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A European Public-Private Platform

An ATF Webinar

May 20th, 14:00-15:30

Introduction to the ATF SRRIA towards Horizon Europe



A strategic research and innovation agenda for a sustainable livestock sector in Europe

Suggested priorities for research for Horizon Europe
to enhance innovation and sustainability in the livestock production sector
of Europe's food supply chains

Third White Paper of the Animal Task Force

April 2021



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Introduction to the ATF SRIA

Programme

- 14:00 **Opening & chair:** *Frank O'Mara, TEAGASC, ATF President*
- 14:05 **Introduction:** *Tereza Budnakova, EC - DG Agri, Deputy Head of Unit B.2 Research & Innovation*
- 14:20 **The ATF SRIA:** *Jean-Louis Peyraud, INRAE, former ATF President*
- 14:50 **Q&A**
Moderation by Ana Sofia, FeedInov, ATF Vice-President repres. research providers
- 15:20 **Wrap-up:** *Frank O'Mara*

Animal Task Force

*Fostering knowledge based innovation
for a sustainable and competitive
livestock sector in Europe*



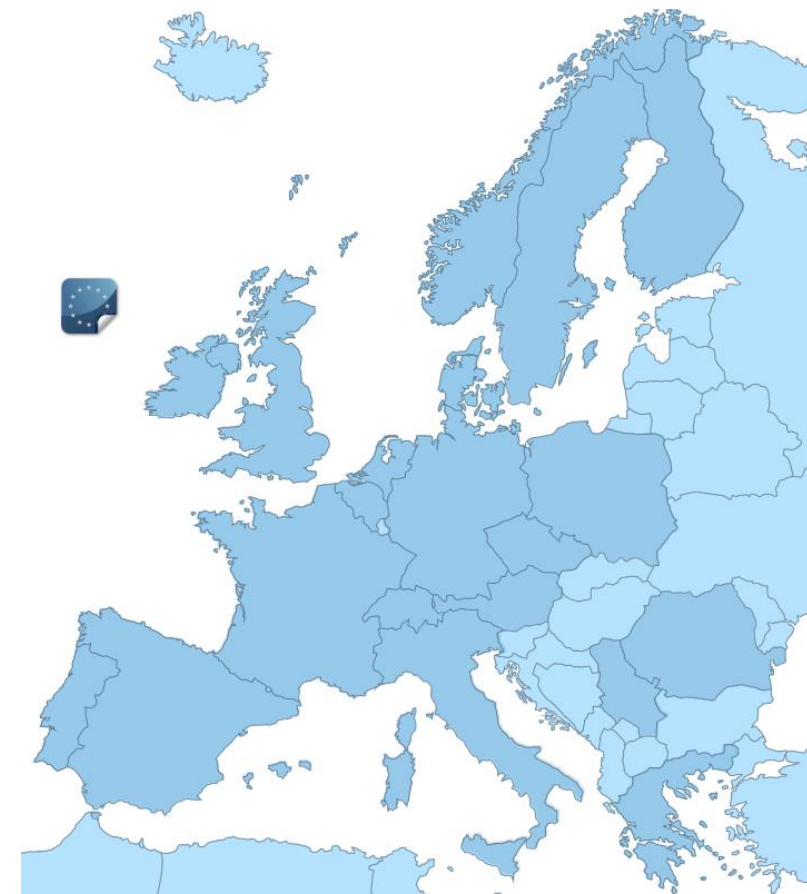
The Animal Task Force

(since 2011)

- A European Public-Private Partnership (PPP): research, farmers & private sector
- Promoting a European sustainable & competitive animal production sector

By fostering knowledge development & innovation

- Covering the whole animal production chain



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A European Public-Private Partnership

A European Public-Private Platform

Industry & farmers representative organisations



Knowledge providers



University of Novi Sad
INSTITUTE
OF FOOD
TECHNOLOGY
IN NOVI SAD



Norwegian University
of Life Sciences

Partners



European Livestock and Meat Trades Union



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Introduction:

*Tereza Budnakova, EC - DG Agri,
Deputy Head of Unit
B.2 Research & Innovation*

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The ATF SRIA

*Jean-Louis Peyraud, INRAE,
former ATF President*

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Horizon Europe

THE NEXT EU RESEARCH & INNOVATION
PROGRAMME (2021 – 2027)

