Appendix 2

In this guide

Table 2. Summary of responses: What developments are in trial that have potential to roll out in the next ten years?

Category	Academia	Manufacturing	Farmers & veterinary surgeon	Other

Farming methods	• Animal breeding • More efficient and resilient animals • Lower carbon footprint • Precision agriculture in crops and livestock • Integration of arable and livestock systems • Soil health	• Sustainable intensification • Lower carbon agronomy • Crop production • Leguminous plants co cropped with wheat to replace nitrogen fertiliser • Nitrogen without CO2 • Aquaculture • Multi-stream culture systems (e.g., fish plus water plants such as watercress) • Ocean farming and harvesting of seaweed	• Crop production • Mixed rotations • Less use of manufactured fertilisers • Perennial energy crops (miscanthus, willow) • Crop inputs • Reduced inputs and increased sequestration • Reduced reliance on ammonium nitrate fertiliser-circular economy development • Precision crop and livestock agriculture • Improved reproductive performance • Specific genetic progress • Gene editing precision • Regenerative agriculture techniques	• Livestock developr e.g., inte indoor da farming • Accelera biopestic • Slurry co mitigate ammonia emission • Agrofore ecology, precision agricultu urban agricultu vertical f advance breeding techniqu

Energy	• Zero fossil fuel use • Electrification • Hydrogen generation plants • Bio-hydrogen • Ohmic and pulsed electric field heating	• Refrigeration • Improving efficiency • Onsite energy generation • Renewable energy • Electricity generation • Wind and solar are variable • Tides are predictable • Next generation technologies that consume less energy using advanced process control.	• Green energy • Electric generation • Gas to grid • Tractor biogas fuelling • Land-based renewables and energy storage, for on-farm and export • Reduced emissions methods • Scrubbers and catalyst systems • Anaerobic digestion to generate "negative emissions"	• Green en • Hydroge supply ch transpor factory • Vehicle a machine electrific	

Animal feed	• Alternative feed • Biotechnology in feed ingredients, including generation of enzymes and supplements • Reduce enteric fermentation's emission of methane - including archaeal suppressant commercial use • Feed rations that deliver lowest carbon footprint per product (not just feed input) • Home grown feed replacement of soya	• Alternative sources of protein	• Optimal nutrition including use of supplements to manage the rumen microbiome to reduce methane	• Diet • In cattle reduce m productio • Insect pr (includin aquacult • Improve feed utili • Alternati soya in f formulat

Land use	• Changes in subsidies to farmers will change land use especially in the uplands. • Peatland restoration, farm woodland / agroforestry, more hedgerows, • ELMS (Environmental Land Management Scheme)		• Nature-based solutions • Increased increments in hedges, new woodlands, soil carbon management • Agroforestry	• Optimisi for carbo sequestr
Consumer diet change	• Dietary change • Reduced meat and dairy consumption	• Alternative sources of protein		• More dai meat sub • Novel pr • Cultured • Minimall processe • Eating le but high quality • Eat local

Waste	• Use of former foods and utilisation of coproducts • Reducing food waste • Supply chain integration to reduce stocks and waste.	• Circular economy principles for waste reduction • NPD based on food by-products.	• Endemic disease control to reduce the waste associated with disease and increased productivity	• Measure reduce f and wast • Waste valorisat • Abstract slurry • Reduced waste in a result increase • Recyclin PET 5
Packaging	• Food packaging changes.	• Closed loop recycling of plastic packaging		• More inf supplied packs re carbon f of produ • Biobased packagi materials • Closed l packagi
Measurement	• Better use of manures and measures to reduce N2O and NH3 loss on farm		• Farmers using tools to measure what is going on farm	

Manufacturing	• Zero carbon factories • Cellular agriculture to produce factory grown meat		• Product a process i (net zero design) redistribu manufac
Technology	• Urban farms based on Light Emitting Diode (LED) technology for salad and similar crops.	• New technologies • Genetic • Feed additives • Feed proteins • Robotics • Drones • Electric agricultural machinery	