

OFFICIAL FEEDBACK FORM

DIALOGUE DATE	Monday, 5 July 2021 13:30 GMT +01:00
DIALOGUE TITLE	Nutrition: Bridging the gap between farm to fork for improved health and resilience in a changing environment
CONVENED BY	Biotechnology and Biological Sciences Research Council - UK Research and Innovation (BBSRC-UKRI)
DIALOGUE EVENT PAGE	https://summitdialogues.org/dialogue/29617/
DIALOGUE TYPE	Independent
GEOGRAPHICAL FOCUS	No borders

The outcomes from a Food Systems Summit Dialogue will be of use in developing the pathway to sustainable food systems within the locality in which they take place. They will be a valuable contribution to the national pathways and also of interest to the different workstreams preparing for the Summit: the Action Tracks, Scientific Groups and Champions as well as for other Dialogues.

1. PARTICIPATION

TOTAL NUMBER OF PARTICIPANTS

114

PARTICIPATION BY AGE RANGE

0-18

15

19-30

51

31-50

40

51-65

3

66-80

80+

PARTICIPATION BY GENDER

45 Male

69 Female

Prefer not to say or Other

NUMBER OF PARTICIPANTS IN EACH SECTOR

24 Agriculture/crops

1 Fish and aquaculture

3 Livestock

Agro-forestry

3 Environment and ecology

Trade and commerce

24 Education

Communication

2 Food processing

Food retail, markets

2 Food industry

Financial Services

1 Health care

20 Nutrition

28 National or local government

Utilities

Industrial

6 Other

NUMBER OF PARTICIPANTS FROM EACH STAKEHOLDER GROUP

2 Small/medium enterprise/artisan

Large national business

1 Multi-national corporation

Small-scale farmer

Medium-scale farmer

Large-scale farmer

1 Local Non-Governmental Organization

3 International Non-Governmental Organization

Indigenous People

71 Science and academia

Workers and trade union

Member of Parliament

Local authority

8 Government and national institution

Regional economic community

United Nations

International financial institution

Private Foundation / Partnership / Alliance

Consumer group

28 Other

2. PRINCIPLES OF ENGAGEMENT

HOW DID YOU ORGANIZE THE DIALOGUE SO THAT THE PRINCIPLES WERE INCORPORATED, REINFORCED AND ENHANCED?

Our dialogue was designed to align with many of the Summit principles. Although our dialogue was focussed on the role of research and innovation to address these challenges, it was open to participants from all backgrounds and locations. Whilst we moderated final numbers so that the discussions were manageable, we embraced multi-stakeholder inclusivity by ensuring a balance of expertise and backgrounds across the breakout groups, as well the speakers and breakout group facilitators. We sought to complement the work of others by seeking input from other dialogue convenors in the planning of our dialogue. We also consulted with UK government representatives during the developmental stages of our dialogue to align with plans for the UK National Dialogue and specifically invited representatives from the UK's National Food Strategy team to complement the work of the UK Government in understanding the research and innovation challenges associated with sustainable nutrition. The questions we posed to participants were designed to acknowledge and recognise the complexity of food systems and to encourage them to think of solutions and actions that take a systems approach. We also encouraged and invited participants from many aspects of the food system, with different perspectives, to encourage systems thinking. As part of the discussions, participants were divided into breakout groups, to consider actions that could be taken now to help reach the 2030 sustainable development goals, this maximised the opportunity for multiple voices to be heard. Further, we encouraged participants to contribute to the discussions using the chat function in Zoom throughout the whole dialogue event, particularly in addition to the breakout groups discussions giving everyone the opportunity to make their points and reflect better the diversity of opinions on the challenges facing the food system and the potential actions to be taken.

HOW DID YOUR DIALOGUE REFLECT SPECIFIC ASPECTS OF THE PRINCIPLES?

The discussions at our dialogue mainly aligned to the principle of recognising the complexity of the food system. Participants strongly stressed the need to work in a multidisciplinary way in seeking solutions to food systems challenges, incorporating biological, economic, social and environmental perspectives and encouraging and leading this approach in research and innovation as a national funder. This was facilitated through inviting representatives from different sectors, backgrounds and nationalities and the framing of the three talks which were designed in a way to outline the complexity of the challenge. The outputs also strongly reflect other summit principles, including complementing the work of others. Participants recommended working with and learning from other approaches which have encouraged, monitored and evaluated research impact such as the UKRI's Strategic Priorities Fund Mechanism and Research Industry Clubs. The dialogue also helped to promote multi-stakeholder inclusivity through encouraging consideration of marginalised and under-represented groups such as those in rural communities in developing nations, but also encouraging the incorporation of social and behavioural sciences into future activities to help to increase the realisation of impact for interventions in all sectors of society with a stake in the food system.

DO YOU HAVE ADVICE FOR OTHER DIALOGUE CONVENORS ABOUT APPRECIATING THE PRINCIPLES OF ENGAGEMENT?

