# From silos to systems

The global food system needs a radical overhaul to sustainably feed 10 billion people by 2050. *Nature Food* calls on scientists from the many disciplines of food to contribute their knowledge and experience to a collective dialogue on food system transformation.

The food system unifies activities in the food supply chain, highlights the interdependencies of actions and actors, and is contextualized by societal, economic, environmental and health priorities. Food systems are highly connected and increasingly global. And yet, from anthropology to zoonosis, scientific disciplines relating to the study of food remain, to a large degree, defined by silos of activity of the food supply chain.

*Nature Food* will publish research from the many disciplines relating to food, drawing the wealth of knowledge and experience from the studies of food production, processing, distribution and consumption, and guiding it towards narratives for food system transformation. *Nature Food* aims to be a resource on evidence and action for human health, social justice, economic endeavour and the preservation of planetary resources.

The current food system does not work for much of the world's population in terms of providing affordable, healthy diets. Undernutrition, characterized by micronutrient deficiencies, is now double-burdened with overweight and obesity, especially in many low- and middle-income countries. Tensions are mounting between the food system and planetary boundaries — the impacts of the agri-food sector on natural resources, biodiversity and pollution are significant. As we face increasing climate change and population growth in the decades ahead, the resilience of the food system is fundamental to the resilience of society. Calls to future-proof the food system have never been stronger.

Momentum has been growing for food system transformation, and the academic community has been successful in drawing sharp focus to the critical challenges the world faces with food (notably through *Lancet* commissions [1–3] on the global syndemic of obesity, undernutrition and climate change; food in the Anthropocene; and the double burden of malnutrition).

With the Sustainable Development Goals increasingly embedded in our lexicon, sustainable food systems are the subject of discourse in high politics and on the high street. The UN Food Systems Summit in 2021 will be a crucial moment for political leadership. The public have also been sending clear directives through the food supply chain about sustainability — plant-based diets and alternative proteins are major trends to which the food industry has responded with speed and creativity. There is a real sense of increasing political will, and of science starting to win over hearts and minds when it comes to our defective food system.

In such a climate, an evolving interdisciplinary knowledge base and social strategy are vital. Simply put, capacity needs to be built from the research community to deliver assuredness to the wider food community, including industry and policy-makers, on what needs to be done — and how to do it. With its dual aspects of research and commentary, *Nature Food* is poised to make that connection.

In this first issue, David Kanter and colleagues bridge the link between evidence and action with a Perspective on extending the responsibility for nitrogen pollution beyond the farm gate. They identify direct and indirect policy options for fertilizer companies, food traders, wastewater managers, retailers and consumers in nitrogen abatement, shifting some of the burden of responsibility and regulation from the farming community.

We also have a number of pieces on the contentious science of nutrition. In a broad Review Article, Sharon Friel and colleagues assert that trade policy, shaping global food supply, contributes to poor nutrition. Yet, the role of diet in health and disease is littered with controversy, according to Dariush Mozaffarian in his Review Article on the interplay between diet, obesity and type 2 diabetes — which nods to the evolution of modern nutrition science. And

Albert-László Barabási and colleagues throw a new card on the table in terms of that evolution, with their Perspective proposing machine learning as a tool for mapping the unknown biochemical composition of food, and providing tantalizing insights into the 'dark matter' of nutrition.

Our aim for all contributions to *Nature Food* is that they address, directly or indirectly, the major challenges of food systems — sustaining human and planetary health — and that they have a practical tilt. Diversity of voices (125 in this first issue) and inclusivity of views are key ingredients for developing a rich, interdisciplinary evidence base for action. Q&As with prominent individuals from across the food community will be regularly published in *Nature Food* — voices of knowledge and experience, to inform and inspire.

Ultimately, the individual is at the core of the food system. Our concerted efforts must be towards providing affordable, sustainable, safe, nutritious — and acceptable — food for all. Acceptability of food to the consumer, and acceptability of what our endeavours in research and policy actually mean in the lived environment, are perhaps underestimated deal-breakers of food system transformation and so, *Nature Food* welcomes contributions on social and cultural aspects of food. Our regular feature Food for Thought will explore, through short essays, the meaning of foods to people, set in time and place: after all, "whenever we eat we eat a story"[4].

Welcome to *Nature Food*. ❏

References
1. Swinburn, B. A. et al. *Lancet* **393**, 791–846 (2019).
2. Willett, W. et al. *Lancet* **393**, 447–492 (2019).
3. Branca, F. et al. *Lancet* https://doi.org/10.1016/S0140-6736(19)32690-X (2019).
4. Rubel, W. in *Food and Language: Proceedings of the Oxford Symposium on Food and Cookery 2009* (ed. Hosking, R.) 292–300 (Prospect Books, 2010).