

### 4th International Conference on NUTRACEUTICALS AND FOOD SCIENCE

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# TITLE: STRENGTHENING CLIMATE RESILIENCE IN COFFEE PRODUCTION IN CHIENG CHUNG COMMUNE, MAI SON DISTRICT, SON LA PROVINCE

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#### **ABSTRACT** (up to 300 words)

Intercropping coffee trees with other crops or forest trees has been proven to enhance and stabilize the agroecosystem and reduce the adverse effects of climate change. However, studies on drawbacks and resilience level of intercropping compared to monoculture are limited, and research on the socio-economic aspects of this method is scarce. The research was carried out in Chieng Chung commune, Mai Son district, Son La province. A set of climate resilience indicators divided into five main dimensions, including social, economic, financial, environmental, and institutional, was developed. The climate resilience level of these households cultivating coffee in three agro-systems, namely, monocropping (18 farmers), intercropping with fruit trees (38 farmers) and intercropping with both fruit and forest trees (11 farmers), were assessed. All three coffee farming models in Chieng Chung commune had medium resilience level. The income generated from growing coffee trees in intercropping with fruit and forest trees is 12.845 kg/ha, which is 7% more than growing them with fruit trees, and almost 20% more than the income obtained through monocropping. However, no income was generated from forest trees yet, and fruit trees usually have low revenue due to poor yields and low selling values.

The investment costs of intercropping methods around 58 million VND/ha, monocropping required lower investment costs, almost 47 million VND/ha. Farmers cited higher costs associated with intercropping due to increased fertilizer application and pesticide spraying. In addition, the training course on intercropping techniques are not as popular, particularly among those who practice monocropping, which accounts for only 29% of total monocropping farmers. Coffee monocropping and intercropping with fruit trees face moderate to severe challenges due to dry and acidic soil, pests, and diseases. In contrast, intercropped coffee trees with both fruit and forest trees face less difficulty. All coffee farmers are affected by frost, and drought is a considerable threat to 94% of monocropping coffee farmers, while intercropping methods are less susceptible, only 45% of farmers intercropping with fruit and forest trees and 58% farmers intercropping with fruit tree and are affected. Overall, understanding the limitations of intercropping coffee farming in Chieng Chung commune can help identify solutions to tackle social, economic, and environmental challenges, enabling farmers to build more resilient systems, taking advantage of the benefits of intercropping practices to promote sustainable livelihoods over the long term.





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#### **BIOGRAPHY** (up to 200 words)

Nguyen Thao Ly holds a Master's degree in Climate Change and Development from the Viet Nam – Japan University. She currently serves as a Project Officer at Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH in Viet Nam, focusing on sustainable and climateresilient coffee production. Her work involves collaborating with stakeholders to implement initiatives that promote long-term viability and resilience in the coffee industry. Nguyen Thao Ly's expertise and dedication contribute to the adoption of sustainable practices and the improvement of livelihoods for coffee farmers in Viet Nam.

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