

Supplementary data

Full responses to free-text boxes in survey

10 years

Q3. What do you think is most likely to have caused Food System Scenario 1? (Please select up to 3 options – that could have occurred individually or in combination.) If there are other causes in your top 3, which are not listed above, please state them here.

- non nuclear war
- endemic poverty
- food pathogen
- aging population
- climate shift, such as gulf stream loss
- Energy crises, war and polarisation of global politics
- access to soils and/ or water resources
- Widespread food contamination (biological; natural chemical; artificial chemical) WHICH IS a. real problem; b. problem with impact unknown; c. fake information spread by media; d. fake information spread by government
- Political instability and devolution (and north Vs south partisanship) leading to stagnant responses and inadequate food safety and security reactions
- volcanic eruption
- Increased level of poverty amongst a section of the population
- In a situation where there was insufficient food (calories) to feed people in the UK, within 10 years, this will most likely have resulted from a collapse in food imports combined with a failure to rebalance food production systems in the UK. I think over this timeframe it would have to be a combination of factors rather than a single driver, although underpinned predominantly by those selected above.
- It's the knock-ons from one 'factor' to others creating the so-called poly-crisis that I think most likely. I am nervous about us highlighting this or that as TOP 3 likely causes.
- Reduction of UK supply – eg farmers not producing food
- complex systemic changes based on changing ideology (e.g. securitisation, breakdown in cooperation)
- A reduction in the number of pig, poultry and particularly horticulture producers, due to; high energy costs, high feed costs, high labour cost, difficulty securing labour, trade deals that undermine domestic production standards, and UK supermarkets further adding pressure to domestic suppliers (wafer thin margins, unrealistic expectations, demands for data collection and improved sustainability while not supporting suppliers to do this, plus turning to international suppliers to meet supply needs). Potentially too – large areas of farmland taken out of production (either by farmers or more likely through transfer of land ownership to wealthy individuals or corporations) to meet net zero/ rewilding targets and/or capitalise on carbon and biodiversity markets. If the world continues to be unstable, geopolitics could also see big agricultural producers (e.g. Russia, China, India, Brazil, US, Ukraine) use trade as a warfare tool. Also, mismanaged water resources – we currently have no water strategy, which puts us at odds with other similar European countries; general lack of food-land-water strategy by government

- panic buying/hoarding leading to unfair distribution
- I would emphasize that I do not see ecological collapse as being universal, but more regionally specific, i.e. to areas experiencing the greatest climatic changes or under most impactful farming practices. Equally, I would imagine that further ecological degradation of systems (before a tipping point to a scenario of collapse) would be in my top 3 alongside ecological collapse, particularly if located to areas critical to global food production. Degraded ecosystems services which impact water storage, soil health, and insect populations can lead to huge impacts to food production leading to crisis scenarios. I also see many of the above being mutually reinforcing, including scenarios 1 and 2 – for example a combination of extreme weather and degraded ecosystems leading to regional challenges to food production (both in the UK and globally), and therefore also to economic and demographic stability. This in turn leads to further pressures on the food system through displaced populations and greater reliance on other areas of food production, likely impacting significantly on trade restrictions and national policies tending to protectionism. Market drivers then impact food availability to certain demographics, primarily due to financial reasons.

Q4. Within Food System Scenario 1, which commodity shortages do you think are most likely to have led to the Societal Scenario (please select up to 2)? If there are other commodities in your top 2, which are not listed above, please state them here.

- imported foods including nuts and plant based foods as imports will become carbon heavy
- I think that animal products are “safer” but more costly this depends on income and cost of living as well as supply side issues leading to access issues. This means that total calories domestically produced and available to domestic population might be negative (think about Ireland during the famine in 1800s) and the corn laws etc.
- Again, I can see other drivers as impacting on events that currently seem unlikely. For example, at present lack of carbohydrates seems unlikely but UK doesn’t make its own pasta and I could see that being jammed up (ie more than disrupted) by a European war.
- UPFs, other than F&V, the list above includes things we are largely self-sufficient in UK produced pork, poultry and eggs
- Water – I would very much consider this to be both a crucial input to and a product of food systems

Q5. What do you think is most likely to have caused Food System Scenario 2? (Please select up to 3 options – that could have occurred individually or in combination.) If there are other causes in your top 3, which are not listed above, please state them here.

