FOOD 2030
EU Research & Innovation for tomorrow's nutrition and food systems

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A "Perfect Storm"

- 9 billion to feed by 2050
- 60% more food demand by 2050

- 2 billion Overweight & Obese
- 795 million under-weight
- Yet 33% food wasted

- Uses 70% H2O
- Uses 30% Energy
- Delivers 25% GHG

- Zero Hunger (SDG)
- 2030 GOALS
- ↓ Food waste by 50% (SDG)
- ↓ CO₂ by 1.5-2°C (COP21)
Political Opportunity

Juncker Priorities & Modern CAP

2. A connected digital single market.
3. A resilient Energy Union with a forward-looking climate change policy.
4. A deeper and fairer internal market with a strengthened industrial base.
5. A deeper and fairer Economic and Monetary Union (EMU).
6. A reasonable and balanced free trade agreement with the United States.
7. An area of justice and fundamental rights based on mutual trust.
8. Towards a new policy on migration.
9. Europe as a stronger global actor.
10. A Union of democratic change.

Sustainable Development Goals

COP21+

IPCC

Next post 2020 EU Framework programme (FP9)
New post 2020 EU Multi-Annual Financial Framework (MFF)
Support to evolving EU policies
FOOD 2030
EU R&I Policy Framework to future-proof our nutrition & food systems

- Need for a systemic approach to future-proofing food systems by structuring, connecting and scaling-up R&I
- To provide evidence for policies and solutions (knowledge, methods, technologies, services, business models, etc) addressing 4 priorities.

Priorities
- NUTRITION for sustainable and healthy diets
- CLIMATE smart and environmentally sustainable food systems
- CIRCULARITY and resource efficiency of food systems
- INNOVATION and empowerment of communities

Drivers
- Research breakthroughs
- Innovation and Investment
- Open Science
- International collaboration
Achievements so far

**FOOD 2030: Research & Innovation for Tomorrow's Nutrition & Food Systems**
High-Level Event, 12-13 October 2016, Brussels

**Harnessing Research and Innovation for FOOD 2030**
Science Policy Dialogue, 16 October 2017, Brussels
FOOD 2030 Next Steps

- **Launch FOOD 2030 Expert Group**
  Sept. 2017 to March 2018

- **FOOD 2030 World Food Day Conf.**
  16 Oct 2017, Brussels

- **Launch FOOD 2030 CSA**
  Nov 2017 to end 2020

- **MS Mapping of Food Systems R&I**
  Dec 2017

- **2nd FOOD 2030 High Level Event**
  21-22 June 2018
  Plovdiv, BG
Possible ideas for future R&I?

Producer to consumer
- Biofertilizers
- Alternative proteins
- Competitive businesses
- Responsible food systems
- Cities and regions
- Resilient food systems
- Diverse food systems
- Inclusive food systems
- Sustainable food systems
- Soil carbon capture
- Behavioural sciences
- Food safety systems
- Resource efficiency
- Vertical farms
- 3-D printed food
- Agroforestry
- Microbiome
- Functional foods
- Rural growth
- Land and sea
- Blockchain for traceability
- DIY food science

FOOD 2030 is about the future!
Bio-fertilisers for Plants

**Problem:**
Overuse of non-renewable chemical fertilisers

**The Goal:**
Reduction of classic synthetic fertilizers during crop production

**R&I Needs:**
Improved nutrient recovery
Innovate and scale-up waste treatments
Improved nutrient up-take, seed inoculation

**Relevant Policies:**
Food security, Circular Economy, Climate action, Revision of Fertiliser Regulation

**Response to SDGs:**
2 Zero Hunger
6 Clean Water and Sanitation
13 Climate Action
Fighting Food Waste

**Problem:**
Reduction of food losses and waste

**The Goal:**
Less agricultural waste is produced, more is reused and linked to applications through the bioeconomy

**R&I Needs:**
Standardized food waste monitoring
Shorter, sustainable food supply chains
Valorisation/donation
Technological & social innovation

