

Global Sustainability Institute

Food system futures UK case study



Food risks in the UK

- Identify underestimated and overlooked pathways to potential UK food system crises
- Assess whether there is enough happening to avert them
- Taking a full food system view from agriculture to consumption
- Funding from the Royal Society/British Academy



Expert (58) and farmer (48) surveys



Farm types covered



Future food system risk impact

Societal Event:

"Civil unrest has occurred in the UK, as defined by violent injury of more than 30,000 people in one year, due to e.g. violent looting, strikes, demonstrations, or crime including hate crime (i.e. roughly one in 2,000 people are injured, which is 10 times greater than the number of injuries in London riots in 2011)."

Food System Scenario 1: Insufficient UK Food

"There are now insufficient calories available to feed the UK population, and this has contributed to the Societal Event"

Food System Scenario 2: Food distribution problem

"There is a food distribution problem leading to geographically isolated pockets of hunger, despite adequate total calories being available to feed the UK population, and this has contributed to the Societal Event"

Farmers: "In your opinion, how plausible is this Societal Event to occur in the next 10 years?"



Compared to experts: Just over 40% said they thought such a scenario was at least "possible" in the next ten years. This went up to nearly 80% over 50 years.

Main causes of food system crisis



Example Pathway



Inspired by Jones, Jahn et al <u>https://assets.lloyds.com/media/02e5fd60-4cda-452d-8b09-</u> 01d507f582a8/pdf-food-system-shock-june-2015.pdf which is connected to Lunt, Jones, Mulhern, Lezaks, Jahn https://doi.org/10.1016/j.crm.2016.05.001

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Ed Barker

Head of Policy (lead on trade) Agricultural Industries Confederation



Reduce

Optimise





Change



Land Use diversity



Meeting 'spec'



Protein % impacts on breadmaking

Working in support of modern, sustainable, commercial agriculture

agricultural industries

confederation

aic



Land Use



The productivity of the England's land varies widely:

The area in **dark orange** grows $\frac{1}{3}$ of total calories.

The area in **dark** and **light orange** grows ³/₄ of total calories.

Calorie production based on Defra data – for England only.

From the 'National Food Strategy'

agindustries.org.uk

Thank you



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Is decarbonised agriculture in the UK possible by 2050?

Liz Bowles Chief Executive Farm Carbon Toolkit www.farmcarbontoolkit.org.uk East of England Net Zero and Climate Resilience Summit



Change in UK emissions for different sectors 1990 - 2020





Figure 6: Territorial UK greenhouse gas emissions by NC sector, 1990-2021 (MtCO2e)

Source: Table 1.2, Final UK greenhouse gas emissions national statistics 1990-2021 Excel data tables Note: Other includes Public, Industrial Processes and the Land Use, Land Use Change and Forestry (LULUCF) sectors.

Greenhouse Gases from agriculture



Methane (CH_4) Nitrous Oxide (N_2O) Carbon Dioxide (CO_2)

- UK agriculture makes up 11% of total UK emissions (2022)
- Carbon management and business efficiency are closely linked
- Linked to food production, difficult to measure and dependent on the weather



Climate Change Committee targets for Agriculture by 2050



Actions suggested which will lead to 64% savings in the annual emissions from agriculture by 2050 compared to current practice



Why manage carbon at a farm level?



- It makes business sense!
- It allows us to be more informed and make decisions
- It enables a positive narrative
- It creates more resilient businesses
- Future proofing



Acting on carbon is one of many critical priorities



While climate change presents an existential crisis for humanity.....

....Carbon is **but** one aspect of farm and food sustainability

Many critical issues and many are interconnected.



Climate adaptation principles and practices



Principles



Key actions

- Increase tree planting
- Encourage low carbon farming practices
- Restore peatlands
- Encourage bioenergy crops
- Reduce food waste and consumption of energy intensive foods

Helpful Farming practices

- Planting cover crops
- Changing crop rotation
- Transitioning to no till
- Growing new crops
- Integrated pest management
- Adopting rotational grazing
- Planting herbal leys

Nitrogen efficient plants for climate smart arable cropping systems



To enable UK agriculture to bring about a reduction of 1.5Mt CO2e per annum or 54% of the maximum potential for the industry.

Increase pulse and legume cropping in arable rotations to 20% across the UK and to develop and test new feed rations. This will help livestock farmers to substitute up to 50% of imported soya meal used in feed with more climate-friendly homegrown pulses and legumes.



Planning for the future



Actions need to focus on







Thank

you

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