

Healthy planet, healthy people: Nature-positive contributions to food and nutrition security in Viet Nam



INITIATIVE ON
Nature-Positive
Solutions

By embracing nature-positive solutions, Viet Nam can pave the way for a sustainable, inclusive, and food-secure future.

Sedi Anne Boukaka, Carlo Azzarri, Kristin Davis, The Anh Dao, and Dang Toan Vu

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Introduction

The Asia-Pacific region houses 52% of the world's 767.9 million undernourished people. Although the prevalence of undernourishment in Viet Nam nearly halved from 2000 to 2019, progress slowed due to climate change, conflict, and other factors. Some 5.1 million people, or 5.2% of the population in Viet Nam are undernourished (FAO 2021). In rural areas, particularly among ethnic groups, these rates are higher. For instance, household food insecurity in rural districts in the Vietnamese Mekong Delta prevalence was 34.4% and 48.4% in the last month and last year, respectively (Vuong et al. 2022). The rates of stunting and underweight among children aged under five in ethnic groups in Viet Nam remain at 31.4% and 21% respectively, according to the National Institute of Nutrition (2023).

Toward the other extreme, incidences of being overweight and obesity is increasing in Viet Nam; numbers increased from 8.5% in 2010 to 19% in 2020 for children, and the rate of overweight and obesity among adults was 19% by 2020 (National Institute of Nutrition 2023).

To address these issues of healthy diets in Viet Nam, it is crucial to transform the agrifood system to be efficient, inclusive, resilient, and sustainable (FAO, UNICEF, WFP and WHO 2023). Transformation means that Viet Nam can produce sufficient nutritious food without damaging the natural environment upon which agriculture depends and does so in an equitable way.

Understanding nature-positive solutions

Nature-positive (N+) solutions encompass a variety of agricultural practices that support local food production and inclusive livelihoods while contributing positively to nature. These practices include agroforestry, organic farming, conservation, restoration, and sustainable seed systems. By enhancing biodiversity and environmental health, improving soil health, and reducing reliance on chemical inputs, those practices foster more resilient agricultural systems and reduce risk of crop failures. They promote diverse cropping systems that cultivate nutrient-rich crops, reduce pesticide and synthetic fertilizer use,

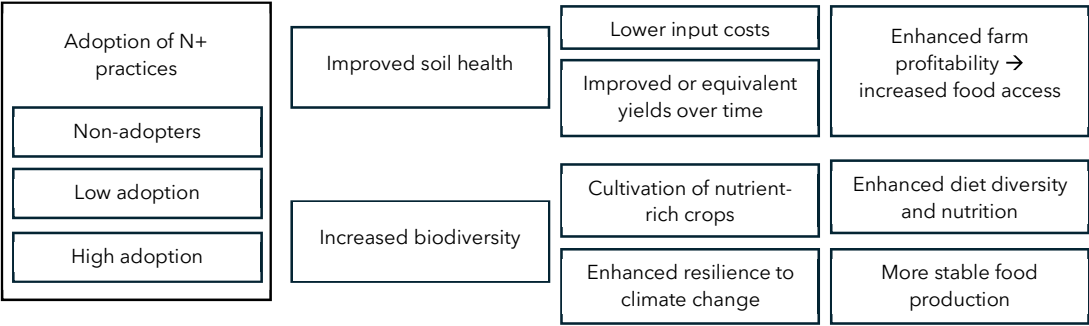
and lead to healthier, more diverse diets. Improved soil health and lower input costs boost farm profitability, increasing household income and food access.

Additionally, N+ practices help combat climate change by improving soil health, water retention, and biodiversity, ensuring stable food production. These practices also enhance ecosystem services like pollination and pest control, supporting consistent agricultural productivity. While N+ practices may initially lower yields, they should lead to long-term yield improvements, enhancing food availability over time.

