

Abstract

The purpose of this study was to analyze the economics of smallholder dairy production in Kiambu District, Kenya. As high potential agricultural land sizes diminish in Kenya, it is critical that farmers attain high levels of economic efficiency to contribute to household food security and to overall national development. The specific objectives were to "test for both allocative efficiency among dairy farmers and relative economic efficiency" between large and small dairy farms categorized by herd size of the milking cows. It was anticipated that the results from this study would have policy implications permeating both the micro- and macro-economic levels. Data were obtained from randomly selected dairy farms in Kiambu. Two stage stratified random sampling technique was used to select the farms to participate. The first stage involved the random selection of 6 of the 14 dairy societies in the district. The second stage included randomly selecting 15 dairy farms from each selected dairy society list, giving a total of 90 farms. A Cobb-Douglas form of production function model was fitted on 57 farms with complete data, using the major inputs the dairy farmers were using after other functional forms were tested and found unsuitable. Results indicated that concentrates and hired labour were positively and statistically significant (5%) in influencing milk yields while forage was negatively and statistically significant (1%) in influencing milk yields. The latter was an unexpected sign for the variable and could only be attributed to either its poor quality or measurement problems. Operating capital positively and significantly (10%) influenced milk yields. A test for efficiency of resource allocation showed that concentrates were being allocated inefficiently (below optimal level) while there was efficiency in the use of operating capital, hired labour, family labour and by-products. An important conclusion from these results is that substantial increases in milk yields and farm profits could be realized from increasing the levels of use of concentrates above the levels presently being fed. It is recommended that: (1) farmers be educated on the benefits of increasing the current level of concentrate feeding to their animals; (2) ways be found of removing constraints, such as lack of credit and inadequate feed supply, currently affecting the accessibility to concentrates by farmers and (3) preservation technologies be taught to farmers so that they manage fodder and other excess feeds more efficiently to feed their animals during times of scarcity. Profit function analysis showed that small and large farms had equal economic efficiency. The regression coefficients for concentrates and operating capital were both positively and significantly influencing farm profits at 1%. The rest of the variables included in the model were not significant at 5%. The main

conclusion from this finding is that small and large farms have equal economic efficiency. Therefore, the results of this study confirm that there are no significant differences between small and large farms (categorized by herd size criterion). Since the majority of these farms were actually smallholders by acreage criterion, they belonged to the same population and, therefore, the confirmation of equal economic efficiency in dairy production. Given the above results, the main strategy to increase productivity should be geared towards facilitating intensification of land use patterns by ensuring farmers have access to land-saving technologies (e.g. zero grazing and irrigation) in a diminishing land size situation and appropriate information to make profitable use of such technologies.