We found that using the chat function in Zoom was a really valuable tool to enrich the discussions in the breakout rooms and between the panelists and participants in the plenary session. It can sometimes be difficult to get all participants to contribute but having the option to post comments and reply to other comments in the chat throughout the meeting levelled the playing field and reduced the barriers to participation. Before organising our dialogue, we met with other dialogue convenors to learn from their experiences and better complement their approaches and outputs. This meant that we were able to offer something different, while adding to what had gone before. Do not be afraid to advertise the dialogue to audiences you would not normally reach, this allows for different perspectives and enriches the discussion. The choice of the meeting chair and breakout facilitators is also important in this regard in attracting a different audience.

3. METHOD

The outcomes of a Dialogue are influenced by the method that is used.

DID YOU USE THE SAME METHOD AS RECOMMENDED BY THE CONVENORS REFERENCE MANUAL?

Yes

No

4. DIALOGUE FOCUS & OUTCOMES

MAJOR FOCUS

Purpose:

The UKRI-BBSRC dialogue focussed on discussion on the importance of nutrition and the need to integrate research and innovation across agriculture, food, nutrition and health while considering effects on the environment and inequalities. It was intended to:

- create a virtual event to bring together a diverse range of research communities, industry, policy makers and other stakeholders across the agriculture, food, nutrition and health nexus to discuss and identify the key research and innovation challenges, opportunities and solutions to break down the barriers between disciplines and sectors to advance progress of the SDGs
- discuss the importance of integrating nutrition research with environmental and social sciences, and highlight the divergences and convergences that may arise

Context:

The sustainable provision of safe and nutritious food for all is vital to address the global challenges of malnutrition, rising levels of non-communicable diseases (NCDs) and to promote overall population health. At the same time, food production must be resilient and adapt to climate change and consider its impact on the environment and social inequalities.

Transformation of the food system must consider sustainability, and nutrition and dietary needs at all levels from production through to consumption if it is to meet these challenges.

Improving nutrition and food-related health outcomes while building resilience into the food system requires a multisectoral approach to understand the transfer of nutrients through the agricultural system* from soil to food to human health. However, integrating research across these sectors and translating this research into impact is a significant challenge. UKRI-BBSRC is ideally placed to support research which spans this nexus and worked with partners to convene a dialogue which brought together diverse research communities and stakeholders to identify the challenges and opportunities for research and innovation, and to discuss science solutions to bridge the gap between agriculture and health by preserving nutrition across the food chain and support the building of a resilient global food system that is sensitive to nutritional and environmental outcomes and social inequalities.

*agricultural system includes horticulture, arable crops, livestock, fisheries/aquaculture and non-traditional food production methods.

The dialogue started with three presentations to establish the context of the meeting and set the scene of the research and innovation landscape - highlighting unknowns, evidence gaps, challenges and emerging areas to facilitate open discussion in the seven breakout groups and plenary session. These were framed around three themed questions:

- What is a healthy, nutritious diet for population and planetary health?
- How can we improve linkages between agriculture and health research to produce an affordable, accessible and nutritious diet for all in a changing world?

- What is the role of research and innovation in improving the nutrition quality of food in changing world?

Participants were asked to consider and discuss a series of questions under each theme, for example:

- What do we need to know, or do we know enough, about healthy diets for all?
- What contributions will research make to achieving a healthy diet and healthy planet?
- How can we improve interdisciplinary research across agriculture, food, nutrition and health to achieve a healthy, sustainable diet? What are the key research and innovation challenges and how can we overcome these?
- What are the key contributions research can make to improving the nutrition quality of food in a changing environment?
- What actions should be taken in the next 3 years that will have greatest impact and why? If you were Director General of the UN, what is the one thing you would do? (e.g. address a specific challenge, remove a barrier, are there examples of what has worked well that could be expanded on etc?).
- How will it be possible to tell if these actions are being successful?
- What are the divergences/trade-offs that are revealed and how to manage them?

ACTION TRACKS

- Action Track 1: Ensure access to safe and nutritious food for all
- Action Track 2: Shift to sustainable consumption patterns
- Action Track 3: Boost nature-positive production
- Action Track 4: Advance equitable livelihoods
- Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

- Finance
- Innovation
- Human rights
- Women & Youth Empowerment
- Policy
- Data & Evidence
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- Trade-offs
- Environment and Climate

MAIN FINDINGS

We need to move away from using global averages when identifying the challenges facing food systems around the world. This approach can miss regional and local concerns which are dependent on regional and local context and can be lost when looking at international and national data. Applying a one size fits all approach can lead to resentment in areas where this is not appropriate and the building up of mistrust of decision makers. The importance of place-based solutions rather than world-based solutions were highlighted

