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Institute of Food Science + Technology ifst

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Critical Priorities Food System Sustainability

Dear Duncan,

Thank you for your request to provide input and insights on the critical priorities relating to sustainability for the UK food system. Our newly re-formed IFST Sustainability Steering Group have discussed this at length and would like to provide the considered response below.

IFST would encourage DEFRA to consolidate the work being done on sustainability and food system resilience across various UK scientific research programs, government departments and agencies. Our recommendations below align with UK government commitments to delivering the UN Sustainable Development Goals by 2030 and in particular support SDG 3 (good health and well-being), SDG 9 (innovation, industry and infrastructure), SDG 12 (responsible consumption and production), and SDG 15 (life on land). We would encourage DEFRA to provide an overview of current efforts, outputs and learnings and from that to create a strategic plan to promote better food, less waste, clear educational messaging and support for national UK food system resilience.

In no particular order of priority, our specific proposed critical priorities relevant to sustainability in the UK food system as identified by the IFST Sustainability Steering Group are outlined below, and we will be happy to discuss further at your convenience.

Strengthening Food System Resilience

To date the UK food system has been sufficiently resilient to supply safe food to the UK population. To protect and assure continued resilience in the face of future predicted system stresses such as greater climate change disruption and extreme weather events, soil erosion, insect population decline, and trade disruption through socio-political change, a better understanding of the various ways of working, impact factors, tolerances, economic buffers, and compensatory practices which exist within the UK food system is needed.

It is important to highlight there are varying capabilities in different organisations and geographies relating to resilience. Identifying critical practices, reinforcing that which support resilience, addressing unrealised weak links or vulnerabilities and determining the impact of shifts in patterns of manufacturing and diet will all contribute to strengthening food system resilience. Even marginal gains can contribute to achieving significant improvements.

Specifically, crop protection options and their impact on critical ecosystem services such as pollinators, soil aerators, predators and other beneficial populations, when taken at a system-wide level as well as on immediate crop yields, play an important part in UK agri-food resilience. Sustainable intensification approaches for agri-food production are a key element of delivering sufficient food supply. Development of improved agricultural predictive tools such as in-field and remote sensor systems for real-time decision support will play a part in supporting UK agricultural productivity and resilience. Corresponding improved accuracy in retailer forecasting will have a critical impact on food waste and thus lessen demand on supply volumes. Currently we estimate there can be up to 60% volume

difference in initial orders vs. final confirmed requirements and subsequent paid for goods. This type of issue is not captured within life-cycle assessment (LCA) metrics. Overall more interdependent and integrated approaches to supply chain engagement will positively impact food waste, resilience and sustainability.

Sustainable and Efficient Management Of Resources

Sustainable access to sufficient supply of safe nutritious and affordable food fundamentally relies on the availability of a range of different types of resources, not only volumes of foodstuff supply. Specifically:

Soil - Sustainable health of agricultural soils as a factor in crop yield and produce nutrient content; Water / irrigation management; GHG emissions; Carbon sequestration.

Water - Innovation to reduce volume of water use in crop irrigation, food processing and sanitation/cleaning; Definition of water quality requirements vs. intended use to ensure environmental considerations do not negatively impact food safety

Energy - Innovation to reduce amount of energy use needed; Availability of sufficient energy for needs (local, regional, national) e.g. industrial production sites can be restricted in manufacturing due to energy requirements of others on same site exceeding local grid energy supply capacity; Availability of sources of renewable energy – applied to home food processes (cooking, refrigeration, freezing) as well as industrial food processing.

Waste – Clarity on drivers for generation of waste during food production, use and manufacturing; Updated consumer survey on household food waste to understand consumer views and behaviours, and the on-going scale and impact of current changed practices on sustainable living in UK.

Human Resources - Automation is driving the need for new skills in the food labour force e.g. robotics, IoT, AI, etc.; Issues with attracting and retaining capable talent in the food industry coupled with lack of investment in professional, skilled industry is impacting skills availability and needs positive promotion of the UK agri-food system as a sector valuable to the UK and a sector with worthwhile career opportunities. There are many initiatives in place aimed at addressing this but, due to the fragmented nature of the sector, these are not delivered in a cohesive, impactful way.

Packaging - Guidance on packaging resources (types of materials, proportion of recycled materials used etc.) used for specific purposes to steer a positive balance between food product protection, food security, environmental impact, and consumer acceptability; Management and control of agricultural plastics (bale wrapping, fleece etc.) is a major challenge as their use positively impacts agricultural productivity and prevention of foodstuff waste.

Nutrients - Providing and maintaining optimised bio-availability of nutrients of all types through growing, processing, storage and consumption; Management of unharvested crop biomass to maximise nutrient recovery and minimise greenhouse gas emissions.

Other Material Resources - Engineering materials for construction of appropriate deigned equipment for use in contact with food; foodstuff / ingredients resources with critical technological functions which come from either single sources or sources with poor contingency e.g. CO_2 gas.

Optimal Reformulation Approaches

It is critical that relevant food system stakeholders, including product developers and policy makers, clearly understand and can measure the holistic impact of reformulation and design changes of food products and their packaging to both avoid unintended consequences and to achieve the goal of providing access to truly sustainable nutrition.

For example, as we move away from meat as a major source of dietary protein to non-meat substitutes and alternative sources of proteins as recommended in the UK Committee on

Climate Change report 2019, there could be an imbalance in dietary nutrition depending on the substitutes or protein alternatives chosen.

Detailed recommendations on how to integrally link reformulation with balanced diets would support achieving truly sustainable nutrition. Changing human behaviours play a role in diet choices and better understanding of the drivers for these changes is needed. Evidence-based metrics to calculate impacts on nutrition and sustainability will retain consumer trust and protection. Together these will provide a sound foundation for effective communication in this complex arena to encourage development of healthier and more sustainable food products and diet choices.

Similar robust and relevant advice is needed to provide a balanced understanding of the impacts of packaging, both positive and negative, across the entire agri-food system. Packaging is essential to protect food product integrity and support longer shelf life, thus preventing food waste. Packaging materials choice, packaging design therefore need to be balanced to deliver sustainable food safety and integrity. This will be significantly affected by availability of national infrastructure to manage different types of packaging waste.

Data Quality and Applicability

Consumers and policy makers expect that sustainability and food safety are inherently addressed. Not everyone across the agri-food system is an expert in this highly complex and evolving technical area. Specific contextual guidance is needed to ensure sensible and positive choices which support sustainable food security.

Many data and claims relating to sustainability can appear contradictory as they apply only to specific individual scenario conditions. Creating overarching average values can also hide important and valuable insights. We suggest translating the current various sustainability metrics into A representative expression of the environmental impact per product SKU (stock keeping unit) to be placed in the market would assist product developers and other food professionals make the sensible informed decisions and consumers to make the right choices. Connected data and robust datasets that are accessible and understood by consumers is paramount to transparency of such metrics.

The experience of the IFST Sustainability Steering Group members is that food system data is not always being applied by decision makers in the food system. People don't always trust or understand such data sufficiently to interpret and apply it effectively. We recommend research to understand and address this situation.

We look forward to continuing to support DFERA in this way with insights and recommendations. Please don't hesitate to let us know if you have questions relating to the above recommendations, or require further input.

Yours sincerely,

Jon Poole, CEO