Strategic vision and expected outcomes

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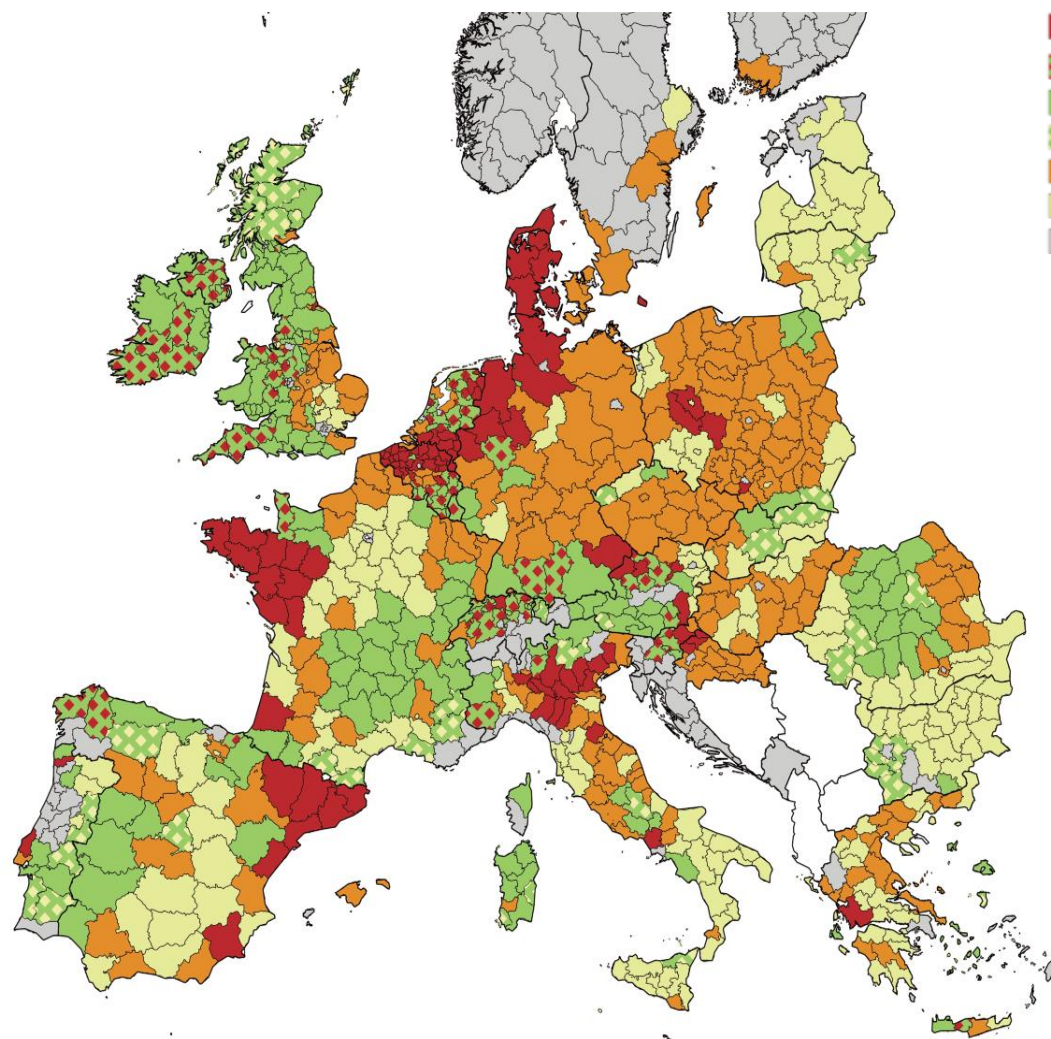
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Importance of the European livestock sector



- Low proportion of grassland in agricultural area, high animal density
- High proportion of grassland in agricultural area, high animal density
- High proportion of grassland in agricultural area, medium animal density
- High proportion of grassland in agricultural area, low animal density
- Low proportion of grassland in agricultural area, corps and animals
- Low proportion of grassland in agricultural area, low animal density
- Less than 20% of agricultural area in total area

	AA (% total)	LU (% total)	LU/ha
■	10.5	29.5	2.15
■	6.7	14.6	1.70
■	19.3	18.5	0.75
■	6.8	2.1	0.25
■	31.6	26.6	1.20
■	25.0	8.6	0.30