- Greater consideration of the economic sustainability of interventions made in the food system is recommended. This aspect is not always factored into research led by biological, environmental & social drivers and should be given greater prominence in future funding mechanisms. If the economics of research impact is not considered then the likelihood of successful interventions is reduced.
- A diverse range of researchers, stakeholders & end-users need to be involved in the co-creation/co-design of projects to ensure viable products, uptake and impact of the research and achieve a sustainable system that delivers affordable, nutritious & safe food for all
- To support interdisciplinary research in tackling food systems challenges, we need to support the building of a resilient research & innovation community of early career researchers, including more opportunities for staff mobility between institutes and disciplines, and training for systems thinking & approaches.
- Much discussion focused on the complexity of the food system and the need for interdisciplinary approaches to tackle the challenges. A vital first step in this process is to establish a vision of where we want to get to and what we want future food systems to look like. It is important to establish a common goal using methods such as scenario modelling and foresight analysis, then we can design the best metrics to measure the success of meeting this vision.
- It is very importance to be able to accurately measure and monitor the nutritional composition of foods & diets, and to better understand the nutrient bioavailability, bioaccessibility & uptake across the food chain from the soil to food as consumed including crop/animal breeding lines, harvested products, raw materials, processing & storage, food formulation & composition, cooking/shelf life, and biomarkers for human health outcomes. This requires the development of high-throughput, cost-effective assays, technologies and robust methods to identify where nutrient loss occurs across the food system and the impact of a range of factors that influence this.
- The importance of plant-based diets were recognised, but there are many unknowns with much evidence focused on GHG emissions and wider aspects such as nutritional contribution/quality, cost, water & land use, cultural acceptability, health, socioeconomic and geographical factors being overlooked. A more balanced approach is required
- Despite the trend towards more plant-based diets, animal-based foods are still nutritionally important and research should focus on making livestock farming more carbon neutral and produce more affordable, nutritious, high quality animal-based foods. If intakes of animal-based foods are reduced, the essential nutrients they provide (not just protein) need to be readily accessible in bioavailable form from other sources.
- Developing integrated indexes for human and planetary health were highlighted as vitally important
- There was strong agreement that to address global challenges, systems/interdisciplinary research and multi-sector approaches are crucial. However, it is important that we do not lose sight of reductionist approaches to challenges where there can be some big wins
- To deliver the actions and rapid change requested by the UNFSS, we should focus on research innovations already in progress along this pathway and improve or more effectively use the ones we currently have
- The availability of tools, technology and data can advance a more comprehensive and systems-wide research approach, such as using AI, modelling, data integration & GM/gene editing techniques which have the potential to deliver quick results with a large impact. The UN needs to encourage countries to change local and National policies to use these technologies for human and planet benefit. However, the development and translation of technologies need to be tensioned against the needs and capabilities of smallholder farmers in the developing world by building a better understanding of rural issues and more support for rural infrastructure with low-tech solutions
- Improvements to reduce food waste and nutrient loss at production/post-harvest stage can be a quick win to improve progress against the SDGs. Investing in stable post-harvest processes will provide economic security to farmers by preventing spoilage and degradation, developed with the whole system and energy efficiency in mind and contribute to improve human health
- As poor nutrition, NCDs and obesity levels continue to rise globally, it was agreed that existing food based dietary guidelines need to be re-evaluated to determine whether they are adequate as a basis for making diets more sustainable, fit for purpose in meeting nutritional requirements and how they can be tailored to specific population groups, based on robust scientific evidence
- More food should be grown in urban areas in an environmentally friendly way to reduce supply chains and increase accessibility and affordability of fresh food to individuals who need it most

ACTION TRACKS

- Action Track 1: Ensure access to safe and nutritious food for all
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KEYWORDS

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OUTCOMES FOR EACH DISCUSSION TOPIC - 1/10

1. Dietary guidelines

Nutrition is fundamentally important for health, but it is difficult to define the optimum healthy diet for a healthy human, particularly given the diversity of the global population. Dietary guidelines have been in place for many years with much focus given to avoiding nutrient deficiencies, but the prevalence of poor nutrition, NCDs and obesity is rising which is major global challenge. While there are commonalities when comparing food based dietary guidelines (FBDG) from different countries, differences occur to reflect the cultural differences in foods, as well as variations in their level of detail, how they are employed and the level population adherence. For example, the FBDG in some countries consider other aspects such as environmental, food safety, dietary habits and food preparation. Therefore, we need to reassess whether the existing guidelines are adequate as a basis for making diets more sustainable, fit for purpose in meeting nutritional requirements and how we can better align them? The Federation of European Nutrition Societies (FENS) have conducted a number of systemic reviews on European FBDG (Tetens et al. 2020; BJN; doi:10.1017/S0007114520002469). In addition, a UK study reported health and environmental benefits were associated with higher adherence to UK national dietary recommendations (the Eatwell Guide) (Scheelbeek et al. 2020; BMJ Open; doi:10.1136/bmjopen-2020-037554). While there is sufficient knowledge to be able to produce generic food based dietary guidelines, it is important to develop a better understanding of how FBDG can be tailored to specific population groups to address the health targets which vary across nations and consider environmental aspects.

