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# Role of animal primary production in products quality, role of R&I

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*Jean-Charles Cavitte, Unit B2 "Research and Innovation"  
DG Agriculture and Rural Development,  
European Commission*

Agriculture  
and Rural  
Development

*The presentation shall neither be binding nor construed as constituting  
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# Preliminary statements

- 1. Most of the animal product(ion) is destined to food!**
- 2. « To a certain extent, the quality of the finished product can be predicted by the quality of the raw material »** (Transparent\_Food project)
- 3. Intrinsic value of food** corresponds to own characteristics of food product (nutritional, organoleptic), while **Extrinsic value of food** corresponds to features surrounding the conditions of production of the food (e.g. environmental footprint, animal welfare, public goods) that can determine consumer choice.
- 4. There does not seem to be a single official definition of (food) quality**

8 dimensions of product quality are usually defined: performance; features; reliability; conformance; durability; serviceability; aesthetics; perceived quality.

Not all can easily be applied to food. Food quality is not only nutritional and organoleptic.

Most of these dimensions seem to relate mostly to intrinsic value of food, but could apply to extrinsic value of food (labels).

## Preliminary statements

**5. *The quality of a product or service refers to the perception of the degree to which the product or service meets the customer's expectations.***

Explicit/implicit ; intrinsic/extrinsic value

**6. *In Codex Alimentarius context, which establishes food standards for trade, food quality goes hand in hand with food safety.***

The borders between both are not always clear and food safety should be an essential component of food quality.

**7. *In a number of situations, food integrity relates to fraud (e.g. adulteration, substitution).***

**8. *Role of legislation/standards/contractual arrangements***

**Related issues:** traceability, transparency, verifiability... ***to build trust***

More and more complex food(s) and foodchain(s)

# Some relevant Agriculture policies

## Geographical Indications

- PDO/PGI/TSG (+4000)
- International dimension
- Other certification: mountain product, local product (review of options), ...

## Organics

- Regulation
- Obligatory certification and labelling
- Production requirements
  - EGTOP

## Promotion

- 188,5 M€ in 2018; 200 M€ in 2020
- Work Programme
  - Organic/quality logos
  - Third countries

# **Challenges to animal production** *(potential bearing on extrinsic value of food)*

**Food  
Security**

**Climate**

**Environment**

**Society**

**Sustainable rural territories**

## Animal agriculture and society

Animal food provides quality proteins and other important nutrients, but

- (processed) meat products recently presented as carcinogenic!

(Ruminants) providing public goods (ecosystem services), but

- Grassland area declining in the EU, replaced by croplands used mostly for feed production (+ feed imports)

Livestock increasingly presented as a relatively inefficient way to produce edible proteins in the context of resource scarcity

EU Livestock farmers' income at lower end of spectrum; aging population

Societal concerns over (intensive) livestock production:

- Animal health and food safety: More diseases; over/misuse of medicines (even if EU rules among toughest ones, e.g. AGPs)
- Animal welfare issues (even if EU standards are among highest ones)
- New biotechnologies used for food production purposes (e.g. cloning)



