

ECONOMIC FEASIBILITY OF INTEGRATING CATTLE AND WATER BUFFALO INTO UNDERUTILIZED PASTURES UNDER COCONUT CULTIVATIONS IN NORTHWESTERN PROVINCE IN SRI LANKA

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This study aimed to explore the economic feasibility of integrating cattle and water buffalo, with underutilized coconut pastures in Northwestern province of Sri Lanka. To achieve this objective, average dry matter yields of pastures were collected as secondary data, while economic data were gathered through survey methods. A 10-year economic feasibility analysis, including benefit-cost analysis, was carried out based on average dry matter yields of pastures from *Bandirippuwa* and *Makandura* estates, respective carrying capacities, and related production and economic data. The economic feasibility of integrated systems was assessed using net present value (NPV) and benefit-cost ratio (BCR). Carrying capacity assessments revealed that 2.2 ha of natural pasture and 0.8 ha of improved pasture were needed per cattle, while buffaloes required 4.3 ha and 1.6 ha of natural and improved (*Brachiaria* spp.) respectively. A 5.5 ha of natural pasture were required for a cattle herd consisting of one cow and one calf, while 2.1 ha were needed with improved pasture. Similarly, a buffalo herd consisting of one cow and one calf necessitated 10 ha and 3.8 ha of natural and improved pasture, respectively. The cattle-coconut natural and improved pasture integrated systems showed BCRs of 0.47 and 1.47, with NPVs of 2.5 and 4.9 million rupees per ha, respectively. A BCR of 0.21 and a NPV of 1.8 million rupees per ha were shown for the buffalo-coconut-natural pasture integrated system. In comparison, a higher BCR of 0.71 and a NPV of 2.5 million rupees per ha were shown by the buffalo-coconut-improved pasture integrated system. The analysis of NPV and BCR showed that cattle integration with improved pastures had the highest values, while natural pastures yielded the lowest ratios. The results showed that integrating cattle with improved pastures was the most profitable and economically feasible option due to higher productivity.

Keywords: Discount rate, Economic indicators, Improved pastures, Integrated systems, Productivity