Adoption of N+ practices, biodiversity, and food security

A recent study exploring the contribution of nature-positive solutions and practices to food security in Viet Nam reveals that adopting N+ practices can significantly improve food quality and stabilize food production. Using cross sectional data derived from the NATURE+ baseline survey involving 1,200 households and conducted across 23 villages in the districts of Sa Pa and Mai Son between May and July 2023, the study finds that the intensity of adoption of N+ practices is positively associated with several key outcomes related to food security. In particular, high levels of adoption are associated with increased crop diversity and improved living standards. Additionally, the study shows a significant positive correlation between adoption intensity and nutritional intake, evidenced by higher average calorie intake and enhanced macronutrient consumption. Figure 1 illustrates the relationship between the adoption intensity of N+ practices and various dimensions of food security.

Figure 1. Nexus between intensity of adoption of N+ practices and food security

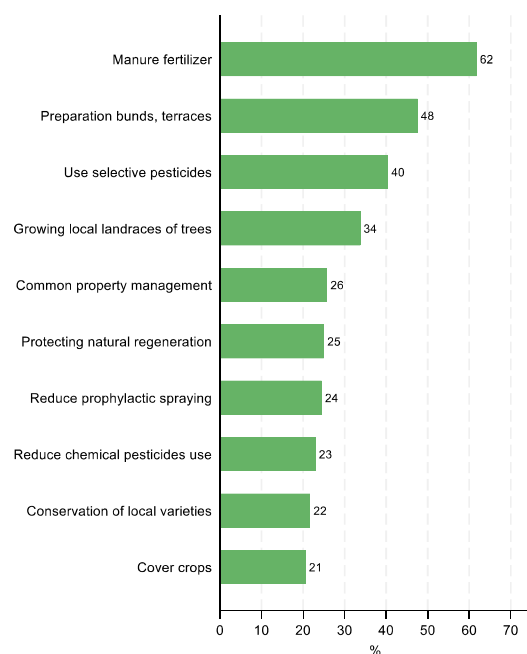


Adoption of nature-positive practices in Viet Nam

Figure 2 depicts the self-reported adoption rates of the top 10 N+ practices in our sample. We observe that 80% of the sample uses at least one nature-positive solution. Among those, applying manure is the most widely adopted. Unsurprisingly, construction of bunds, terraces, and other structural soil conservation methods are also prevalent, given the mountainous areas of Sa Pa that require more intensive soil conservation efforts. Moreover, the use of selective pesticides, the reduction of prophylactic spraying, and the reduction of chemical pesticides use are among the top N+ practices adopted by farmers. Indeed, selective pesticides are those that are designed to target specific pests, minimizing harm to other insects, including pollinators, and reducing the overall environmental impact. Their increased use can be a response to the growing awareness of the negative effects of broad-spectrum pesticides, which can lead to a decline in biodiversity and disrupt ecosystems. By adopting selective pesticides, farmers in Viet Nam can continue to protect their crops from pests while potentially mitigating some of the negative environmental impacts associated with pesticide use. The reduction of prophylactic spraying reflects a shift toward more integrated pest management practices. The high ranking of those practices suggests an increased adoption of more sustainable farming methods. This shift could be influenced by several factors, including the recognition of the long-term soil and water degradation that can result from heavy chemical

use. By incorporating these N+ practices, farmers are likely aiming to balance their productivity imperatives with the need to preserve the environmental health of their farmlands.

Figure 2. Adoption of N+ practices in Viet Nam (Top 10)

