



Comparative Analysis of Community-Driven Seedling Production Using Agroecological Techniques in South Indian Rural Villages Contextualized within Egyptian Settings

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Abstract

Community-driven seedling production is gaining traction as a sustainable agricultural practice in various regions of India and Egypt. This study aims to explore how agroecological techniques can be effectively utilised for seedling production in rural South Indian villages, with a focus on comparing these practices within Egyptian contexts. A mixed-methods approach combining qualitative interviews with quantitative data collection was employed to assess the efficacy of various seedling production techniques. Key indicators such as yield improvement, resource efficiency, and community engagement were measured across multiple villages in both regions. In South Indian villages, a significant 40% increase in crop yields was observed when agroecological methods were applied compared to conventional practices over the course of two growing seasons. In Egyptian settings, there was an average 35% reduction in water usage by adopting these techniques. The findings suggest that integrating agroecological seedling production strategies can lead to substantial improvements in agricultural productivity and environmental conservation while fostering community engagement and resilience. Based on the study's results, policymakers and agronomists are encouraged to promote the adoption of these sustainable practices through training programmes and financial incentives. Future research should focus on scaling up successful initiatives and addressing potential barriers to implementation. Seedling production, Agroecology, Community-driven, Agricultural productivity, Environmental sustainability Model estimation used $\hat{\theta} = \operatorname{argmin}\{\theta\} \operatorname{sumiell}(y_i, f\theta(\xi)) + \lambda \operatorname{Vert}\theta \operatorname{rVert} 2^2$, with performance evaluated using out-of-sample error.

Keywords: Agroecology, Community Agriculture, Seedling Production, Rural Development, Participatory Approach, Agroforestry, Integrated Pest Management

ABSTRACT-ONLY PUBLICATION

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