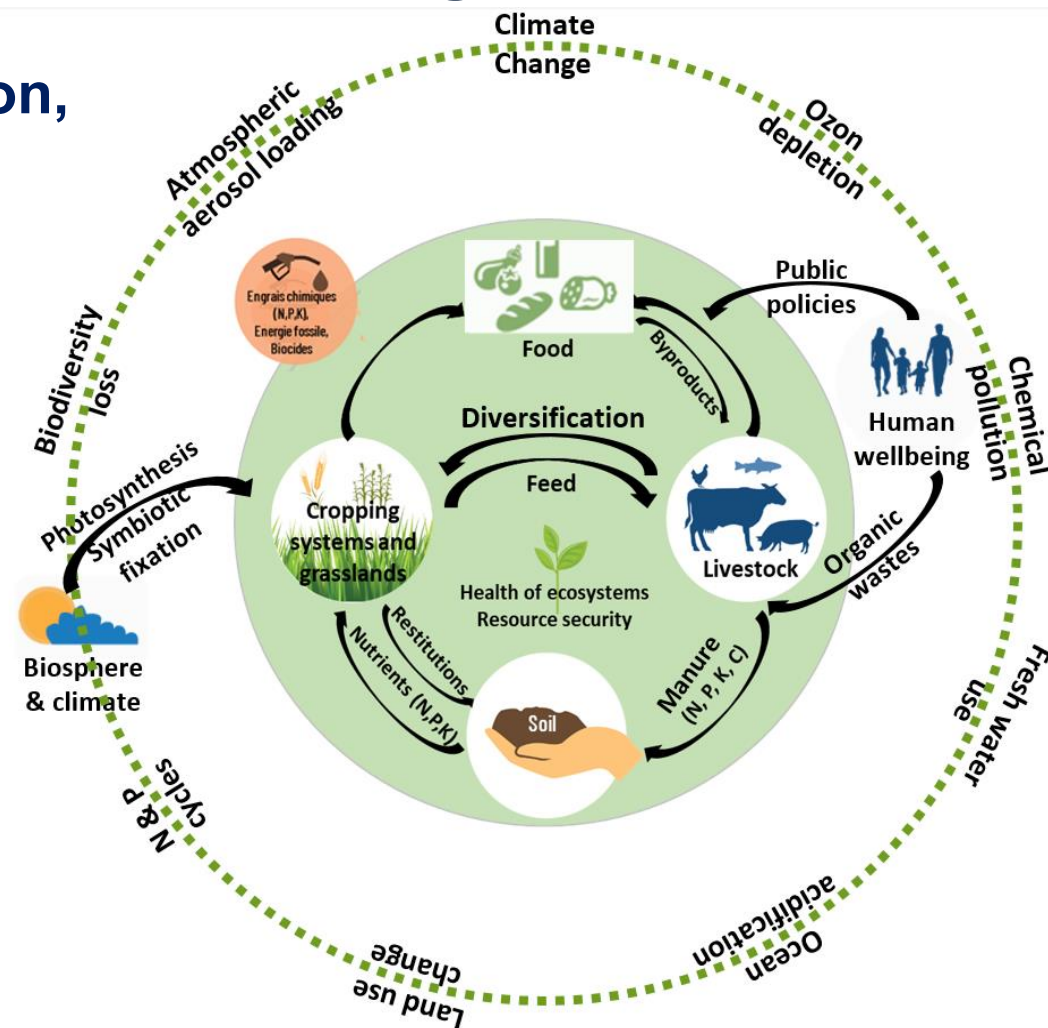
- Livestock are present in almost all regions of Europe, 58% of EU farms hold animals

Diversity of livestock systems in Europe (Dumont et al, 2019) (LU= Land use)

Strategic vision: a new ambition for the livestock sector

Circularity in planetary boundaries: an ambition and new challenges for livestock

- **Livestock's role to facilitate crop diversification, to provide food and nature based organic fertilizers with various benefits**
 - Food sovereignty & Resource security
 - Energy, N & Protein autonomy
 - GHG mitigation & soil C sequestration
 - Adaptation to climate change
 - Health of animal, human and ecosystems
 - Biodiversity restoration
- Balances are to be found according to local contexts while ensuring business continuity



Strategic vision: a new ambition for the livestock sector

The conditions of success

- **Livestock systems must evolve to fulfil their multiple roles**
- **A diversity of livestock production systems is essential to fit various demand and local contexts**
- **Need to articulate local and global scales, production of food and production of immaterial functions/services**
- **Need to develop more accurate models to track progress & assess the multi-functionality of livestock farming**



SRIA: Expected R&I outcomes

- **More sustainable livestock farming systems with the following attributes:**
 - Lower impacts on the climate and resilience to climate change
 - Lower impacts on water quality (groundwater, wetlands and coastal areas) and air
 - Higher standards of animal health and welfare and responsible use of antimicrobials
 - More efficient use of resource (land, soil, water, workload) and resource security
 - Reduced dependency on imported proteins and use of “deforestation free” proteins
- **A diversity of livestock farming systems contributing to:**
 - Competitive and sustainable circular agri-food systems in different regions
 - Food and nutrition security with diverse and high quality diets, at an affordable price
 - Restoration of soil health and fertility, biodiversity and the quality of ecosystems
- **A stronger European research and innovation in animal production in Europe and research on transformational changes**

