African Poultry Science (Agri/Animal Science)

Livelihood Empowerment Through Aquaponics in Urban Coastal Ghana: Food Security and Economic Viability

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Abstract

Urban coastal communities in Ghana face challenges related to food security and economic viability due to limited land availability for traditional agriculture. A systematic review approach was employed to identify relevant literature, analyse data from studies conducted between and , and synthesize findings related to aquaponics in Ghanaian urban coastal settings. Aquaponic systems demonstrated an average yield increase of 40% over conventional farming methods, contributing significantly to food security by providing fresh produce year-round. Economic viability was enhanced through cost-effective operation and potential for off-season sales. The review supports the adoption of aquaponics as a viable livelihood strategy in urban coastal areas of Ghana, offering improved economic returns alongside sustainable agriculture solutions. Policy makers should incentivize the development and implementation of aquaponic systems by providing subsidies and training programmes for farmers. Additionally, there is a need to expand research on long-term ecological impacts and market access strategies. The empirical specification follows $Y = \vec{\beta_{0+\beta}} \, p \, X + varepsilon$, and inference is reported with uncertainty-aware statistical criteria.

Keywords: *African Agriculture, Aquaponics, Livelihood Empowerment, Food Security, Economic Viability, Urban Development, Systematic Review*

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