

# The balancing act of producing more food sustainably

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A policy known as sustainable intensification could help meet the challenges of increasing demands for food from a growing global population, argues a team of scientists in an article in the journal *Science*.

The goal of sustainable intensification is to increase [food](#) production from existing [farmland](#) says the article in the journal's Policy Forum by lead authors Dr Tara Garnett and Professor Charles Godfray from the University of Oxford. They say this would minimise the pressure on the environment in a world in which land, water, and energy are in short supply, highlighting that the environment is often overexploited and used unsustainably.

The authors, university researchers and policy-makers from NGOs and the UN, outline a new, more sophisticated account of how 'sustainable intensification' should work. They recognise that this policy has attracted criticism in some quarters as being either too narrowly focused on food production or as representing a contradiction in terms.

The article stresses that while farmers in many regions of the world need to produce more food, it is equally urgent that policy makers act on diets, waste and how the food system is governed. The authors emphasise that there is a need to produce more food on existing rather than new farmland because converting uncultivated land would lead to major emissions of [greenhouse gases](#) and cause significant losses of biodiversity.

Sustainable intensification is the only policy on the table that could create a sustainable way of producing enough food globally, argues the paper; but, importantly, this should be only one part of the policy portfolio. 'It is necessary, but not sufficient,' said Professor Charles Godfray of the Oxford Martin Programme on the Future of Food. 'Achieving a sustainable food system will require changes in [agricultural production](#), changes in diet so people eat less meat and waste less food, and regulatory changes to improve the efficiency and [resilience](#) of the food system. Producing more food is important but it is only one of a number of policies that we must pursue together.'

Increasing productivity does not always mean using more fertilisers and agrochemicals as these technologies frequently carry unacceptable environmental costs, argue the authors. They say that a range of techniques, both old and new, should be employed to develop ways of farming that keep environmental damage to a minimum.

The authors of the paper accept that the intensification of agriculture will have some implications for other important policy goals, such as preserving biodiversity, animal welfare, human nutrition, protecting rural economies and sustainable development. Policy makers will need to find a way to navigate through the conflicting priorities on occasion.

Lead author Dr Tara Garnett, from the Food Climate Research Network at the Oxford Martin School, said: 'Improving nutrition is a key part of food security as food security is about more than just calories. Around two billion people worldwide are thought to be deficient in micronutrients. We need to intensify the quality of the food we produce in ways that improve the nutritional value of people's diets, preferably through diversifying the range of foods produced and available but also, in the short term, by improving the nutrient content of commonly produced crops.'

'Sustainability requires consideration of economic, environmental and social priorities,' added Dr Michael Appleby of the World Society for the Protection of Animals. 'Attention to livestock welfare is both necessary and beneficial for sustainability. Policies to achieve the right balance between animal and crop production will benefit animals, people and the planet.'

Agriculture is a potent sector for economic growth and rural development in many countries across Africa, Asia and South America. Co-author Sonja Vermeulen, from the CGIAR Program on Climate Change, Agriculture and Food Security (CCAFS), said: 'It is sustainable intensification that can provide the best rewards for small-scale farmers and their heritage of natural resources. What policy-makers can provide is strategic finance and institutions that support sustainable and equitable pathways, rather than quick profits gained through depletion.'

**More information:** The article 'Sustainable intensification in agriculture: premises and policies' by Tara Garnett et al will be published in the 5 July issue of *Science*.

Provided by Oxford University

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