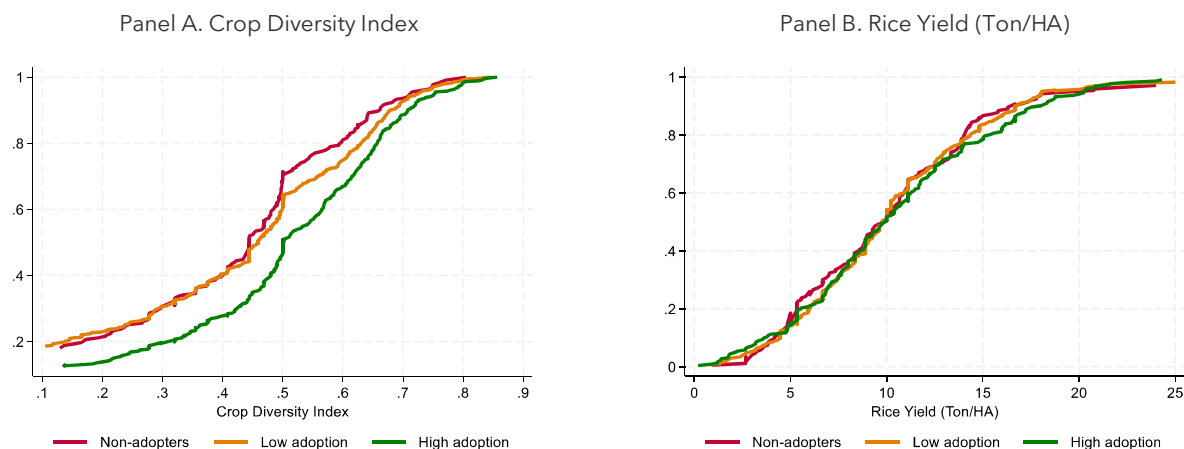


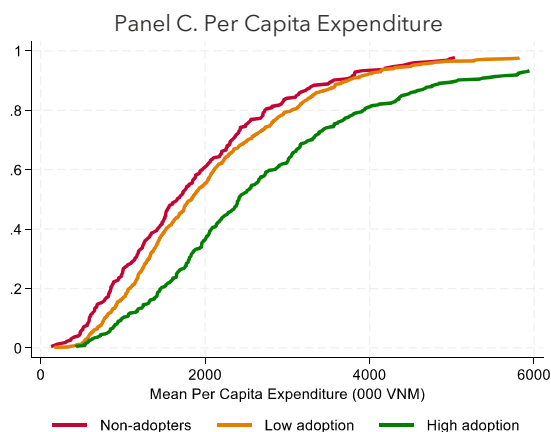
Can N+ practices enhance productivity sustainably?

The study classified households into three groups based on their adoption intensity of N+ practices: non-adopters, representing 20% of the sample; low adopters (1-5 practices) representing 49% of the sample; and high adopters (more than 5 practices) representing the remaining 31% of the sample.

Based on this classification we first compare the cumulative distribution functions (CDFs) of the three groups along different indicators related to biodiversity, agricultural productivity, and living standards. If one CDF consistently lies to the right of another, it indicates that the group performs better on this specific indicator. Figure 3 shows the CDFs of the three adoption groups for crop diversity index (Panel A), rice yield (Panel B), and per capita expenditure (Panel C).

Figure 3. Empirical cumulative distribution functions (ECDF); selection of indicators





These CDFs indicate that higher adoption intensity of N+ practices is associated with several positive outcomes:

- Increased crop diversity
- Enhanced living standards
- No significant differences in yields

This suggests that N+ practices can enhance agricultural productivity while avoiding environmentally unsustainable inputs. Specifically, higher adoption of N+ practices is associated with increased crop diversity, contributing to improved biodiversity and nutrition. Additionally, these practices are linked to enhanced living standards, which facilitate better access to food.

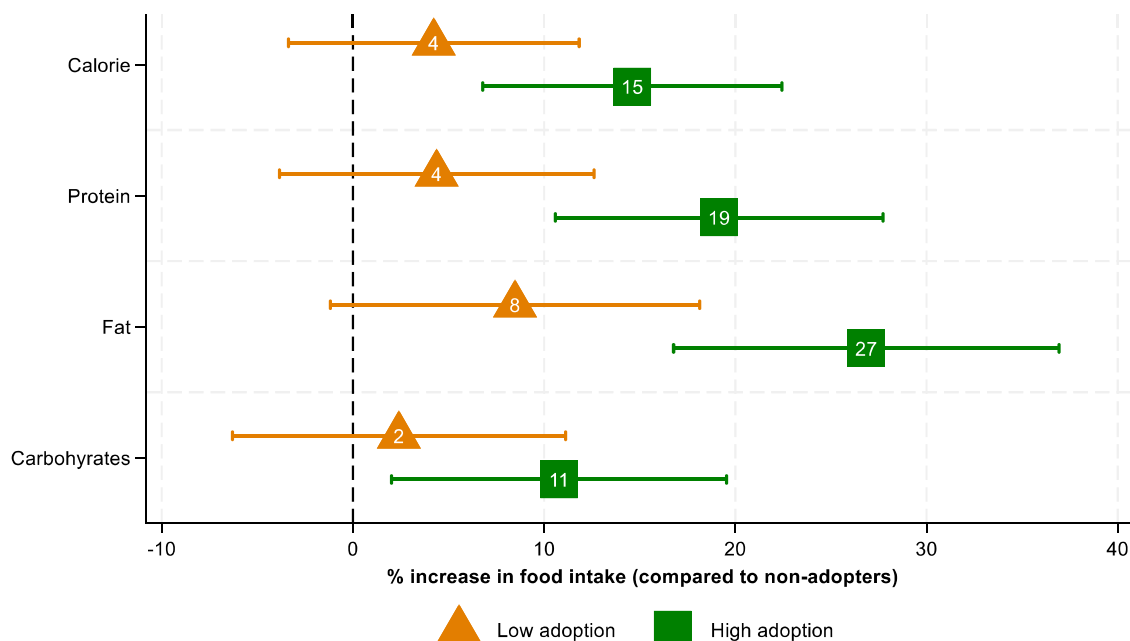
Importantly, this increase in N+ practices adoption does not come at the cost of yields, indicating that nature-positive solutions could offer a viable and sustainable approach to achieving agricultural productivity and food security.