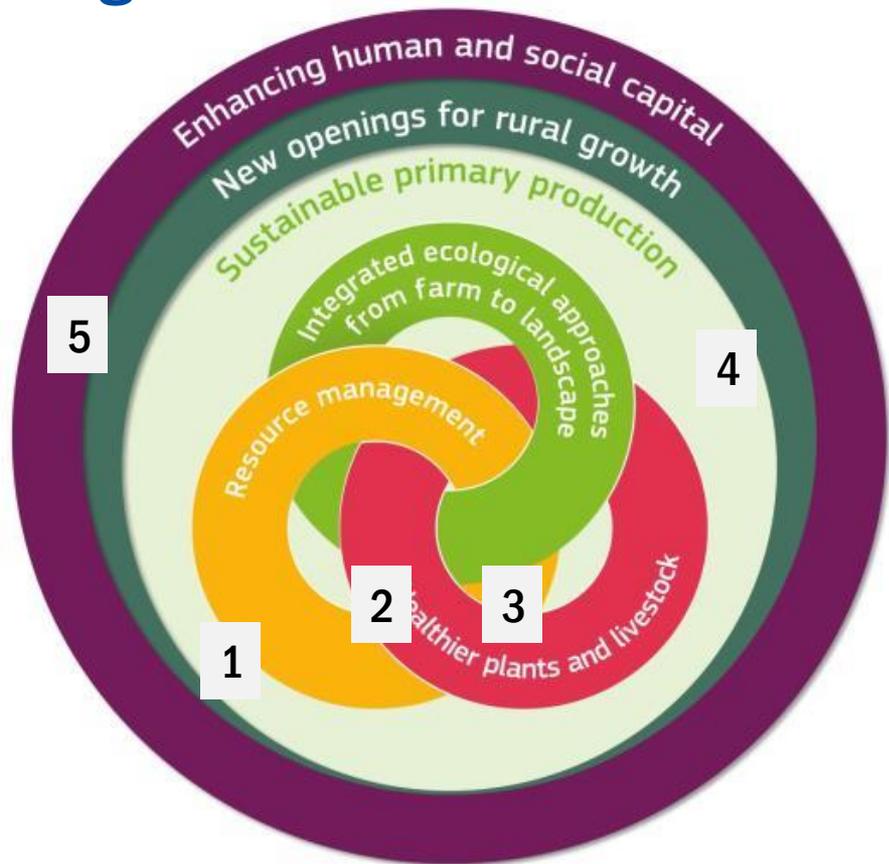
**Public perception of  
animal agriculture**