- I have selected the same items as for scenario 1 as I believe both scenarios are mutually reinforcing. In a situation where food becomes more scarce, it will also become more expensive. I believe that the cost of food will be the main driver of a food distribution problem leading to civil unrest in the UK. Fresh imported produce such as fruit and vegetables will become either unavailable due to global market drivers (the UK experienced a taste of this during fresh food shortages in February 2023) or too expensive for majority of consumers. Likewise, meat and dairy products will become

increasingly expensive (desertification tipping points in Amazon region disrupting soy imports, input costs for livestock production increase as a result of net zero policies and global supply chain disruption) meaning many consumers will no longer afford to consume as much meat as they are used to

- Extreme fascist politics
- increasing food poverty across the nations
- aging population
- Energy crises, war and polarisation of global politics
- (1) War (but not nuclear)
- not only strikes but breakdown of warehouse/distribution/transportation system
- Land being secured for carbon sequestration by corporates / Government
- political and social isolation through political/popular messaging
- Political instability and devolution (and north Vs south partisanship) leading to stagnant responses and inadequate food safety and security reactions
- Ecosystem degradation (prior to collapse) – will likely lead to significant impacts on food production even if not in full collapse (within next 10 years)
- I hope I'm not infuriating but I think we shouldn't put our money on only 3 extreme risk factors. One never knows whence crises come!
- Breakdown of logistics infrastructures – staff energy
- as above, changing world order on multiple fronts
- pockets of unemployment
- Rising inequality, wealthy hoarding/ controlling resources, a breakdown of relations between the devolved nations

Q6. Within Food System Scenario 2, which commodity shortages do you think are most likely to have led to the Societal Scenario (please select up to 2)? If there are other commodities in your top 2, which are not listed above, please state them here.

- imports of meat and fish are carbon heavy and in ten years we are supposed to be nearly carbon neutral
- processed/refined foods (expense rather than shortage)
- I think that animal products are "safer" but more costly this depends on income and cost of living as well as supply side issues leading to access issues in pockets (devolved govts respond differently). This means that total calories domestically produced and available to domestic population might be negative (think about Ireland during the famine in 1800s) and the corn laws etc.
- Water

50 years

Q9. What do you think is most likely to have caused Food System Scenario 1? (Please select up to 3 options – that could have occurred individually or in combination.) If there are other causes in your top 3, which are not listed above, please state them here.

- Depleted soils
- Would raise same points on mutual reinforcement as previous question (see answer)
- Restrictions on the meat and dairy sector
- systemic breakdown of food production and distribution

- permanent climate shift
- Energy crises, war and polarisation of global politics
- As above, food contamination
- Mass migration and/or continued high levels of migration (current rates would see a UK population of ~100 million in 50 years).
- Pace of climate change
- I would add that entering a new global climatic equilibrium following the passing of planetary tipping points would be a factor which I don't think is captured in the above (climate being different to weather). I would also add that the emergence of an animal/plant pathogen in the next 50 years will likely be driven by continued land use change combined with antibiotic resistance.
- Loss of production capacity in UK
- there are many alternate potential drivers over 50 years – new forms of warfare, significant tipping points in climate system, disruptive technologies etc
- Rogue AI being used by rogue states wishing to disrupt / weaken the West; break-down of transport/energy system reliant on fossil fuels; plant/animal pathogen; mass migration due to climate change and Europe closing its borders; badly managed UK water supply
- non nuclear war with smart weapons/terrorism
- what we are seeing at the moment is the doom-loop/vicious circles of causation: something happens, markets panic, governments panic, debt/inflation goes up, geopolitical tensions ramp up then when the next thing happens everything is more jittery. 2019/20 with the pandemic, then the war, now food/weather, next China, then more weather ...

Q10. Within Food System Scenario 1, which commodity shortages do you think are most likely to have led to the Societal Scenario (please select up to 2)? If there are other commodities in your top 2, which are not listed above, please state them here.

- Clean water
- all imported and carbon heavy foods. We have to get a grip of net zero!
- I think rare earth metals, oils, fertilizer and animal feed will have wider supply chain issues as the world decarbonises . These are all needed for food production..
- Water
- Given we over produce grains significantly, a shortage of grains unlikely – but inability to manufacture UPFs is likely more of an issue
- Rice, beans, soy

Q11. What do you think is most likely to have caused Food System Scenario 2? (Please select up to 3 options – that could have occurred individually or in combination.) If there are other causes in your top 3, which are not listed above, please state them here.

- general breakdown of food supply chains
- Mass migration and/or continued high levels of migration (current rates would see a UK population of ~100 million in 50 years).
- Devolution and friction inside UK.
- As above

- as above, tipping points in envt systems causing geopol reconfiguration about how the world works
- Increasing population migrating north to UK due to weather and climate and therefore higher demand for food on a small island, plus higher demand for exports
- Again, inequality, wealthy hoarding resources – this is likely to become more extreme as climate change progresses. Perhaps the UK regions will become more tribal, with counties hoarding water and food supplies
- non nuclear escalations/terrorism with smart weapons (perhas this falls within rogue AI ?).

Q12. Within Food System Scenario 2, which commodity shortages do you think are most likely to have led to the Societal Scenario (please select up to 2)? If there are other commodities in your top 2, which are not listed above, please state them here.

- never underestimate geopolitical strife which could end al food supply chains
- Access to two tier of commodities eg generic Vs higher standards. Eg UK Vs USA chlorinated chicken. This but expanded to many products.
- Water
- Rice, beans, soy