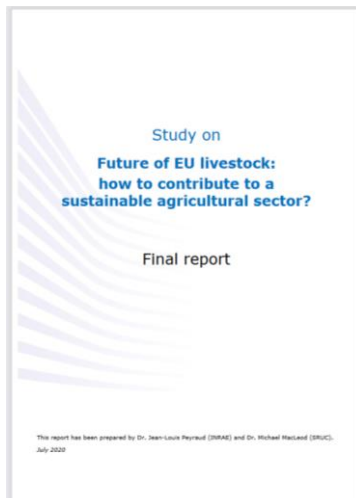
**“ATF Vision Paper:
A framework for
suggested priorities for
R&I Horizon Europe”**
Feb. 2019 [-link](#)
(~6,266 website views)



“ATF-Plant ETP Position paper”
Sept. 2019 [-link](#)
(200 copies ~4,922 views)
Introduction to DG Agri-RTD, Oct. 2019



**“Future of EU livestock:
How to contribute to a
sustainable agricultural
sector?”**
JRC-DG Agri, J.L. Peyraud, M.
McLeod (SRUC)
July (Oct.) 2020 [-link](#)



“ATF-Plant ETP Policy Brief”
May 2020 [-link](#)
(400 copies ~5,272 views)
Introduction DG Agri-RTD, Sept. 2020
2 Webinars:
EC DGs Oct. 6th 2020
Stakeholders Nov. 4th 2020



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**Horizon
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THE NEXT EU RESEARCH & INNOVATION
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Research priorities

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**A strategic research and innovation agenda
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Method

- Members' consultations & events



- Collaborations with ETPs (workshops and meetings)



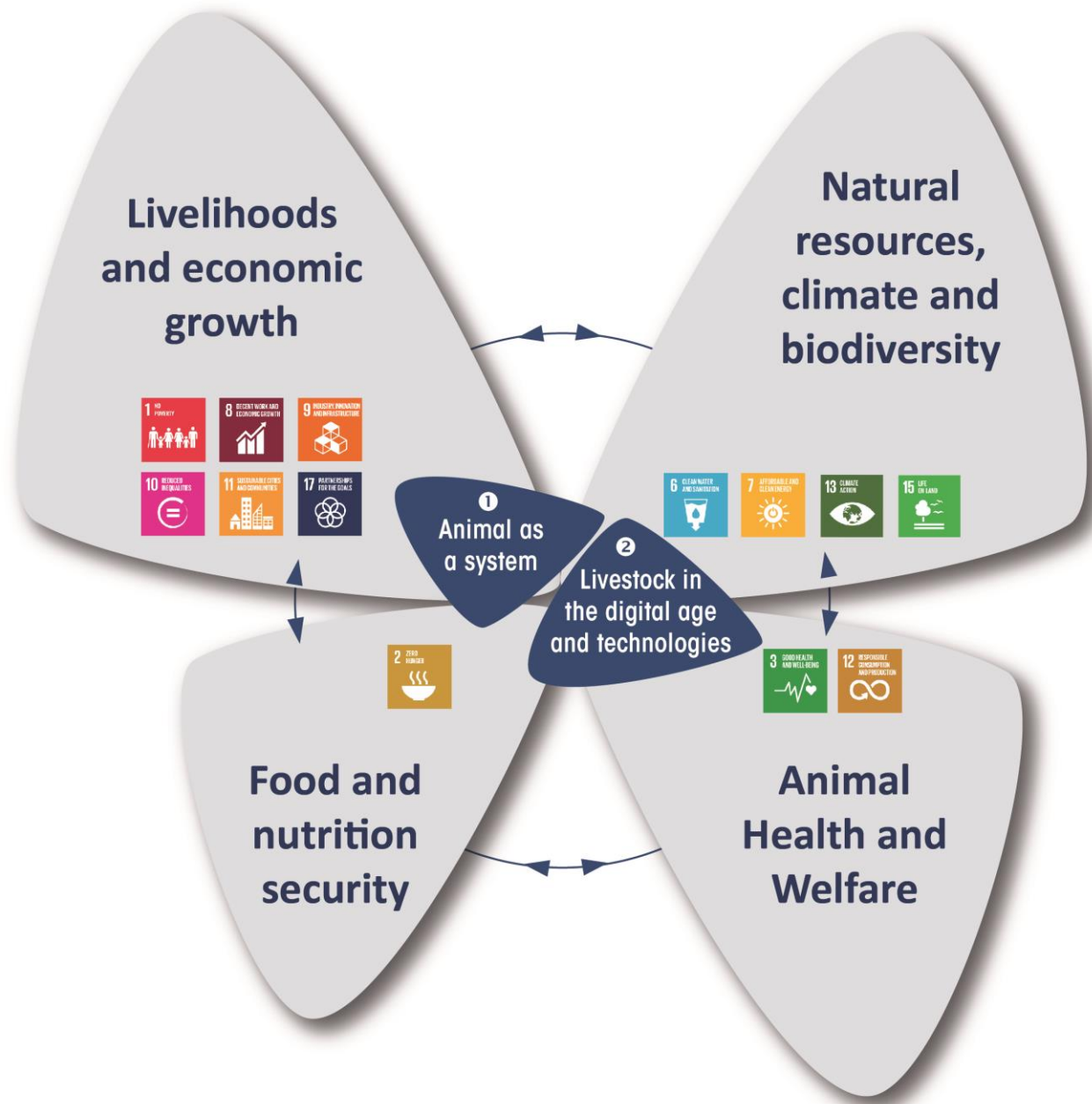
- Discussions with EU/international organisations