Actions:

- more detail about micronutrient bioavailability from different food sources and fully understand the impact of gender, genetic variability, age, geography, culture/diets, climate, infection (how the gut responds to an adequate diet or if the gut functioning differs with infection) on diet, and the comparable and different nutritional/dietary requirements in low vs high-income countries
- international collaboration to support and develop sustainable food based dietary guidelines that are tailored to specific population groups and incorporate environment aspects

Success:

- focused dietary guidelines that holistically reflect the interactions between nutrition, health and sustainability and are tailored to specific population groups so that the cultural and costs aspects are considered alongside the more commonly considered aspects and are based on robust scientific evidence
- robust food compositional data, including information on micronutrient bioavailability, particularly for novel, niche and plant-based foods
- Improved methods for objectively assessing dietary intake, that integrate modern technologies

ACTION TRACKS

✓	Action Track 1: Ensure access to safe and nutritious food for all
✓	Action Track 2: Shift to sustainable consumption patterns
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KEYWORDS

	Finance	✓	Policy
✓	Innovation	✓	Data & Evidence
	Human rights	✓	Governance
	Women & Youth Empowerment		Trade-offs
		✓	Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 2/10

2. Sustainable healthy diets

Nutrition and the quality of diets need to be more strongly recognised in the discussions, policies and actions about sustainable diets and addressing climate change. There are large knowledge gaps on the impact of what we eat on livelihoods, environment, ecosystems etc. We need a broader understanding of the connections between the different parts of the whole system and the impact on the planet. At present, much of the evidence is focused on GHG emissions whereas wider aspects such as cost, water usage, land use, cultural acceptability are being overlooked. What will the impact of a move toward more plant-based diets be on the food system and on achieving nutrient requirements?

Due to COVID, individuals have become more aware of food systems and the concerns of the environmental impacts on the planet. A more balanced approach is required, e.g. the impacts of seeds and plant-based diets, such as pulses, should take into account the processing and energy taken to turn them into ingredients that people want to eat. The nutritional value of foods such as meat and dairy may outweigh GHG emission, particularly in countries where nutritional intake is relatively poor, or consumption of animal sourced food is low. We need ensure that nutrition and locally relevant data are included when considering sustainable diets and environmental impact.

Actions:

- Establish a clear challenge about how food systems might meet global and local needs in terms of nutrition/health and the environment. No one size fits all and there will be different challenges in HIC & LMIC countries.
- More work is needed on the balance between nutrition and the environmental impacts of production and supply chains, for example, the metric 'food miles' does not currently take into consideration the impact of farm worker migration, supporting local economies (e.g. food exports), and better gender equality in LMICs, compared to the sustainability of food imports.
- Integrated index: Incorporate nutritional quality into lifecycle analysis. Adopting this approach across different nutrients will give a sounder basis for decision-making. It will also need to include other dimensions such as water, SES. Provide accessible information for consumers, based on robust evidence, about the environmental impacts of their food choices
- Additional research is required to look at the balance between the point at which the higher environmental footprint of some nutrient-dense foods is offset by their higher nutritional value
- Build on available technology and the good practical research being undertaken in processing to reduce impact on planetary health (energy & water usage) to add value quickly and potentially make some traditionally negative planet health foods kinder to the environment
- Develop the use of accurate & robust biomarkers (biomes) to allow the evaluation and monitoring of nutritional status and enabling early interventions to improve health. These need to be simple to collect easily at scale.
- Grow more food in urban areas in an environmentally friendly way to reduce supply chains and increase the accessibility and affordability of seasonally produced and fresh food to individuals who need it most. This will also assist in reducing food miles.

Success:

- Good food system (whole chain) data production and analyses – using data better to give a clearer understanding of situation and sound basis for routes forward
- An integrated index for human and planetary health informed by robust evidence base is developed and established
- Established toolbox of nutritional and health biomarkers for use at individual and population level
- Advances in technology research and building on current processing research for quick wins

ACTION TRACKS

- | | |
|---|--|
| ✓ | Action Track 1: Ensure access to safe and nutritious food for all |
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| ✓ | Action Track 3: Boost nature-positive production |
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KEYWORDS

- | | | | |
|---|---------------------------|---|-------------------------|
| □ | Finance | □ | Policy |
| ✓ | Innovation | ✓ | Data & Evidence |
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| □ | Women & Youth Empowerment | ✓ | Trade-offs |
| □ | | ✓ | Environment and Climate |

