

Determinants Affecting to Adoption of Climate Smart Agriculture Technologies in the Northern Bangladesh

Authors : Md. Rezaul Karim, Andreas Thiel

Abstract : Bangladesh is known as one of the most climate vulnerable countries in the world. Innovative technologies are always the key responses to the management of climate impacts. The objectives of this study are to determine the farmer's perception of climate variability, to compare farmers' perceptions with metrological data, and to explore the determinants that affect the likelihood of adoption of the selected Climate Smart Agricultural (CSA) technologies. Data regarding climate change perception, determinants and adoption were collected based on the household survey from stratified and randomly selected 365 farmers of the Biral sub-district under Dinajpur district in drought-prone northern Bangladesh. The likelihood of adoption of CSA technologies was analyzed following a multivariate probit model. The findings show that about 82.5% of the farmers perceived increasing temperature, and 75.1 % of farmers perceived decreasing dry season rainfall over the years, which is similarly relevant to metrological data. About 76.4.7% and 80.85% of farmers were aware of the drought tolerance crops and vermicompost, respectively; more than half of the farmers adopted these practices. Around 70.7% of farmers were aware of perching for insect control, but 46.3% of farmers adopted this practice. Although two-thirds of farmers were aware of crop diversification and pheromone trap, adoption was lower compared to the other three CSAs. Results also indicate that the likelihood of adoption of the selected CSAs is significantly influenced by different factors such as socio-economic characteristics, institutional factors and perceived technological or innovation attributes. The likelihood of adopting drought tolerance crops is affected by 11, while crop diversification and perching method by 7, pheromone trap by 9 and vermicompost by 8 determining factors. Lack of information and unavailability of input appear to be major obstacles to the non-adoption of CSA technologies. This study suggests that policy implications are necessary to promote extension services and overcome the obstacles to the non-adoption of individual CSA technologies. It further recommends that the research study should be conducted in a diverse context, nationally or globally.

Keywords : determinants, adoption, climate smart agriculture, northern Bangladesh

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