Technical Efficiency of Alternative Feeding Systems of dairy production in rural-urban interphase of Bangladesh

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ABSTRACT

Dairying in Bangladesh is highly linked with the provision of high quality animal protein and thus, is considered as a tool for increasing food security. This is also generating daily cash income and is expected to increase rural livelihoods. Within the pace of intensification process, shifting current feeding system (CFS) to alternative feeding system (AFS) is taking place. The objective of this study is to estimate the technical efficiency and factors that affect the technical efficiency of dairy farmers in the main dairy region (northern district of Sirajgonj) of the country. A stratified random sampling technique was applied for 100 dairy farmers. A pre-tested and pre-designed questionnaire was used to collect data using face-to-face questionnaire. A Stochastic Production Frontier (SFA) approach was applied for estimating the technical efficiency between CFS and AFS. The data were analyzed using Ox-Metrics software with Cobb-Douglas function. Technological gaps between the groups, and the resulting differences in productivity, were identified. Farm specific inefficiency was also estimated in order to identify the factors that affect the inefficiency at farm level. The results revealed that major actors in the milk value chain in the region is highly competitive for milk collection during lean season (farmers produce less milk), and adopt uninformed quota system during peak milk production season. The AFS shows higher technical efficiency (0.78) than CFS (0.64) due to the fact that AFS is operating their dairy farms using relatively cheaper and locally available feed ingredients. By changing the feed ingredients from purchased feed to local feeds did not make trade-off with milk productivity. The farm specific factors such as age, level of education, on-farm training and access to local feeds affect farm level inefficiency. The scale elasticity (less than 1.0) shows that both AFS and CFS has opportunity to increase the technical efficiency. This study implies that adoption of AFS would increase the efficiency of the dairy farmer, however, this increase might need to make available of other technological inputs which might need to be addressed in future study if farmers would dream to increase milk production through dairy farming and contribute to nutrition security.

Keywords: Dairy, food security, technical efficiency, current feeding system and alternative feeding system