Key areas for R&I

Four sustainability domains (SD)
aligned with Sustainable Development
Goals (SDGs) & Global Forum on
Agriculture (GFA, 2018)

Two cross-cutting issues (CCI)

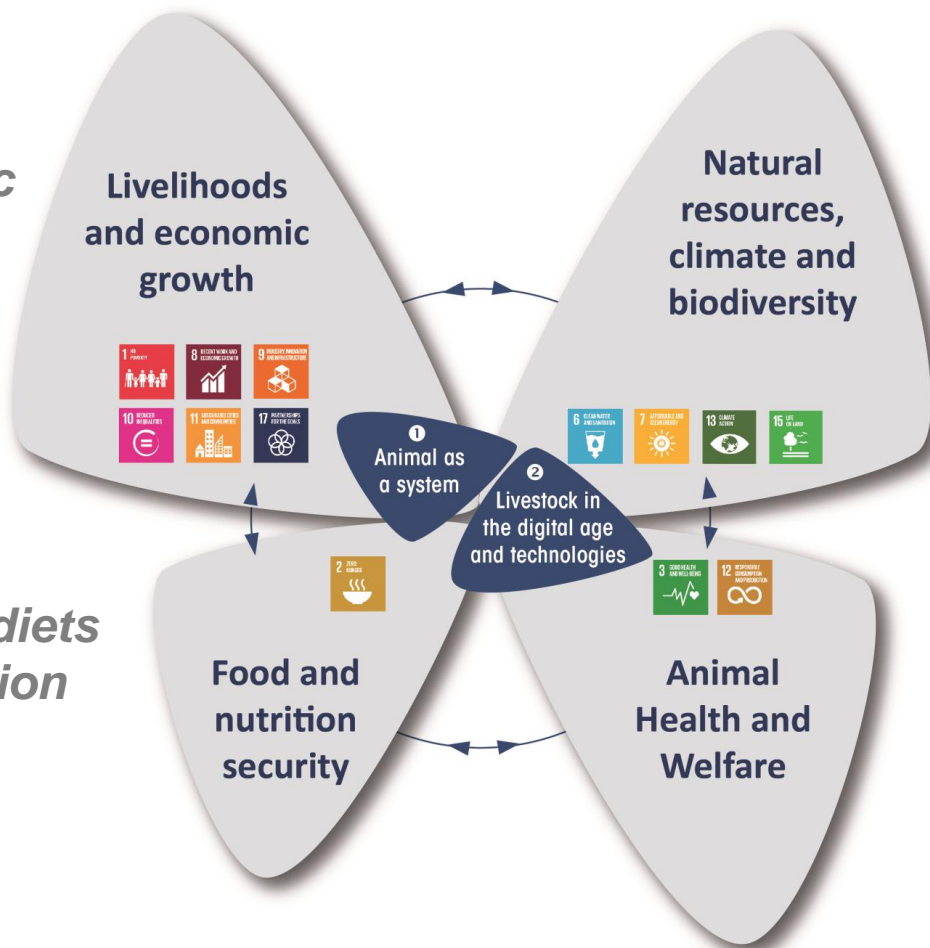


Aims of the key areas

A variety of more efficient and robust animals, adapted to various farming conditions: Towards a dynamic vision of the animal

Understanding socio-economic issues to highlight the future and how different farming systems can contribute to a variety of services for society

Animal production for healthy diets fitting social demand, valorisation of livestock based products



