



Tropentag, September 20-22, 2023, hybrid conference
“Competing pathways for equitable food systems transformation:
Trade-offs and synergies”

Linking seed accessibility to nutrition using structural equation modelling approach: The case of ethnic minority in northern Vietnam

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Abstract

Ethnic minorities in Vietnam face chronic under-nutrition issues, potentially worsening the situation due to the COVID-19 pandemic. Agriculture offers a logical entry point to offer the vulnerable groups a diversified diet to cope with micronutrient deficiency. Therefore, numerous studies have explored the linkages between crop diversification to diet. However, the role of seed accessibility in the framework has not yet been studied, even though it is the prerequisite of any agriculture farming system. This study investigates how seed accessibility links to diet diversity via two key pathways, from direct consumption of farm-level crop diversity or market purchase. We covered crop diversity, output, food market access, and women’s time use as the mediators in the framework. Our study sites were two districts Sapa and Mai Son, located in Northern Vietnam, which differ in physio-climatic conditions. We used data from 600 farmer surveys, 38 community surveys, and 54 seed vendor surveys which were collected from December 2021 to July 2022. We focused on vegetables and legumes, especially three nutrition-sensitive food groups: dark green leafy vegetables, legumes, and other vitamin A-rich vegetables. Crop diversity and diet diversity were measured by the number of key food groups grown or consumed. Diet diversity data were collected by 24h and 7-day diet recall methods. Women’s time use was time and activity diary in the past 24h. Seed accessibility was an index measured at the community level, which indicates the distance from the village to all seed sources available in the district, seed types diversity available in the source, and average perceived quality. The seed sources include self-saving and the seed subsidy programme in the region. Data were analysed through the structural equation modelling method (SEM). Preliminary findings found that seed accessibility does not significantly link with crop diversity. However, crop diversity closely links with diet diversity through the subsistence pathway. Women’s time use is the mediator in the framework, which associates with both crop and diet. The framework is highly contextually dependent as it only works in Sapa but not in Mai Son.

Keywords: Crop diversity, diet diversity, ethnic minority, seed accessibility