# A strategic approach to EU agricultural research and innovation

## For and beyond Horizon 2020



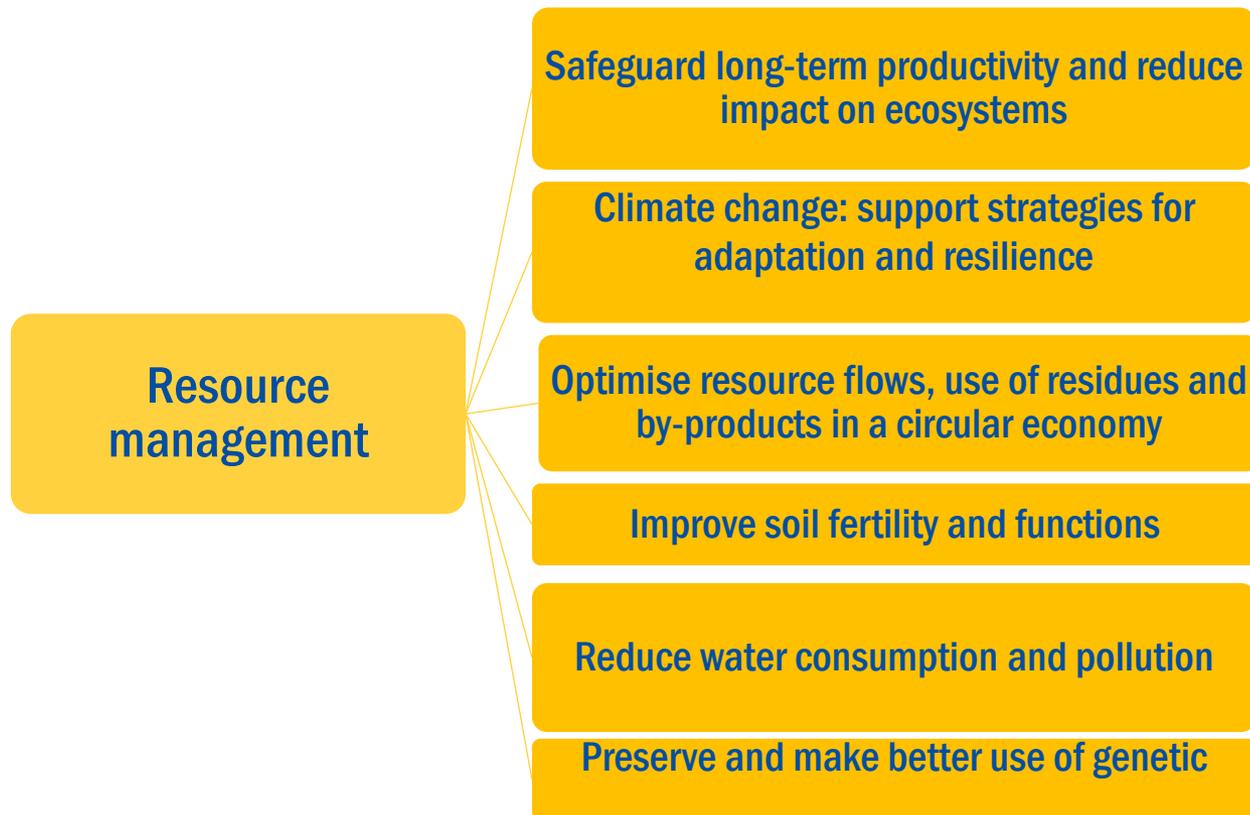
# Five building blocks



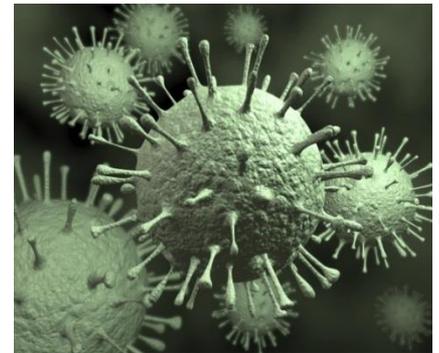
Food quality (and safety) mentioned in different places, notably under 2 and 4



# Encouraging efficient resource management



# Improve plant and animal health



*\* : examples of domains of interest for livestock*

# Adopting integrated ecological approaches

Ecological  
approaches at  
farm and  
landscape levels

Encourage better use of ecosystem services to strengthen sustainability and support productivity

Explore functional role of biodiversity

Support organic and mixed farming systems

Research at various levels



# Fostering rural growth

New openings for rural  
growth

Understand territorial dynamics and  
modernise policies

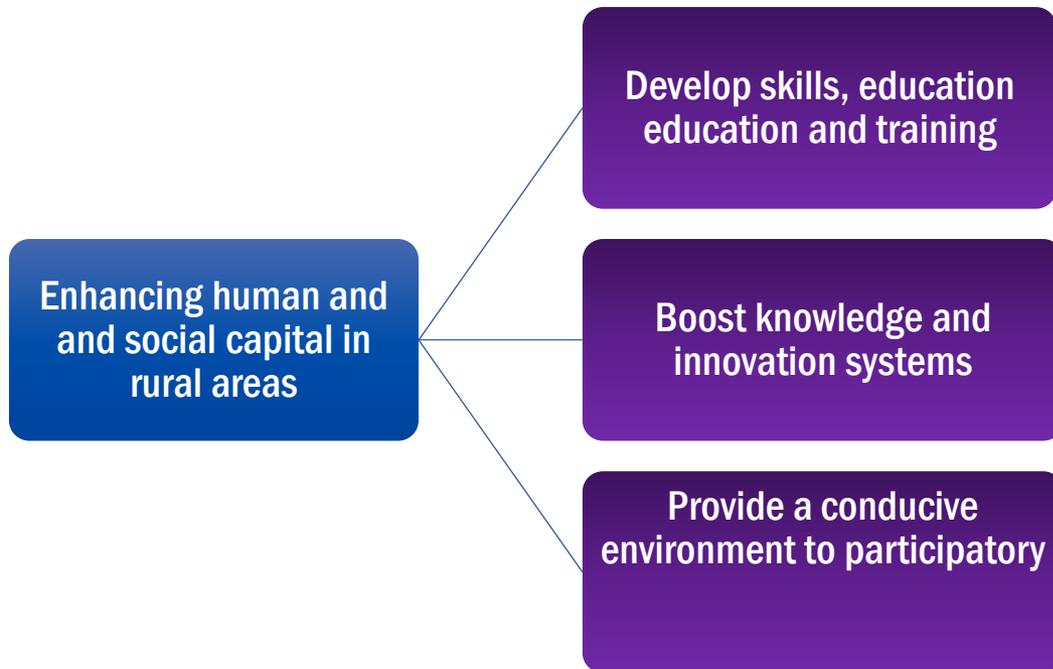
Organise sustainable food and non-  
non-food value chains