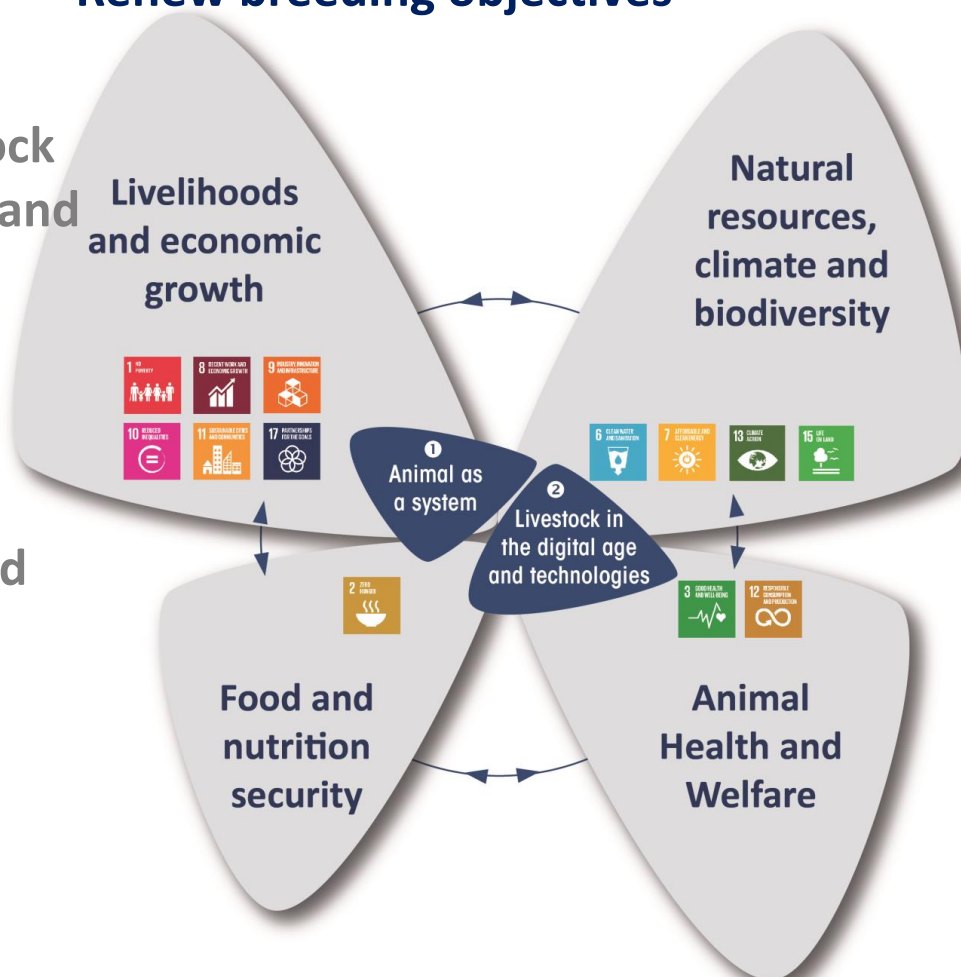
Using livestock to increase the efficiency of plant biomasses use (eg. inedible crops) while closing nutrient cycles and restoring the quality of ecosystems

Animal health & welfare as key elements towards consumers' trust in livestock farming systems, with antimicrobial use and animal welfare issues that are high in agendas

How changes allowed by digital technologies and big data can help better meet farmers and citizens' expectations

Major issues of the key areas

- Renew the paradigm of research at animal level
- Improve animal efficiency & robustness
- Renew breeding objectives



- Maximise GHG mitigation & soil C sequestration
- Maximise resource use efficiency
 - Ensure resource security
 - Restore biodiversity
- Foster high natural value farmlands
- Develop integrated management of animal health
 - Improve animal welfare
 - Prevent and built resilience to pandemics.

- Develop innovative tools & concepts for livestock management through monitoring
- Improve management of product quality and traceability

- Promote multi-functional livestock systems fitting societal demand and evaluate multi-functionality
- Increase resilience of livestock farming systems
- Improve the role of animal-based food for nutrition security
- Increase the added value from animal by-products

Why the R&I priorities are suggested for Horizon Europe

- Provide answers to the Challenges of the Green deal, Farm to Fork and biodiversity strategies



- Suggested priorities focus on themes where an approach at the European level brings a real added value
 - Issues of common interest
 - Research at pre-competitive level
 - Research requiring a diversity of local situations, large scientific expertise & infrastructures

SD1. Natural resources, climate and biodiversity

1.1. Design and support concepts for new interplays between livestock and cropping*

- Masterplan enabling a sustainable integrated approach to crop and livestock production
- Efficient organisation of stakeholders and innovative public policies

1.2. Optimising synergies in circular livestock and cropping systems*

- Innovative cropping systems x use the ability of livestock to utilise inedible biomass
- New protein rich sources of feed and biorefineries approaches in support to circularity
- Evaluation of the novel feeding options

1.3. Efficient and safe utilisation of manure

- Efficient and safe use of manure as fertilizer and/or amendment
- Innovative manure refinery technologies within a circular economy

1.4. Development of climate smart farming systems contributing to biodiversity restoration*

- GHG mitigation using a wide range of innovation used simultaneously
- Adaptation of livestock systems to global warming and water scarcity
- Innovative farming systems to balance biodiversity, GHG mitigation and efficiency

1.5. Support the role of livestock in organic farming**

- Achieving circular economy, soil fertility
- Climate smart organic livestock production and sustainability of low input monogastrics systems