While compelling, the observed associations do not imply causality because external socio-economic or environmental conditions could influence both adoption decisions and agricultural outcomes.

To what extent do N+ practices affect nutritional intakes?

To establish a clearer correlation, the study attempts to account for other factors that might influence both the adoption of N+ practices and the outcomes of interest using regression analysis. Figure 4 reports regression results expressed as the percentage increase in food intake among the low-adoption and high-adoption groups compared to non-adopters. It shows that high adopters exhibit significant and positive coefficients for calorie, protein, and fat intake. In summary, our initial analysis shows a significant positive correlation between adoption intensity and both calorie and macronutrient intake.

Figure 4. Percentage increase in food intake of low-adoption and high-adoption groups (compared to non-adopters)



Note: results of the ordinary least squares regression with covariates: commune of residence, number of male and female household members, gender, age, years of education and employment status of the household head, dependency ratio, number of tropical livestock units owned, total farm size.

Conclusion and policy implications

The *National Action Plan on Food Systems Transformation in Vietnam towards Transparency, Responsibility, and Sustainability by 2030* aims to ensure national food and nutrition security (Socialist Republic of Viet Nam 2023). Nutrition-sensitive agriculture programs in disadvantaged areas, mountainous areas, and ethnic minorities are one element of this plan.

At the same time, the government is committed to promoting a sustainable and inclusive agricultural and rural sector through ecological agriculture, promoting a green and carbon neutral economy. This includes the National Strategy on Biodiversity to 2030, vision to 2050 (Ministry of Natural Resources and Environment 2022) and the National Strategy on Green Growth 021-30.

These goals are mutually reinforcing, as the NATURE+ research has shown. N+ practices are positively associated with several key outcomes related to food and nutrition security. The adoption of nature-positive solutions presents a transformative opportunity for Viet Nam to improve food security and healthy diets while promoting environmental health and biodiversity. High adoption levels are correlated with increased crop diversity, improved living standards, and better nutritional intake, making nature-positive solutions a viable strategy for addressing food security challenges and promoting a healthy diet. From our data, it appears that farmers are already taking steps to implement more sustainable farming methods

The government should therefore:

- Provide incentives to smallholder farmers for the conservation of nature, including soil, water, and genetic resources (biodiversity)
- Ensure quality and standards of biofertilizers, biopesticides and organic agriculture
- Support agricultural extension's efforts to train farmers on nature-positive production
- Educate farmers and intermediaries on the benefits of a healthy diet and links to nature-positive farming
- Promote local foods and markets and inclusive value chains
- Intensify these efforts in the disadvantaged mountainous areas and among ethnic groups
- Support research and data collection on the nexus between human and environmental health.

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Sedi Anne Boukaka, Research Coordinator, s.boukaka@cgiar.org

Carlo Azzarri, c.azzarri@cgiar.org

Kristin Davis, k.davis@cgiar.org

The Anh Dao, daotheanh@gmail.com

Dang Toan Vu, vdtoannga2003@gmail.com

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