Better reward the provision of public  
public goods

Take advantage of the digital revolution



# Boosting skills and innovation systems



## NUTRITION for sustainable and healthy diets:

Ensuring that nutritious food and water is available, accessible and affordable for all. It involves reducing hunger and malnutrition, *ensuring high levels of food safety and traceability*, reducing the incidence of non-communicable diet-related diseases, and *helping all citizens and consumers adopt sustainable and healthy diets for good health and wellbeing.*



## Research on “food”

### **FP6:**

A lot of research, due to a whole thematic priority on Food Quality and Safety.

e.g. Large projects such as Q-Pork-Chain, ProSafeBeef, SABRE etc

### **FP7:**

FP7 related work divided into

Consumers, nutrition, food processing, food quality and safety

## **Consumers**

Understanding consumer behaviour and preferences  
Consumer perception and attitudes towards food  
Determinants of food choice

## **Nutrition**

Key beneficial dietary factors → specific reformulation studies  
Population work - understand impact of certain dietary components on disease risk  
Nutrigenomics and systems biology  
Initial work on personalised nutrition

## **Food Processing**

The focus has been on development of technologies to improve the functionality, quality and nutritional value  
processing technologies, eco-efficient processing and packaging systems, smart control applications and more efficient valorisation

## **Food Quality and Safety**

Improving chemical and microbiological safety and improving food quality along the food chain.  
Tools for risk assessment and management of allergies and GMOs have been supported

## Examples of relevant FP7 projects:

### Transparent\_food: “Quality and integrity in food: a challenge for chain communication and research” (2009-2011)

“...The project focus is on the analysis, documentation, and dissemination of our present knowledge (including from literature, expert knowledge, and best practice experiences) on transparency solutions and needs, their realization through chain communication schemes and the implementation environment required for the uptake of solutions and their success. The integration of the knowledge into a standardized general framework provides the basis for a GAP analysis that identifies a ‘Strategic Research Agenda’ for future research that could have a major impact on the establishment of European transparency schemes...”

### FoodIntegrity: “Ensuring the Integrity of the European food chain” (2014-2018)

“Food Integrity “the state of being whole, entire, or undiminished or in perfect condition”.

Providing assurance to consumers and other stakeholders about the safety, authenticity and quality of European food (integrity) is of prime importance in adding value to the European Agri-food economy. The integrity of European foods is under constant threat from fraudulently labelled imitations that try to exploit that added value. The FOODINTEGRITY project will directly address this issue and will be an international focal point for harmonisation and exploitation of research and technology for insuring the integrity of European food...”



## Examples of Horizon 2020 SC2 projects

*Over 100 Horizon 2020 projects were categorized as addressing nutrition (for Food 2030 purpose), but very few projects look specifically at the role of animal primary production in products quality (except safety)*

### AUTHENT-NET: “Food Authenticity Research Network” (CSA 2016-2018)

“...AUTHENT-NET will address this need by mobilising and coordinating relevant research budget holders in order to facilitate the eventual development of a transnational European funding vehicle that will allow Member States to jointly fund anti-fraud research...”

### SUSFANS: “Metrics, Models and Foresight for European Sustainable Food and Nutrition Security” (2015-2019)

“Strengthening food and nutrition security (FNS) in the EU requires a move towards a diet that supports sustainable food consumption and production. To gauge the policy reforms needed for this major societal challenge, the SUSFANS-consortium will identify how food production and nutritional health in the EU can be aligned...”

### VALUMICS: “Understanding food value chains and network dynamics” (2017-2021)

“The overall objective of the VALUMICS project is to provide decision makers throughout food value chains with a comprehensive suite of approaches and tools that will enable them to evaluate the impact of strategic and operational policies, and enhance the resilience, integrity and sustainability of food value chains for European countries...”

## Examples of Horizon 2020 SC2 projects

### VALUMICS: “Understanding food value chains and network dynamics” (2017-2021)

“The overall objective of the VALUMICS project is to provide decision makers throughout food value chains with a comprehensive suite of approaches and tools that will enable them to evaluate the impact of strategic and operational policies, and enhance the resilience, integrity and sustainability of food value chains for European countries...”

