

THE DOMINANT ROLE OF HERD SIZE IN DETERMINING MILK YIELD ON DAIRY FARMS IN NORTHERN SRI LANKA

E. Hemanivashini, S. Piratheepan, T. Sansiya*

Faculty of Agriculture, University of Jaffna, Sri Lanka.

**Correspondence E-mail: sansiyathurai@gmail.com, TP: +94773283779*

Abstract: Nowadays, improving Dairy farming systems faces greater challenges and difficulties in tropical countries compare to temperate countries. In this present study investigate the determinants of milk yield on the dairy farming systems, with the objective of evaluating the relevance of conventional dairy development approaches under local production condition in the Kilinochchi District of the Northern Province, Sri Lanka. A cross-sectional survey was conducted among 66 dairy farms, which were comparatively assessed based on herd size, management system, housing conditions, seasonal management practices, reproductive technology adoption, and disease occurrence. The data set were analysed by using the multiple regression to identify the milk yield as an independent variable one-way ANOVA to compare production across management-related groups, and chi-square tests to examine associations between farm characteristics and disease prevalence. The analysis identified herd size as the highly significant with milk yield ($\beta = 0.42$, $p = 0.001$), accounting for 31.2% of the observed variation in production. In contrast, management system showed no significant effect on milk yield ($F = 2.532$, $p = 0.087$) or disease prevalence ($\chi^2 = 4.881$, $p = 0.087$). Disease prevalence was high, affecting 63.6% farms in Kilinochchi district. However, no significant associations were observed with housing type, seasonal variation, or stocking density. Adaptation for Artificial insemination in Kilinochchi district was relatively high (60.6%), these results indicating a gap between technology adoption and effective utilisation. This study findings give that, structural scale in Kilinochchi farms, represented by herd size, plays a more decisive role in dairy productivity than farm-level management practices. These findings highlight the need for future dairy development strategies to improve management, locally adapted feeding, upgrading practices suitable for the conditions of Northern in Sri Lanka that would be necessary to improve productivity of dairy farms.

Keywords: Dairy Production; Herd size; Kilinochchi; Management system; Milk yield