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Workstream: Delicious, nutritious and good for the planet – analytical support for wholesome local and global food ecosystems

We have moved from consuming around six thousand different plants to a nutrition based on less than nine major staples; receiving about half of our caloric input from rice, wheat and corn (Saladino 2022). Increasing global food homogeneity driven by intensive agricultural production practices have led to an unprecedented decrease of plant and food diversity. Yet consuming and producing a diverse set of foods based on local species and nutrition practices enhances our resilience to climate change and could even mitigate or reverse its impacts.

More than two-thirds of existing national food based dietary guidelines are incompatible with international environmental targets (Springmann et al. 2020). It is highly important to develop, operationalize, localize, and constantly refine frameworks, guidelines and practices that ensure optimal population nutrition in light of evolving climatic challenges and within the existing planetary boundaries (Willett et al. 2019; Wood et al. 2023).

This paper aims to conceptualize a framework and develop a tool to collect local food tastes and traditions (allowing for participatory curation of a ‘living library of food cultivation, preparation and consumption practices’), leveraging scientific knowledge and technology to match local customs and availabilities to optimize the individual nutrition within regenerative and sustainable food production practices. We envision using advanced analytical tools (e.g. models, simulation, AI) to find niche solutions while capturing the broad spectrum.

Tapping the value of rare local species supports biodiversity and long-term resilience, reduces climate impact, and honors local tastes and traditions. We view the concept of ‘terroir’ (‘Taste of the place’) in a wider sense as having evolved from pedo-climatic (e.g. soil-type, micro-climate) and agronomic practices to comprise cultivation, preparation and consumption habits, local rituals and storytelling (Castello 2021). We adopt also the expanded scope well beyond just wine to other agricultural products (Lucini et. al 2020).