TONY BLAIR INSTITUTE FOR GLOBAL CHANGE

The Future of Food

Why Microbiome Innovation Needs to be on the Agenda

KAREN HOOPER, TONY BLAIR INSTITUTE FOR GLOBAL CHANGE, FEBRUARY 2022

Euroopa Liit maaelu arenguks
Euroopa Maaelu Arengu Põllumajandusfond: Euroopa investeeringud maapiirkondadesse

About us

THE TONY BLAIR INSTITUTE

We support political leaders and governments to build open, inclusive and prosperous societies in a globalised world

We do this by developing policy and advising on delivery

We are mission driven and operate on a not-for-profit basis

THE TECHNOLOGY AND PUBLIC POLICY PROGRAMME

We regard the tech revolution as the central political challenge of our time

We believe progressive politics can only meet it with new thinking and new coalitions

We are building a 21st century policy platform to achieve this goal

Future of Food Programme

POLICY FOCUS

The global food system urgently needs reform in the face of climate change, biodiversity loss, food insecurity and deteriorating public health.

We believe technological innovation offers an opportunity to radically change the way we produce and consume food, so our food system delivers better for both people and the planet. We are developing policy and strategy to accelerate the future of food.

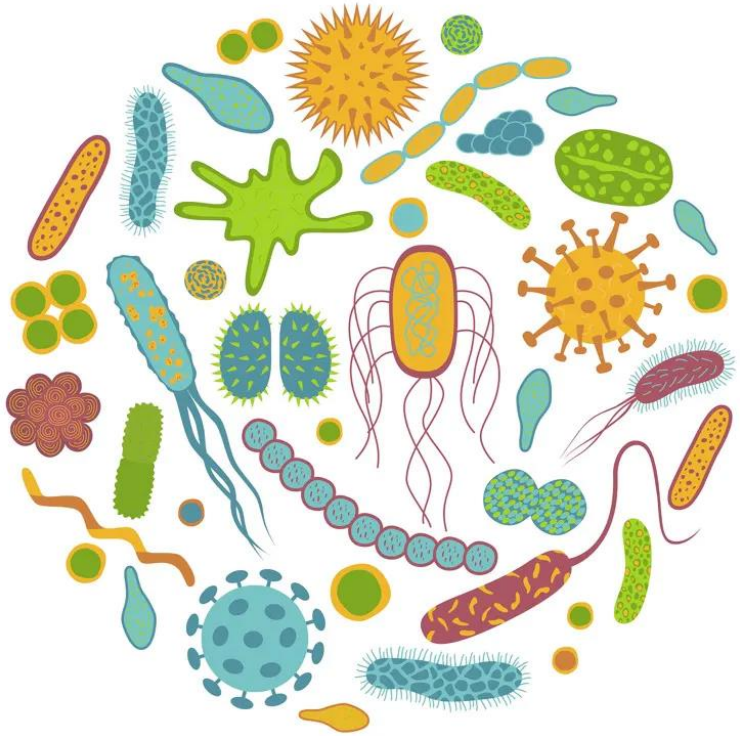
KEY THEMES IN OUR WORK

Assessing the impact of food technologies – such as vertical farming and alternative proteins – on the environment, human health and the economy

Identifying barriers to scaling food tech to benefit all

Setting out the issues that warrant attention from policymakers – such as basic R&D, regulation and skills

What is a microbiome?



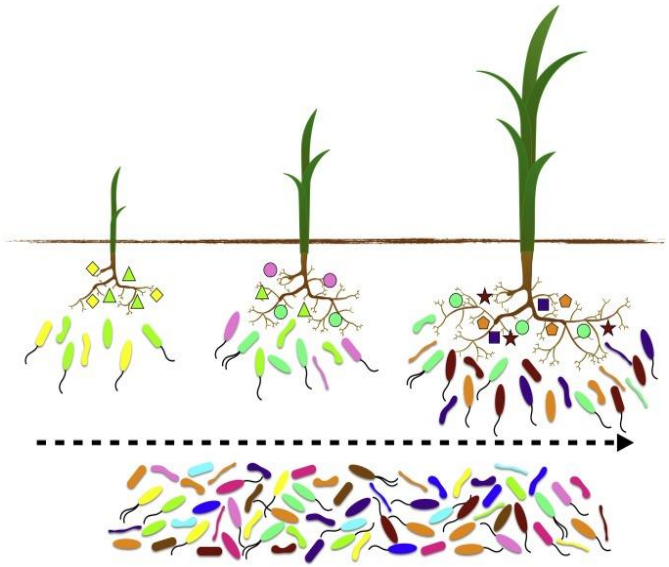
A microbial community made up of viruses, bacteria, archaea, eukaryotes and fungi that are characteristic of particular environments