SD2. Animal Health and Welfare

2.1. Interactions between animal health and welfare

- Sensory, cognitive and emotional abilities in relation to the quality of life of animals
- Deepening the relationship between animal health and welfare and with efficiency

2.2. Health ecology and connections between microbial communities, animal health & welfare

- Regulation and function of microbial communities in relation to animal health & welfare
- Host x pathogen x microbiome interaction
- Management of microbial ecosystems and pathogen surveillance

2.3. Towards production systems that guarantee animal health and welfare

- Managing interaction between individuals in a context where animal are kept in groups
- Exploring the links between animal and human welfare
- Design improved rearing practices and develop indicators to evaluate them
- Management of infectious diseases in farm animals
- Local value chain organization that guarantee animals'health and welfare

2.4. Development of alternative therapies to veterinary medicines and antibiotics

- Alternatives to chemicals antimicrobial (vaccines, natural compounds)
- More efficient therapies if antibiotics are to be used

SD3. Food and nutrition security

3.1. Improving insights into consumption of animal products and human health***

- Deepening the knowledge about the affect of animal based food on physical and mental health
- Evaluate the nutritional and health impacts of alternatives to animal protein

3.2. Management of nutritional and sensory qualities of animal-based products***

- Combined strategies to produce animal based food with healthier characteristics
- Optimisation of nutrient efficiency across the sector “one nutrition”
- Technologies to increase the nutritional value of animal based food
- Adaptation of industries to more diversified animal based food and traceability along the food chain

3.3. Functional and bioactive properties of animal-based products and by-products***

- Exploration of bioactive compounds of interest for human health
- Non-food application of animal products components and animal by-products

SD4. Livelihoods and economic growth

4.1. Drivers of evolution and governance of the sector to promote change over time

- Understanding consumers' socioeconomic drivers and trends in market
- Livestock farmers renewal
- Determinants of structural changes in farms and industries

4.2. Diversity of livestock farming systems supporting multifunctional farming

- Characterisation and management of the diversity (diversification) of livestock systems
- Making use of reservoirs of existing genetic resources and managing animal diversity
- Diversification of livestock species (alternative species), breeds and products

4.3. Evaluating the roles/values of livestock (products) within agri-food systems

- Multicriteria assessment of the multi-functionality of livestock farming systems using LCA
- Multicriteria assessment using the concept of package of services

5.1. Early development of phenotypes

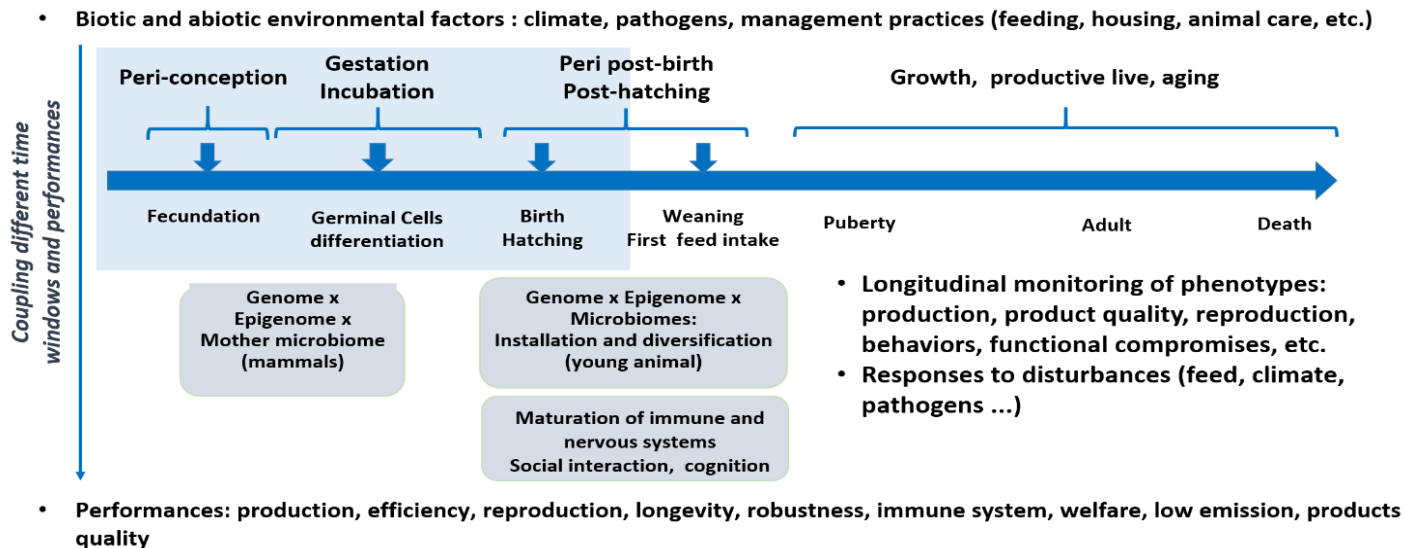
- Microbial ecosystem and host
- Cell differentiation mechanism and development of tissues of interest
- Intergenerational tracking of epigenetic deterministic traits
- Development of sensory, cognitive and emotional capacities

