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## Assessing Economic Efficiency of Milk Production among Small-scale Dairy Farmers in Mukurweini, Nyeri County, Kenya

FLORENCE MAINA<sup>1</sup>, JOHN MBURU<sup>2</sup>, GEORGE GITAU<sup>3</sup>

<sup>1</sup> *University of Nairobi, Department of Agricultural Economics, Kenya*

<sup>2</sup> *University of Nairobi, Dept. of Agricultural Economics, Kenya*

<sup>3</sup> *University of Nairobi, Department of Clinical Studies,*

### Abstract

This study aimed at evaluating the economic efficiency of milk production among small-scale dairy farmers in Mukurweini, Nyeri County, Kenya. Data was collected in 2017 from 91 small-scale dairy farmers who had previously engaged in a nutritional study in the year 2013. The farmers had been selected using purposive sampling technique. Data was collected using structured questionnaires, entered into SPSS and cleaned. Stochastic frontier production and cost functions were analysed using maximum likelihood estimates (MLE) technique in FRONTIER 4.1. The results showed that the farmers were operating at increasing returns to scale of 1.495. The results also indicated presence of both technical and allocative inefficiencies as the gamma was significant in both cases. The number of lactating cows, amount of concentrates fed to a cow and the cost of animal health were the factors with significant effect on milk production while the production cost was influenced by the costs of fodder, concentrates, animal health and other operating expenses. The mean technical and allocative scores were 0.687 and 0.913. The milk production can be increased by 31.3% through proper utilisation of the available resources while the cost of production can be decreased by 8.7% without affecting the output. It was concluded that through the efficient use of the available inputs and technology, economic efficiency as well as milk production would be greatly increased. The study recommends subsidised prices for the concentrates and encouragement of the farmers to store enough fodder to cater for the dry spells as well as growing of all seasons fodder crops.

**Keywords:** Allocative, economic, efficiency, milk production, stochastic frontier, technical