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Socio-economic Determinants of Milk Production in Bangladesh: An Empirical Evidence on Water Use Against Water Crisis

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Abstract

Water is the most critical natural resources acknowledged in all over the world. Since in large parts of the world, including Bangladesh, it is getting difficult to meet the growing demand by mobilising more water, the discourse has turned its focus to demand effective water management. But efficient water management in milk production is constrained by farm specific factors (*e.g.* socio-economic) and external factors (*e.g.* infrastructure for water procurement). Since infrastructure problems are a matter of public body, we were specifically interested to see whether there is any effect of farm specific factors on milk production and water use. Therefore, this study empirically tested the influence of socio-economic factors on milk production and water use in dairy production systems in Bangladesh. The cross sectional data set collected from 220 sample dairy farms covering three regions and three dairy production systems was submitted to two-stage regression analysis. In the first stage, a general linear regression model was used to explore the factors that influence milk production and water use intensity (as defined by low, medium and high intensity), in the second stage, water use intensity was regressed by using multinomial logit regression model to identify underlying socio-economic determinants in water use intensity. The results indicated that age of farmer, experience and training significantly influence milk production. As level of water use intensity increases from low to high, milk production increases by 60 %, which indicates the need to use more water in dairy farms. Therefore, it is of great interest to investigate which factors determine the water use intensity. The multinomial-logit regression model revealed that a high level of water use intensity in relation to a low level was significantly and positively influenced by farm size and ownership of the farm, while age and experience of the farmers significantly influenced medium level of water use intensity compared to low level. It is concluded that increasing farm size (*i.e.* utilising economies of scale) and gaining experience would particularly be helpful to improve the management of water resources in view of high water scarcity in Bangladesh.

Keywords: Bangladesh, milk production, socio-economic factors, water shortage, water use intensity