Examples of microbiomes

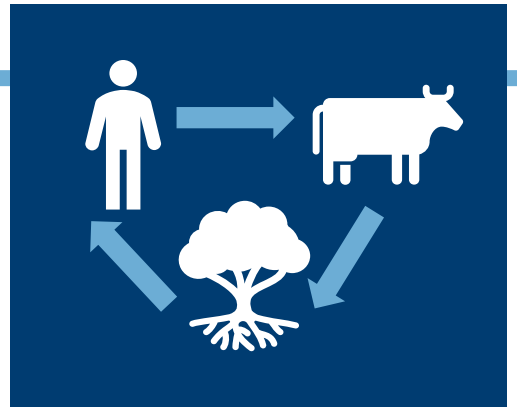
Gut

Skin

Plant/soil



Why are they important?



Interaction between environment, animals, & humans

Impact of environment & diet on human microbiome

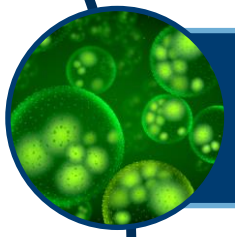
Connections between human microbiome & illnesses

Quantifying the upside

The WEF estimates that microbiome innovation in agriculture has the potential to increase production by up to **250 million tonnes** generating up to **$100 billion** in additional farmer income

Benefits: crop productivity

Understanding the core plant microbiome



Increasing resilience

Increasing yield

Green pest control

Benefits: carbon sequestration

WEF estimates that a better understanding and application of microbiome innovation could reduce GHG emissions by up to

30 million tonnes roughly equivalent to **~10 million tonnes**

of waste recycled instead of ending in landfill

Benefits: enhancing livestock productivity

Waste management

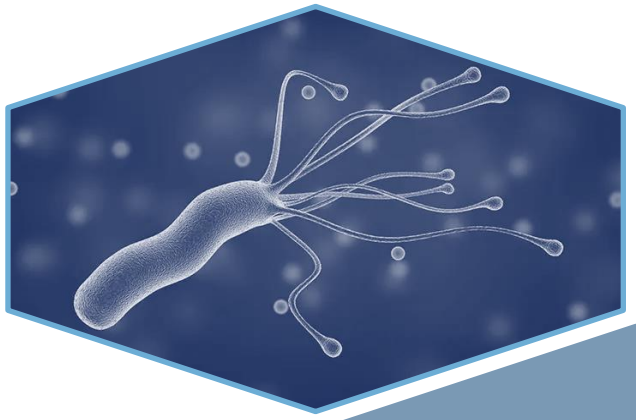
Animal feed

Reduced antibiotics

Other benefits: human health

- New approaches to understanding and treating illnesses
- New approaches to malnutrition
- Personalised medicine and nutrition

Risks: unintended consequences



Ex Changing environment, changing roles

Ex Transmission

Ex Nutritional profiles

Risks: knock-on effects

Where to go from here?

A unified strategy	• Start the conversation by ensuring microbiome innovation is on the agenda at home and abroad • Clarify how microbiome innovation fits into the wider plan for a sustainable food system
Collaboration	• International collaboration to align on terminology, agendas, and frameworks eg Nagoya Protocol • Knowledge and data sharing practices • Systems approach, collaboration across disciplines
Centres of excellence	• Convene experts globally and domestically to help set guidelines around research, regulation and how it fits into wider food-system reform • Ensure consistency of focus, training, and safety • Drive awareness and acceptance among stakeholders with education and training
Investment	• Step up long-term investment in education, research, production infrastructure, data-management systems and biobanking • Investment and support in innovation applications

Questions?

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Thank you

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