

Comparative economic analysis of polyhouse and open field method of vegetable production in Sudurpashchim Province, Nepal

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Introduction

Climate-resilient agriculture (CRA) techniques help in adaption to climate change, reduce or eliminate greenhouse gas emissions wherever possible, and help to increase agricultural productivity and income in a sustainable way (Reddy, 2015). CRA practices like polyhouse makes farming more absorptive, adaptive, and renovative from the effects of adverse changes in the climate (Sain et al., 2017). The open-field cultivation of vegetables growing has become more challenging during rainy and winter seasons. As a result, many farmers are constructing plastic houses to protect plants from rain (Kafle & Shrestha, 2017) either with their own investment or with support from various governmental and non-governmental organizations.

Research questions

- What is the differences in cost of production in polyhouse and open field method of vegetable production?
- How does polyhouse method of vegetable production affect return and profitability compared to the open field method?

Methodology

Study area: Doti, Bajura and Kailali

Data collection: Households survey, group discussion and field observation

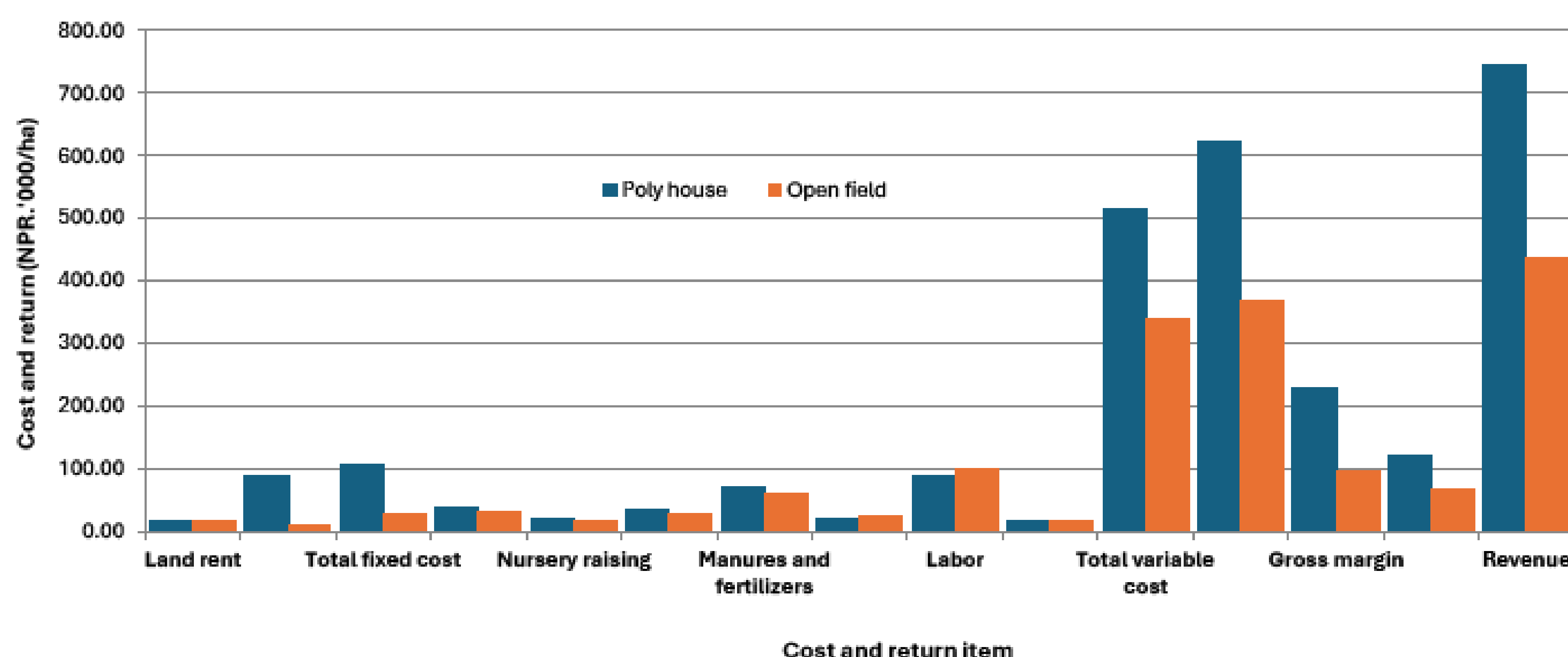
Sampling: Simple random sampling

Data analysis: Descriptive statistics, comparison of variable, fixed and total cost, gross and net margin analysis, benefit cost ratio

Key findings

- Major vegetable crops grown in the study areas were cauliflower, cabbage, coriander, tomato, cucumber and leafy vegetables
- Polyhouse system of vegetable production is adopted by about one-fifth of farmers and the average dimension of polytunnel is 11*5 sq. meter, and it costs about NPR. 45000 for a tunnel with local materials and NPR. 62500 for a tunnel with iron frame.
- Most polyhouses are equipped with drip irrigation and mulching (mostly plastic), and farmers produce organic vegetables with an average cropping intensity of 250%.
- Benefit cost ratio of vegetable production inside polyhouse was 1.83 and for open field method it was 1.39, with gross margin of NPR. 744160 and 435135 and total cost of NPR 623256 and 367691 on per ha basis, respectively for poly house and open field method.

Benefit-cost analysis of polyhouse and open field method of vegetable production



Conclusion

- Cost of production of vegetable in polyhouse method is expensive due to higher initial investment for tunnel construction and drip irrigation structure establishment. However, the additional returns from poly house method sufficiently covers the cost of production making

polyhouse method more profitable as compared to open field method of vegetable production.

- Support programmes should focus on training farmers to make the polyhouse structure with locally available materials, capacity building for establishment, repair and maintenance of drip irrigation system, mulching, bio-pesticide preparation, and awareness creation for commercial production.

