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Economic evaluation of sheep production systems in the west bank: impacts on milk and lamb yield efficiency

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Abstract

Sheep production systems in the West Bank exhibit considerable variation in performance depending on management style, including intensive, semi-intensive, and pastoral systems, with productivity strongly influenced by breed selection, feeding strategies, and resource utilisation. This study evaluated the impact of these production systems on milk yield and lamb production by collecting data from 351 sheep farms during the 2014–2015 production season, focusing on three breeds: Assaf, Awassi, and crossbred sheep. The findings demonstrated that Assaf sheep managed under intensive systems achieved the highest productivity, averaging 1.74 lambs sold per ewe, 157 kg of milk per year, a lambing interval of 243 days, and a mortality rate of 0.15, resulting in a net revenue of $427.80 per ewe. In comparison, Awassi sheep within the same system exhibited lower productivity metrics, producing an average of 1.05 lambs sold per ewe, 113 kg of milk per year, and net revenue of $148.20 per ewe. Cost-benefit analysis revealed that intensive systems incurred total annual costs of $314 per Assaf ewe, whereas Awassi sheep in pastoral systems experienced lower costs of $199 per ewe, highlighting the trade-offs between production efficiency and operational expenses. These results emphasise the critical importance of implementing optimised feeding and management strategies alongside strategic breed selection to enhance both productivity and economic returns. Furthermore, the study demonstrates that key performance metrics such as lambing rate, milk yield, and mortality can serve as effective indicators for identifying more productive and efficient breeds, thereby supporting the sustainability, profitability, and resilience of sheep farming in the region. Overall, the study provides valuable insights for policymakers, farmers, and extension services seeking to improve sheep production outcomes in semi-arid environments

Keywords: Assaf Breed, Net Revenue, sheep Production Systems

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