FOOD.
NATURE.
PEOPLE.

A blueprint to build thriving, sustainable food systems

FOOD SYSTEMS: CHALLENGES AND SOLUTIONS

OUR FOOD PRODUCTION IS OUT OF BALANCE

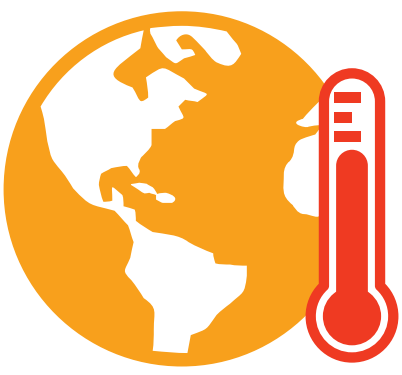
Today, **three-quarters of the world's food** is generated from only 12 plant and five animal species. And just three edible plant species – **rice, maize and wheat** – provide 60% of the world's food energy intake – a very narrow range compared to the estimated **200,000 edible plant species** that exist[1].

Farming with nature, combining local experience and scientific knowledge, means **more diverse food sources** and increased **productivity, resilience,** and **sustainability** of food production systems.

OUR DIETS LACK DIVERSITY

The global supply of fruits and vegetables is, on average, **22% less** than the population needs, and that figure more than **doubles** in low-income countries. As a result, almost **2 billion people** are over-nourished, and approximately the same number is under-nourished[2].

Trees and forests play a critical role in meeting our nutritional needs: **three-quarters of the total amount of fruit produced globally** is harvested from trees, which also produce nutritious leafy vegetables, nuts, seeds and edible oils[3].



OUR FOOD SYSTEMS ADD TO CLIMATE CHANGE

Food systems are responsible for **26% of global greenhouse gas emissions,** compared to 16% from transportation and 3% created by cement production[4].

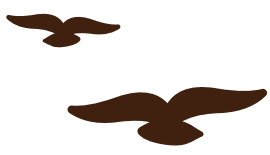
Agriculture today uses **800% more nitrogen-based fertilizers** than farming 60 years ago; and half of the world's population relies on hazardous synthetic nitrogen fertilizer to grow food[5].

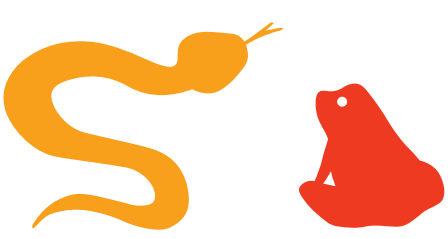
Using trees to enhance soil fertility, instead of applying nitrogen fertilizers, can help increase crop production by **up to 30%**; boost nutrient-use efficiency by **up to 60%**; and increase harvest volumes by **up to 40%**[6].

...AND THREATEN BIODIVERSITY

The global food system, which relies on converting natural ecosystems into lands for crop production or pastures, is the primary driver of biodiversity loss. Unsustainable agriculture threatens fully **24,000 of the 28,000 species** documented by IUCN as being at risk.[7]

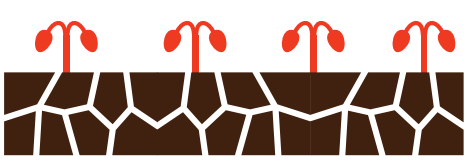
Shifting to more sustainable farming, choosing more plant-based diets, and saving space for nature are key elements to not only **stopping biodiversity loss**, but to also **reducing pressures on the land** and **creating more sustainable food systems**[7].





WE'RE DEGRADING PRODUCTIVE LAND

Up to 40% of agricultural land globally[8] is being depleted of nutrients, exposed to erosion, and poisoned with chemicals, threatening the well-being of **more than 3 billion people**, particularly the most vulnerable.



Farming with nature, focused on the interactions between plants, animals, humans with their environment, can provide **nutritious food** plus **sustainable livelihoods** while helping to address the negative impacts of conventional agriculture.

SOURCES

1 FAO (Food and Agriculture Organization of the United Nations) n.d. What is happening to agrobiodiversity? Rome, Italy: FAO.
2 Sunderland TCH. et al. 2020. SDG2: Zero hunger - Challenging the hegemony of monoculture agriculture for forests and people. *In* Katila, P. et al., ed. Sustainable Development Goals: Their Impacts on forests and people,. Cambridge, United Kingdom: Cambridge University Press, 48-72.
3 Njogu K. et al. 2019 Developing fruit tree portfolios that link agriculture more effectively with nutrition and health: a new approach for providing year-round micronutrients to smallholder farmers. *Food Security* 11:1335–1372
4 Ritchie H. 2020 Sector by sector: Where do global greenhouse gas emissions come from? Our World in Data.
5 CIFOR-ICRAF. 2021. CIFOR-ICRAF Strategy 2020-2030. Bogor, Indonesia: Center for International Forestry Research (CIFOR) and Nairobi, Kenya: World Agroforestry (ICRAF).
6 Sinclair F. et al. 2019. The contributions of agroecological approaches to realizing climate-resilient agriculture. Rotterdam and Washington, DC.
7 Benton T. et. al. 2021 Food system impacts on biodiversity loss. Energy, Environment and Resources Programme. Chatham House.
8 Onyango S. 2020 Building biodiverse food systems for an inclusive, resilient and safe future. Trees on Farms for Biodiversity.

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