OUTCOMES FOR EACH DISCUSSION TOPIC - 3/10

3. Improving the nutrition quality of food in a changing environment

- Animal based foods provide many nutrients important for human nutrition which are not found in plant-based foods or the plant form cannot be digested or absorbed as efficiently by humans. However, current pressures from animal welfare policies in the UK are making it harder to farm livestock in an environmentally friendly way.
- Collaborations between plant and clinical scientists would remove the bottleneck between enhancing nutrition in plant studies and human trials by enabling preparatory work to improve understanding of/ remove barriers in project design, translation and impact
- Stronger collaborations between industry and researchers are needed to improve nutritional profiles across all food groups and not just among niche products with perceived higher economic value, e.g. higher vitamin D in eggs with no price increase for consumer
- Currently industry do not use gold standard accredited tests for nutrition screening as they are too expensive and time-consuming. High-throughput, cost-effective assays to determine nutrient composition need to be developed and could be used to improve labelling to inform the consumer about what they are eating
- Also need simplified, but accurate methods to measure bioavailability and absorption of nutrients in humans in real life environments.
- Bioavailability: There are many gaps in our understanding of nutrient bioaccessibility and bioavailability and the disconnect with the nutrient composition of food(s). Bioavailability is difficult to measure and is affected by meal composition and nutritional status/physiological requirements of the consumer, e.g. phytochemicals (phytates) and phenolic compounds (tannins) can bind important micronutrients such as Iron, Calcium and Zinc and make them unavailable to be absorbed by our intestinal cells. A better understanding of what happens to nutrients along the food chain from soil to production to processing to consumer is needed

Actions:

- Cross-collaboration across the different disciplines and sectors (agricultural, environmental, clinical and social sciences, nutritionists, livestock & crop farmers, industry, investors & retailers) is needed to advance the area – all whilst bearing the consumer in mind.
- Research on livestock farming should focus on making it become more carbon neutral and produce more affordable, nutritious, high quality animal-based foods and reduce population consumption of more processed foods, particularly those high in saturated fat, sugar and/or salt.
- The UN should encourage international legislation to focus the marketing of processed foods on nutritional quality (both composition and bioavailability of nutrients)
- develop high throughput, cost-effective tests to determine and subsequently improve nutrient compositions and nutritional profiles for crop breeding lines/animal breeds, harvested products, raw materials, processing & storage, food formulation and cooking/shelf life
- develop a real understanding of bioavailability of essential nutrients (e.g minerals) from soil to consumer and at the food level with human studies to progress and eventually predict the nutritional value of foods once consumed.

Success:

- Better cross-disciplinary work across all stakeholders and different countries to produce high impact work.
- high-throughput nutritional screening assays for industry
- Better food labelling
- Improved nutrient flow and reduced nutrient loss along the food chain
- processing to maximise the use of existing nutrients from a range of sources to produce affordable, healthy processed foods with a balanced nutritional profile which also address sustainability/waste issues

ACTION TRACKS

- ✓ Action Track 1: Ensure access to safe and nutritious food for all
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OUTCOMES FOR EACH DISCUSSION TOPIC - 4/10

4. Food loss/waste

• The post-harvest stage is often over-looked, but this is a key component of the food system. A reduction of food and nutrient loss during the post-harvest and processing phases is essential. Food loss often occurs at entry into the processing system. For example, large proportions of grain gets rejected, of which some passes into livestock feed and rejection levels increase with severe weather events.

Actions:

- Invest in stable post-harvest processes, such as low-cost cool supply and storage chains, to provide economic security to farmers by preventing spoilage and degradation, developed with the whole system and energy efficiency in mind.
- develop better methods of processing foods to reduce nutrient loss

Success:

- improvements in reducing food lost and waste at production/post-harvest stage can be a quick win

ACTION TRACKS

- ✓ Action Track 1: Ensure access to safe and nutritious food for all
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OUTCOMES FOR EACH DISCUSSION TOPIC - 5/10

5. Research & Innovation – the role of technology

- While there is a very strong focus on taking a systems or interdisciplinary research approach to address global challenges, it is important that we do not lose sight of the reductionist approaches to challenges where there can be some big wins, for example widening the gene pool of our cultivated wheat varieties
- Innovation can take a considerably long time to convert an idea into a product (which is increasingly important to funders and policymakers) and it has been reported that on average, in the agricultural sector the time scale is approx. 30 years. Therefore, to deliver the rapid change requested by the UNFSS timeline, we should focus on innovations already in progress along this pathway, improve or more effectively use the ones we currently have
- The availability of tools, technology and data can advance a more comprehensive and systems-wide research approach, such as
 - GM and gene editing techniques which have the potential to deliver quick results with a large impact such as increasing the resilience and nutritional value of crops, fruit and vegetables and livestock
 - Using AI, modelling, data integration and platforms, digital twin technology to capture, increase understanding and manage the complexity of, food chain supply and high throughput testing systems to determine nutrient compositions and status
- The development and translation of technologies needs to be tensioned against the needs and capabilities of smallholder farmers in the developing world (who make up a significant proportion of agriculture). A better understanding of rural issues and more support for rural infrastructure with low-tech solutions should be factored in

Actions:

- UN to encourage changes to local and National policies, particularly those surrounding the use of GM/GE
- Reduce the barriers to getting nutritious crops with improved functionality onto commercial lists and accelerating the breeding to marketing cycle
- AI, modelling and digital twins to capture and manage the complexity that currently exists in the food system (e.g. environmental issues, human health, behaviour and inequalities). This will enable us to develop a better understanding of the divergences and trade-offs
- Link food, health, and personalised food service (i.e., increasing use of online food shopping, food delivery services) using big data
- Develop an integrated index for human and planetary health for monitoring purposes
- Develop accurate & robust biomarkers (biomes) to allow the evaluation and monitoring of nutritional status and enabling early interventions to improve human health. These need to be simple to collect easily at scale
- develop high throughput, cost-effective tests to determine and subsequently improve nutrient compositions and nutritional profiles for crop breeding lines/animal breeds, harvested products, raw materials, processing & storage, food formulation and cooking/shelf life

Success:

- Widespread use of tools and technologies to aid understanding of the nutrient quality of food once consumed and the impact this has on health outcomes
- Increased support for rural smallholder farmers with affordable technological solutions to relevant issues

ACTION TRACKS

- ✓ Action Track 1: Ensure access to safe and nutritious food for all
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OUTCOMES FOR EACH DISCUSSION TOPIC - 6/10

6. Consumer behaviour

- There is distinct gap between knowledge and practice – we know broadly what we should be eating, but how do we get there? The key challenge is how to use our knowledge to influence actual diet across diverse communities to achieve a win-win for human and planetary health.
- the 'human' aspect of diets and eating go beyond nutrients. Not everyone is interested in or chooses foods based on health or the environment. They have other priorities of which the major is barrier is affordability of food as well as other influences such as pleasure, cultural and social aspects which are more important and effect wellbeing. Decades of research have shown that education alone does not change diets and making information about healthy diets available to people is a very partial solution
- Food environments are currently skewed towards promoting unhealthy food choices (advertising, pricing etc) and we need to make it easier for people to make healthy choices so this becomes the normal practice. However, this needs to be balanced as food is also an economic commodity so we need to factor in economics, livelihoods and inequality of access as a driver and impact factor. This could be addressed by integrating data methodologies including qualitative data, modelling and scenario development
- We need to help people to better understand what they are eating and to develop interdisciplinary approaches, embedding social/behavioural science (e.g. marketing psychology), to enable this. Methodologies and technologies, such as objective feedback and coaching are crucial, but there is an urgent need to develop better, more objective dietary assessment methods to improve the self-reporting of diet. Currently it is very difficult to capture misreporting (under- and over-reporting of dietary/food intake)
- We need robust evidence to make a real difference to diet and health and must develop clear metrics to derive a sustainability index that includes the nutritional quality of food at its center. There are lots of trade-offs to consider such as, food safety (allergenicity), cleanness of label, socio-economics and finding a way between these needs in an environmentally balanced way which is highly complex, particularly considering the different agricultural/food production methods including local production and self-sufficiency
- Food technology: interventions at food processing, manufacture and distribution level is key to providing nutritious and affordable food for all. As increased food production alone does not always ensure affordability, regulatory interventions to make nutritious foods affordable are crucial.

Actions:

- Increased investment in food technology (food processing, manufacture and distribution level) is key to closing the gap in food affordability and providing a culturally acceptable and nutritious diet for all
- Integration of data methodologies including qualitative data, modelling and scenario development relating food environments, economics, livelihoods and inequality of access to influence consumer behaviour/food choice
- Integrating economic and social science in food systems research to help interventions take account of behaviour and equity of access

Success:

- A better integrated food systems research community with an appreciation of the importance of economic and social implications of transforming food production and nutritional quality of diets

ACTION TRACKS

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OUTCOMES FOR EACH DISCUSSION TOPIC - 7/10

7. Co-creation and co-design of research

- Research and innovation that enables us to sustainably deliver affordable, acceptable and nutritious meals every day for everyone is a massive challenge and a range of academic disciplines, the private sectors and other sectors must come together to deliver this.
- It is important nutritionists are involved the co-creation/co-design of research projects that are focussed on food
- Stakeholders and end-users of research such as industry, farmers, consumers and policymakers must be involved in the co-creation/co-design of research projects and training to ensure viable products, uptake and impact of the research. For example, co-designing research with farmers who would be growing the new varieties of nutritionally dense food/crops, because if it takes extra efforts for farmers to grow those varieties without much return on investment then the whole research stays at laboratory level. Just as we have patient participation representatives in the design of human studies, we must involve consumers in food research, there is no point producing food products that consumers will not purchase or eat. This will provide some indication of the economic sustainability of interventions and the research impact in the medium to long-term (e.g. Environmental taxes, acceleration the breeding to marketing cycle)
- The co-design of research with stakeholders, end users and civil society has been central in the UKRI Transforming UK Food Systems for Healthy People and a Healthy Environment Programme which has received positive feedback in terms of balancing quality of research with impact focus <https://www.foodsecurity.ac.uk/research/foodsystems-spf/>
- It is also important to have more active engagement (monitoring/support) during projects and follow-up after completion to help with the dissemination of findings and deliver impact. This has been very successful in the UKRI-BBSRC supported Diet and Health Research Industry Club (DRINC) which was first established in 2008 to support pre-competitive research that investigates the link between diet and health. The research has enabled the food and drink industry to develop products that deliver enhanced health benefits for consumers. <https://bbsrc.ukri.org/innovation/sharing-challenges/drinc/>

Actions:

- UN to encourage research projects and programmes to be co-created and co-designed by a range of academic disciplines and with a wide range of stakeholders and end users of research such as industry, farmers, consumers and policymakers to ensure greater outcomes, uptake and impact of the research

Success:

- co-designing research and training across disciplines and stakeholders will deliver coherent evidence to enable concerted action from policy, business and civil society.

