The food of the future: the role of standards in sustainable, nutritious diets

Feeding 10 billion people a nutritious and sustainable diet is a mammoth task, but one we will be facing in the next 25 years. We all agree that the current pressure on our land, oceans and animals can't continue, which means finding a sustainable way to feed the world's growing population is one of the most pressing challenges of our time.

We asked three leading experts from across the agrifood sector for their insights into the future of food, predictions for the next 50 years and vision of a truly sustainable food chain - and how can standards help us get there?

Meet the experts:

Vicki Hird

Head of Sustainable Farming
Sustain

Vicki is an author, strategist and expert on environment, food and farming. She's worked on major food and environment campaigns, published books on rewilding and is a Fellow of the Royal Entomological Society.

Kirk Siderman-Wolter

Chief Operating Officer
Agri-EPI Centre

Kirk's extensive career and passion for agrifood and social enterprise has seen him in roles at the Home Office and Ministry of Justice. His commitment to agrifood and social enterprise led him to Agri-EPI Centre, facilitating investment in agri-tech.

Sara Walton

Sector Lead
BSI Knowledge (AgriFood)

As BSI's standards, knowledge and engagement lead Sara is an expert on standardization with extensive knowledge of the agrifood sector, having spent 14 years working with standards across various roles at BSI.

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The agrifood landscape today

Professor Tim Lang, Emeritus professor of Food Policy at City University London and one of the UK's leading experts on nutrition and food policy, describes the UK as facing a "wartime-scale food challenge" as just half of the food eaten in the UK is produced at home and the rest is imported via fragile, volatile international markets.[1]

And that isn't the only problem – the popularity of dining out and the move to online food orders, accelerated by COVID-19, have only exacerbated these issues.

"At the start of the pandemic, roughly 50% of our meals were eaten outside of the home. This means that, while we have enough food in the system to feed everyone, that food is actually in the transportation systems on its way to restaurants, bars and hotels where it will be eaten. We as a planet have an interconnected, almost just-in-time agrifood system." - Kirk Siderman-Wolter

"Labour shortages, more border controls as a result of Brexit, climate change which affects crops and droughts having a knock-on effect on prices and warfare, particularly for developing countries, can all have a massive effect on food poverty." - Sara Walton

"Food is seen as cheap, so we don't use it or value it as we should. Corporations provide cheap food and encourage us to buy more than we need with deals and promotions. We also have a lot of crop land used to produce junk food, which provides food security but not nutrition security, and we need more regulation to remove the abuse of suppliers, importers, the workers and farmers on the ground, the environment and the animals." - Vicki Hird

What's on tomorrow's menu?

With intensive farming that pollutes our rivers, overfishing that decimates our oceans fish stocks and the demand for crop land that results in the destruction of rainforests; it's clear, a more sustainable diet should not be one that puts so much pressure on the natural world.

Harnessing technology and exploring alternative foods will be central to more sustainable eating habits.

No sharing platters

We're all unique, so why shouldn't our diets be unique too? Following the rise in popularity of smart technology that monitors your heart rate and sleep patterns, the logical next step is using tech that can monitor your blood sugar, or even your body's ability to absorb nutrients, and tailoring your diet to your personal genome, biome or gut health.

Food engineering

Selective breeding and generic engineering can optimise foods by fortifying them with vitamins and minerals, but these technologies can also be used to enhance flavour, for example in imitation meat products. Current work in nanotechnology is exploring how food affects the palate – and how that can be changed.

Alternative proteins

Microalgae: A renewable source of protein, vitamins and amino acids with a high tolerance to changes in light, pH levels, salinity and water temperature. Could be used in renewable energies, pharmaceuticals and as food.

Insects: Locusts, crickets and maggots are all high in protein and macronutrients, need less space than livestock and produce lower levels of greenhouse gases. In many parts of the world insects are already eaten or used for livestock feed.

[1] Tim Lang, 'Diet, health and inequality: Why Britain's food supply system doesn't work', The Guardian <https://www.theguardian.com/environment/2020/mar/22/tim-lang-interview-professor-of-food-policy-city-university-supply-chain-crisis>

Lab-grown “meats”: Currently in review by a number of national food regulators, produce grown from live animal cells and sustained on plant nutrients can reduce the impact of livestock grazing while producing a cruelty-free, sustainable protein.