5.2. Multi-performing animals

- Compromise between biological functions in various environment
- Characterisation and control of animal immunity in its environment
- Relation between microbial communities and animal health
- New individual level disease phenotypes with -omics data
- Understanding the animal's awareness of its welfare and health state

5.3. Improving research methods and infrastructures towards innovation

- Alternatives to animal experiments
- Creation of a European large animal clinic
- Adapting and developing the concept of digital twins



6.1. Use of digital technologies in livestock farming to improve performances

- Determination of the gain made possible by the management of individual diversity and evaluation of the return on investment
- Development of structural information systems et decision support tools
- Development of precision management technologies to improve efficiency, welfare and health
- Evolution of the farmers' job

6.2. Use of digital technologies to develop high throughput phenotyping and to improve traceability & biosecurity

- Development of a multifunctional vision of the animal (high throughput phenotyping)
- Utilisation of remote systems for tracking and tracing

6.3. Data science

- Development of data driven approaches
- Massive data management

The SRIA supports EC partnerships and missions



SD1 – Mission on Soils Health and Food

SD1 - Agroecology (living labs) PPP

- Biodiversity PPP

- Bioeconomy- circular economy PPP

- Water PPP

SD2 - Animal health and welfare PPP

- One Health AMR PPP

SD1,3,4 - Food systems PPP

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ATF Vice-President representing
research providers*

ATF Events - 2021

ATF-EAAP 9th Special Session

EAAP Annual Meeting, Davos

30th Aug. 2021

ATF 11th Seminar

Brussels

19th Nov. 2021



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For latest news and upcoming activities

www.animaltaskforce.eu

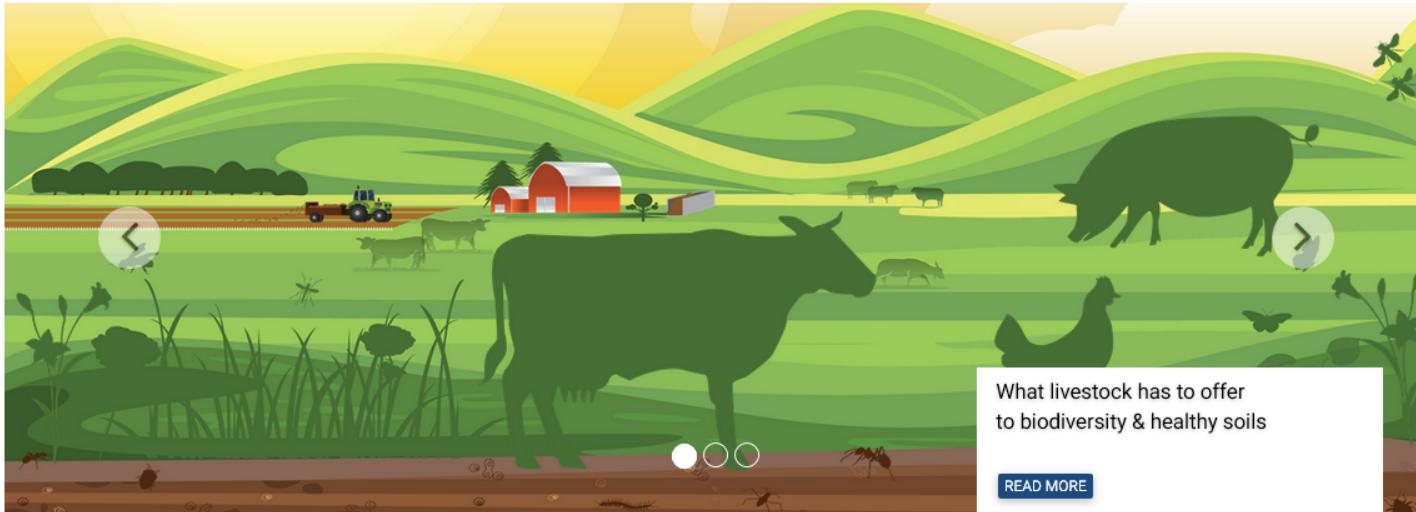


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The Animal Task Force, for a sustainable and competitive livestock sector in Europe

The Animal Task Force is a European Public-Private Partnership of research organisations and farmer and industry organisations, working together on a sustainable and competitive European livestock production sector by fostering knowledge development and innovation in the whole animal production chain.

[READ MORE](#)

Events



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Wrap-up: *Frank O'Mara*

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