ACTION TRACKS

- ✓ Action Track 1: Ensure access to safe and nutritious food for all
- ✓ Action Track 2: Shift to sustainable consumption patterns
- ✓ Action Track 3: Boost nature-positive production
- ✓ Action Track 4: Advance equitable livelihoods
- Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

- ✓ Finance
- ✓ Innovation
- Human rights
- Women & Youth Empowerment
- ✓ Policy
- ✓ Data & Evidence
- ✓ Governance
- Trade-offs
- ✓ Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 8/10

8. Global Averages

There is a need to move away from using global averages when identifying the challenges facing food systems around the world. This approach can miss regional and local concerns which are dependent on regional and local context and can be lost when looking at international and even national data. Applying a one-size-fits-all approach can lead to resentment in areas where this is not appropriate and the building up of mistrust of decision makers.

Actions:

- Less use of global averages when framing food systems challenges across different contexts
- Increased support for research and innovation that focusses on local and regional challenges

Success:

- A better appreciation of local and regional challenges with interventions tailored to each specific context

ACTION TRACKS

✓	Action Track 1: Ensure access to safe and nutritious food for all
	Action Track 2: Shift to sustainable consumption patterns
✓	Action Track 3: Boost nature-positive production
	Action Track 4: Advance equitable livelihoods
	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

✓	Finance		Policy
	Innovation	✓	Data & Evidence
	Human rights		Governance
	Women & Youth Empowerment	✓	Trade-offs
			Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 9/10

9. Early Career Researcher training

Alongside the need to support interdisciplinary research in tackling food systems challenges, it is critical to support capacity building and early career researchers. There is a need to build a resilient, sustainable research and innovation community with more opportunities for staff mobility between institutes and disciplines, and training for systems thinking and approaches. Large funding programmes can favour established researchers and research groups and should consider an element of future-proofing the sector.

Actions:

- Sandpit and network style events for ECRs to discuss food system challenges
- Training packages or programmes on systems thinking and systems approaches for ECRs
- Greater opportunities for staff mobility between institutes and disciplines

Success:

- A better connected, interdisciplinary community of early career scientists and innovators building capacity and capability in food systems science.

ACTION TRACKS

✓	Action Track 1: Ensure access to safe and nutritious food for all
	Action Track 2: Shift to sustainable consumption patterns
	Action Track 3: Boost nature-positive production
	Action Track 4: Advance equitable livelihoods
	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

	Finance		Policy
✓	Innovation		Data & Evidence
	Human rights		Governance
	Women & Youth Empowerment		Trade-offs
			Environment and Climate

OUTCOMES FOR EACH DISCUSSION TOPIC - 10/10

10. Food System Vision

A vital first step in tackling complex interdisciplinary challenges is the need to establish a vision of where we want to get to and what we want future food systems to look like. By gaining acceptance and agreement on common goals for a future food system, research and innovation can focus on areas that will have the greatest impact on achieving that vision. The importance of establishing a common goal was stressed by dialogue attendees using such methods as scenario modelling and foresight analysis. Once this is established, the appropriate metrics to measure the success of meeting this vision can be designed.

Actions:

- The commissioning of scenario modelling and foresight analysis to help frame common goals for a future food system
- High-level commitments on agreeing what a future food system should look like
- Agreed metrics on how to measure success of meeting this vision

Success:

- A shared understanding of the principles and goals of a future food system that progresses towards the SDGs

ACTION TRACKS

✓	Action Track 1: Ensure access to safe and nutritious food for all
✓	Action Track 2: Shift to sustainable consumption patterns
✓	Action Track 3: Boost nature-positive production
	Action Track 4: Advance equitable livelihoods
✓	Action Track 5: Build resilience to vulnerabilities, shocks and stress

KEYWORDS

	Finance		Policy
✓	Innovation	✓	Data & Evidence
	Human rights	✓	Governance
	Women & Youth Empowerment	✓	Trade-offs
		✓	Environment and Climate

AREAS OF DIVERGENCE

There were few areas of strong divergence, but a number of issues or tensions recurred regularly throughout the meeting:

• Planetary health vs Population health

This was a topic of strong divergence. Despite the rising levels of NCDs and malnutrition in all its forms, it was considered by some participants that too much focus is given to sustainable diets – producing more resilient crops and enough food (calories) and skewed towards addressing environmental concerns and climate change. Nutrition and the quality of diets must be more strongly recognised as an equal priority in discussions, policies and actions about sustainable diets and addressing climate change. The alternative views expressed were that the agricultural sector is one of the biggest contributors to climate change and there is more urgency associated with this challenge and thus, is being addressing via mechanisms such as COP26 and the Paris agreement.

