey collected farming system data from 40 households growing hybrid maize and 40 matched households growing local maize varieties. The local maize household sample was obtained through propensity score matching within each district using variables from a household census. Results indicated that many farmers would benefit economically from switching from the currently prevailing local maize to hybrid maize production. Adopting farmers increased their maize yields by almost two fold despite having same land and livestock ratio among adopters and non adopters. However, the costs of production increased while switching from current practices to hybrid maize production. Based on the assumption of profit maximising farmers, the predicted adoption rate based on distribution the resulting income increases varies between 48 % and 56 % amongst the three districts. At the predicted adoption rate, farmers would improve their net farm return significantly. The overall poverty rate would decline and per capita income would increase significantly in two of the districts. The model predicts a significant improvement in concentrate feeding to livestock in one of the districts associated with hybrid maize adoption while the effects are smaller in other two districts. The results suggested that dissemination of hybrid maize technology could support the livelihoods of many smallholder farmers by providing more food and feed in mixed crop-livestock farming systems in western Nepal.

Keywords: *Ex-ante* assessment, food and feed security, hybrid maize, mixed farming systems, Nepal

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