**Relevant Policies:**
Circular Economy, CAP modernisation, Climate action, EU Waste policies
Alternatives Proteins

Problem:
Increased global demand for protein
High carbon footprint of animal husbandry

The Goal:
Increased healthy & sustainable protein consumption
Reducing greenhouse gas emissions

R&I Needs:
Identify, assess, scale-up new or alternative protein sources
Characterisation of nutritional value & functionalities

Relevant Policies:
Food security, Climate action
Circular Economy, Novel Food Regulation

Response to SDGs:
2 Zombie Hunger
12 Responsible Consumption and Production
13 Climate Action
Aquaponics

Problem:
European consumers reject the use of aquaculture;
Need to feed growing cities
Limited land for food production

The Goal:
Ecologically friendly production of crop plants and fish: use of non-renewable resources with very high efficiency as indicated by near zero waste discharge

R&I needs:
Marketing plan and efficient communication strategies
Raise awareness about this new technology
Introduction of aquaponics as an economic activity and the organic certification of aquaponics products.

Relevant Policies:
Circular Economy, CAP modernisation

Response to SDGs:
2 Zero Hunger
6 Clean Water and Sanitation
8 Decent Work and Economic Growth
9 Industry, Innovation and Infrastructure
Smart Personalised Nutrition

Problem:
Unhealthy and unsustainable diets and eating behaviour have a negative effect on health, the environment and the economy

The Goal:
Develop personalised solutions to individuals & population groups

R&I Needs:
Understanding behaviour, motivation, decision making – more social sciences
New dietary assessment methods
More Basic research & technological development
Proof-of-principle studies to show effectiveness of personalised nutrition approaches

Relevant Policies:
Health strategy, Climate action, Jobs & growth

Response to SDGs:
Boosting Photosynthesis

**Problem:**
Increasing food and energy demand and decreasing area of available fertile land

**The Goal:**
Increasing crop yields through enhanced (C4) photosynthesis. Increase alternative energy production through artificial photosynthesis

**R&I Needs:**
Genetic research to boost crop production for food. Synthetic biology for artificial photosynthesis

**Relevant Policies:**
Climate action, Jobs & growth, Circular Economy

**Response to SDGs:**

1. Industry, Innovation and Infrastructure
2. Responsible Consumption and Production
3. Climate Action
Thank you!

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Entry Points for changing food systems

From an R&I perspective:

- Better understand and map food systems & their actors to determine best leverage points to tackle – no silver bullet – a systemic way of addressing the issue is the "silver bullet"!

- A systemic approach implies that all food systems actors need to come together to co-create solutions - R&I as a catalyst for dialogue and decision-making based on evidence

- Developing a compelling narrative that will raise political visibility of the FNS challenge and actually motivate collaborative action and investment at all levels (local to international)

- More emphasis on food system "governance" at all levels, including cities and regions
Elements needing Strengthening

From an R&I perspective:

- Inter and transdisciplinarity, SSH, ICT & smart technologies
- Systems science, complexity, filling data & knowledge gaps
- Exploring food-health nexus
- Commitment of R&I actors to societal "impact"
- Working together better – improved cooperation, participatory and responsible R&I – research, policy, industry & society (top-down & bottom-up)
- Getting this "systemic thinking" to take place in EU MS – whereby different ministries come together to devise joint solutions and ways forward
  - Health & nutrition
  - Environment and agriculture
  - Research & innovation, education
  - Industry, competitiveness, economics
  - International development
  - ...
Improving Public Engagement & Knowledge

From an R&I perspective:

- Call for participatory R&I engaging society and multiple actors upstream and throughout the R&I process for societal acceptability and relevance of solutions
- Tell compelling stories, showcase, demonstrate, use all media sources
- Involving "brokers" and "multipliers" like science museums & science shops to engage with citizens and kids
- More access to DiY and experimental spaces like Fab Labs
- Food systems curricula in schools and at university level
- More involvement of retails and restaurants at the interface with consumers/citizens
- More evidence-based nutrition training for doctors and health care workers also at eth interface with patients and citizens
- Fighting misinformation and alternative facts, building trust & transparency
- Open access to data, re-use, data sharing, interoperability