Future foods that could transform UK plates by 2035

The FSA and FSS's Thematic Report on Emerging Food Innovations identifies the technologies most likely to generate food safety and regulatory needs in Great Britain over the coming decade.

The report identifies technological areas likely to have the greatest impact on the food system, including:

- **Controlled environment agriculture (CEA)**, or vertical farming, growing crops in climate controlled indoor spaces where conditions are heavily?monitored?and nutrients are administered precisely.?
- **Precision and biomass fermentation** - exploiting rapid microbial growth to produce protein rich biomass for food
- **Cellular agriculture, including cell-cultivated foods** - new foods that?don't?involve traditional farming such as rearing livestock or growing plants and grains
- **Edible insects** – which may be sold as whole insects or used as ingredients (for example, powders added to familiar foods)
- **Molecular farming** - using plants or plant cells as tiny factories to make specific food ingredients, such as proteins and enzymes
- **Gas fermentation** - using microbes to convert captured carbon dioxide, hydrogen or other industrial gases into single cell proteins and other useful food ingredients
- **3D food printing** - building foods like chocolate or mashed potato out of layering edible ingredients from a printer
- **Reverse food manufacturing** – taking nutrients back out of food by-products and turning them into new?ingredients

Emerging?technologies such as molecular farming remain?at an?early stage, while reverse food manufacturing?and 3D food printing?are?conceptual and are a?longer-term?watchlist area.?

> "Emerging technologies are reshaping how our food is produced and sourced. This report gives industry and government clear sight of what is coming, and what is required to ensure these products meet the UK's high standards. The?FSA?and FSS 's remit?is?central to delivering these ambitions and by working early with innovators, we can support safe, responsible growth and build consumer confidence in the foods of the future."
> Dr Thomas Vincent, Deputy Director of Innovation, at the FSA

The report provides the clearest picture to date of how cutting edge food production systems are evolving, and what this means for proportionate, future ready regulation. By setting out the regulatory implications in advance, the report enables companies to plan long term research, manufacturing and investment strategies with greater certainty.

For regulators, it provides a strategic blueprint for where scientific capability, guidance development and risk assessment approaches will need to evolve to keep pace with innovation.

Evidence collected from people through focus groups and surveys also informed the report's development, ensuring that regulatory planning reflects the questions and concerns that matter most to the public.

A foundation for proportionate, trusted regulation

The Emerging Food Innovations in the UK report has been produced by the Market Authorisation Innovation Research Programme (IRP), a programme jointly delivered by the FSA and FSS and funded by the Department for Science, Innovation and Technology (DSIT). The programme complements the Cell-Cultivated Products Regulatory Sandbox, launched in March 2025, which gives innovators early engagement with regulators before formal applications for cell-cultivated products are submitted.

Together, these programmes are helping to build the UK's regulatory readiness ahead of market demand, ensuring that safety assessment keeps pace with innovative foods production.

The FSA and FSS are presenting these findings to industry on Friday 13 March at an innovation showcase event. Further information, including the published reports and guidance for businesses, is available at the FSA's Innovative Food Guidance Hub.

Together with updated guidance, public consultations and strengthened business support services, the report forms part of a broader effort to ensure the UK remains a trusted, innovation friendly environment for companies developing new food technologies.