

Assessing labor and economic performances of coffee- and pepper-based cropping systems in Vietnam

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Rationale:

Robusta coffee (*Coffea canephora*) and black pepper (*Piper nigrum*) are important cash crops grown in the Central Highlands (CH) of Vietnam, covering 710 and 270 thousand ha, respectively, and crucial to the livelihoods of CH's farmers (General Statistics Office 2022). Recently, farmers have begun diversifying their cropping systems. As a result, various systems can now be observed in the CH, ranging from monocultures to diversified cropping systems with coffee, pepper, and fruit trees. However, diversification impacts farmers' production costs and labor requirements (Phan et al. 2019). To better understand these impacts, the present study introduces early findings of a survey on labor and economic performances in CH's coffee-pepper-fruit tree systems.

Methods:

As part of the ACIAR-funded V-Scope project, a socioeconomic survey on 239 households in Dak Lak, Dak Nong, and Gia Lai provinces was conducted using stratified sampling to study labor and economic performances of coffee-pepper-fruit tree cropping systems at the plot level. Plots were categorized into six groups based on crop dominance: coffee or pepper monocultures², diversified plots dominated by coffee or pepper or fruit trees³, and most diversified plots without a single dominant tree crop¹.

Results:

Early findings show significant differences in total labor demands, measured in man-days/ha: coffee systems require the least labor (147-148 man-days), followed by fruit-dominated and most diversified systems (183-195 man-days). In contrast, pepper systems display the highest labor demand (232-239 man-days). Harvesting is the most labor-intensive task, from 35% up to 68% of the total labor in coffee and pepper monoculture, respectively. Associated gross margins range from 77.8 (pepper monocultures) to 112.7 million VND/ha (coffee diversified). Family labor stands for 36 to 57% of total labor, while hired labor can represent up to 61% of the total labor (pepper monocultures). Finally, variations in return to labor are found, ranging from 0.48 (pepper monocultures) up to 0.92 million VND/day (coffee systems).

Conclusions & Perspectives:

As labor requirements emerge as a key factor in explaining farmers' decision-making, this research presents labor dynamics and overall profitability of coffee- and pepper-led cropping systems in the CH. Given the inherent volatility of commodity prices and the potential for shifts in labor wages, the profitability of these labor-intensive systems could be significantly affected. The results seek to provide valuable insights for optimizing agricultural practices and enhancing the efficiency and sustainability of smallholder coffee- and pepper-based farming systems.

References:

1. General Statistics Office (2022) Socio-economic situation report in the fourth quarter and 2022. Ministry of Planning and Investment of the Socialist Republic of Vietnam.
2. Phan TT, Le DN, Ho TMH, et al (2019) Economic analysis of perennial crop systems in Dak Lak Province, Vietnam. Sustainability 11:81.