From farm to fork

However, sustainable food production doesn’t just mean what we’re eating – it also includes:

- How far food travels to get to your plate
- The amount of waste it produces
- Whether it uses renewable energy sources
- Paying the farmers and workers a living wage
- The quality of life for livestock
- The quality of the end product

Skyscraper greenhouses

""One impact of the pandemic is that many office buildings are no longer full of people. A modern office block with floor to ceiling glass windows is a ready-made greenhouse with a controlled environment. Do we look at moving agri-production into those greenhouses to turn them into multistorey vertical farms?” - Kirk Siderman-Wolter

More funding for environmental agencies

"For rewilding and rebugging to work, we need to be protecting the natural systems on which our food system depends: the soil, the air, the water, the natural processes. The gradual whittling away of resources for the environment agency, Natural England, has been critical in the continued decline of nature.” - Vicki Hird

A collaborative approach

"All these thorny problems [around alternative food sources] need discussing; by the people who will be eating it, by policy makers, by government, regulators, the agrifood industry, research and academia and others. At the moment, it’s an empty landscape but people are coming up with new ideas all the time – for that to grow and gain investment, go to market and scale up, you need standards. Everyone must agree what ‘good’ looks like.” - Sara Walton

Maintaining Standards

To keep up with innovations in agrifood, existing regulations and policy need to be updated. While standards relating to the cleanliness of labs may already apply to cultivated meats, a whole new standard specifically for lab-grown food products makes it possible to:

- Ensure the product is sustainable from end to end
- Drive innovation by raising standards higher
- Protect consumers, suppliers, producers and manufacturers
- Guarantee the quality of products
- Work more efficiently and productively
- Regulate new products

“Agrifood standards have in the past been done as certain standards within certain segments of the agrifood system, but now we have to look at it as one continuous system and set those standards accordingly. It’s at every level: Improving the quality of life for battery chickens in turn improves the quality of the product, means we eat better food and the farm can make more money and waste less. Too many chickens in the barns means poorer animal health and decreased production, so farmers lose profits as chickens go to broilers or for stock.” - Kirk Siderman-Wolter

"Higher standards, for example in procurement, can have a big impact on bugs and wildlife. For example we can direct better food purchasing by public bodies, sourcing from agro-ecological farm systems that are better for wildlife. It's a small percentage of the food we eat, in schools, hospitals and care homes, but it can significantly drive support to those sustainable farming systems." - Vicki Hird

"Particularly for novel foods, industries and innovations, standards enable us to grow the ideas, disseminate the knowledge and agree with others that this is the way it should be done in future. That's how you get buy-in and people learning about new things. Standards help businesses, entrepreneurs and innovators grow and achieve objectives like Net Zero, while at the same time reassuring the public about what they're eating and sustainable action being taken." - Sara Walton

"Standards continuously drive quality forward. BSI's continuous improvement and evolving level of standards ensures that as you achieve a standard you are challenged to take it further and be part of the next wave – as an industry it's always pulling us forward to a better place. And that's exactly what we should be doing." - Kirk Siderman-Wolter

Maintaining Standards

Prof. Tim Lang's solution to the "wartime" challenge facing the UK and the wider world's agrifood systems includes legally binding sustainability targets, the introduction of a Food Resilience Act, national guidelines for procurement and increased regulatory bodies and commissions.

The key to success, according to all our expert contributors, is to view the system as circular, rather than made up of separate parts.

It's possible to create an agrifood system that is both productive and profitable, with actions such as:

- Bringing food production closer to manufacturing and distribution
- Encouraging collaboration between small innovators in emerging technologies like AI
- Looking at the whole-life cost and impact of food production

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"People are now really interested in what smaller, innovative companies are doing. Whether it's industrial biotechnology or data, bioscience, robotics, AI... it's a brave new world. And all those areas seem to meld together. Collaboration and data are going to be key to improve food security – smaller producers will work with crop robotics and data technicians to track what you're buying, where it's from... this interoperability will be everything." - Sara Walton

"Current standards operate on a per-asset basis; for example, there's standards for hedgerows, soil, animals and this means farmers end up having to comply with lots of different standards, where one can actually undermine another. It's much better to have a whole system approach, taking into account the whole farm. And we know it's possible - organic farmers have done it for years." - Vicki Hird

"And while it has a positive impact on profits, it's also the right thing to do. Standards help create a mechanism for doing the right thing." - Kirk Siderman-Wolter

Moving forward with standards

BSI is a UK standards body that brings together knowledge from every sector to improve how we do things, driving productivity, innovation and efficiency.

The food and agriculture sectors are at the heart of the drive for greater sustainability, with emerging areas such as robotics, insect proteins, natural fortification of crops and the circular economy – all of which require open, frank discussions around standards to reach their full potential.

For more information about standards, BSI's work in the agrifood sector or to talk about any issues and challenges you're organization may be facing (even if you think there is no need for standardization just yet – we'd love to hear from you.

Email: sara.walton@bsigroup.com

Explore more standards...

Food Safety Management Systems
(BS EN ISO 22000)

A recent series of standards which focuses on nutrient enriched grain, part of a global effort to improve nutrition in populations by promoting fortified staple crops. This effort focuses on catalyzing the development, production, delivery and consumption of foods that are rich in essential micronutrients, including vitamin A, iron and zinc.

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