• Dietary guidelines vs consumer behaviour

Although it was agreed that there are some commonalities and differences in existing food based dietary guidelines (FBDG) between countries, they are designed as 'one-size-fits-all' despite different nutritional requirements across the lifecourse and the need to develop FBDG tailored to specific populations was clearly identified. Opposing views expressed were that as the majority of citizens do not follow these guidelines anyway, does it really matter? It needs to be acknowledged that there are many reasons behind consumer food choices: people know what the guidelines are but choose to ignore them; not everyone is interested or chooses foods based on health or environmental impacts; there other priorities or barriers, mainly affordability, accessibility and inequalities, but also culture; and social aspects and pleasure which are important for wellbeing. Food environments are currently skewed towards promoting unhealthy food choices and we must make it easier for people to make healthy choices so this becomes the normal practice. There are key roles for food technology/processing and the food industry sector to produce more affordable nutritious foods that people want to eat and for social and behavioural science to develop methodologies and technologies to enable consumer uptake

• Livestock vs Plant

This is a strong area of divergence. Opinions were expressed that the livestock industry, particularly red meat agriculture is heavily criticised for having negative impacts of the environment and health. There needs to be a shift between the negative perceptions towards unhealthy processed meats as distinguished from eating smaller amounts of good quality meats. Too much focus is also given to meat-based diets with less emphasis on the impact of dairy. The nutritional value of foods such as meat and dairy may outweigh GHG emission, particularly in countries where nutritional intake is relatively poor, or consumption of animal sourced food is low. There needs to be a more balanced approach with nutrition incorporated into an integrated index for human and planetary health. Research investment on livestock farming should focus on making it become more carbon neutral and produce more affordable, nutritious, high quality animal-based foods. Opposing views from participants were that increased production and consumption of plant-based foods is better for both planetary and population health. Although, it was noted that not all plant-based foods are 'healthy' depending on the method of cooking or processing and that some plant-only diets may have some unintended consequences for health

• Animal-based vs Plant-based proteins

There is currently an unbalanced focus on protein when in many countries the majority of citizens consume sufficient quantities of protein (although the quality may differ). It is important to encourage re-balancing of protein from animal- and plant-based sources for planetary health but also consider the changes to micronutrient content and bioavailability and the impact on health. It should also be noted that other macronutrients are important, for example, in the UK the consumption levels of fibre need to be improved.

• Transparency vs Health by stealth

There was discussion about whether improving the consumption of more nutritious foods & diets should be conducted in a transparent way by consumer information and education to encourage the uptake of healthier foods or to use 'stealth' to make the composition of 'less healthy foods healthier via modifying food production & processing methods such as, gene editing technologies, breeding lines selection, biofortification & food fortification and the reformulation of foods to provide affordable priced products in order to reach the consumers who need it most.

• Nutrition vs Taste

Evidence suggests that taste, price and convenience tend to be greater determinants of food choice than health, resulting in increased intake of processed foods. Better education & reduced availability of heavily processed, nutrient poor foods could help overcome this. We also need to increase consumer understanding that not all plant-based food products are necessarily healthier, particularly those that are highly- processed foods. Also, when choosing alternatives to animal derived foods, protein content should not be only consideration, other nutrients that are present in animal derived foods also need to be considered

• Yield Vs Nutrition

Farmers are often focused on yield over nutritional value, incentives to produce more nutritious & environmentally friendly produce would be advantageous.

ACTION TRACKS

<input checked="" type="checkbox"/>	Action Track 1: Ensure access to safe and nutritious food for all
<input checked="" type="checkbox"/>	Action Track 2: Shift to sustainable consumption patterns
<input checked="" type="checkbox"/>	Action Track 3: Boost nature-positive production
<input type="checkbox"/>	Action Track 4: Advance equitable livelihoods
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KEYWORDS

<input type="checkbox"/>	Finance	<input type="checkbox"/>	Policy
<input checked="" type="checkbox"/>	Innovation	<input checked="" type="checkbox"/>	Data & Evidence
<input type="checkbox"/>	Human rights	<input type="checkbox"/>	Governance
<input type="checkbox"/>	Women & Youth Empowerment	<input checked="" type="checkbox"/>	Trade-offs
<input type="checkbox"/>		<input checked="" type="checkbox"/>	Environment and Climate

ATTACHMENTS AND RELEVANT LINKS

RELEVANT LINKS

- **UKRI-BBSRC Dialogue Event Information**
<https://bbsrc.ukri.org/news/events/2021/un-food-systems-summit-independent-dialogue/>