Key objectives:

- develop approaches and tools to analyse the structure, dynamics, resilience and impact of food chains on food security, economic development and the environment
- explore the impact of public regulations (quotas, subsidies, public procurement policies etc.) and private initiatives (certification, Corporate Social Responsibility, marketing, retailer standards, fair trade etc.), which have shaped these food chains to assess the conditions under which these interventions enhance or not resilience, integrity and sustainability
- analyse the suitability of selected indicators to capture the evolution of resilience, the sustainability and the integrity of a set of major food value chains across Europe, and their transformative capacity
- develop an integrated modelling approach and use for the analysis of external and internal drivers influencing the performance of food value chains and demonstrate options for improved business strategies
- build foresight scenarios to reflect on the possible evolution of those food chains and on the kind of public, private and civil society instruments that would enable enhancing their desirable outcomes or counteract their negative impacts



## Examples of Horizon 2020 SC2 projects

### ERA-HDHL: “ERA-NET Biomarkers for Nutrition and Health implementing the JPI HDHL objectives” (2016-2021)

“ERA-HDHL is a proposal of ERA-NET Cofund in the field of nutrition and health to support the Joint Programme Initiative Healthy Diet for a Healthy Life (JPI HDHL).

Nowadays, there is a high burden of non-communicable diseases due to unhealthy diet and lifestyle patterns. The 24 members of the JPI HDHL are working together to develop means to (1) motivate people to adopt healthier lifestyles including dietary choices and physical activity, (2) develop and produce healthy, high-quality, safe and sustainable foods and (3) prevent diet-related diseases...”

### SusAn: “European Research Area on Sustainable Animal Production Systems” (2016-2021)

“...The animal production sector forms an important part of Europe’s (agricultural) economy and plays an essential role in the provision of Europe`s citizens with high quality animal products...Like other agriculture sectors, animal production faces many challenges from projected increases in global demand for food, climate change, competition for natural resources and economic volatility ...Partners in this ERA-NET believe, however, that these challenges and complexities can be effectively addressed through joint European research within a framework which supports the three pillars of sustainability - economy, environment and society - and targets opportunities for innovative research spanning all areas of animal production such as health and welfare, feeding and nutrition, reproduction, breeding and genetics, housing, nutrient management and economics. ”

### iSAGE :” Innovation for Sustainable Sheep and Goat Production in Europe” (2016-2020)

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## **(some) relevant topics in SC2 work-programme 2018-2019-2020**

SFS-01-2018-2019-2020: Biodiversity in action: across farmland and the value chain

B. [2019] Capitalising on native biodiversity in farmland landscape

C. [2020] From agrobiodiversity to dynamic value chains

LC-SFS-03-2018: microbiome applications for sustainable food systems

*SFS-08-2018-2019: Improving animal welfare*

A. [2018] Organic and low-input farming

B. [2019] Precision livestock farming

SFS-11-2018-2019: Anti-microbials and animal production

A. [2018] Rethinking management of health of farmed animals

B. [2019] Alternatives to anti-microbials

DT-SFS-14-2018: Personalized Nutrition

*SFS-16-2018: Towards healthier and sustainable food*

LC-SFS-17-2019: alternative proteins for food and feed

DT-SFS-26-2019: Food Cloud demonstrators

*SFS-31-2019: ERANETs in agri-food*

B. [2019] *Climate change and food systems*

SFS-37-2019: Integrated approaches to food safety controls across the food chain

SFS-02-2020 - Healthy livestock gut ecosystem for sustainable production

*SFS-09-2020 - Husbandry for quality*



## Some take home messages

1. Many aspects of food quality (intrinsic/extrinsic) and integrity have been addressed in the successive FPs, including Horizon 2020.
2. The DG AGRI strategic approach to agricultural research and innovation, and the DG RTD staff working document address food and nutrition security, quality, safety etc
3. Extrinsic value refers to many aspects linked to societal interests and to sustainability, corresponding to concerns quite prominent in the animal primary production (welfare, safety, environment). It is probably by addressing these aspects that animal food will get less subject to criticism.
4. Europe is well placed to defend those values and benefit from adopting such approach (e.g. sustainability, high value products)
5. Possible drawbacks/trade-offs need to be considered (e.g. quality vs quantity; safety vs naturality; competitiveness and price; etc).
6. Citizens are keen on these values; will consumers be ready to pay the (likely increased) price of these foods?
7. There is a need to:
  - adopt a system approach, including food/value chain
  - work in an interdisciplinary manner
  - implement a multi-actor approach



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# *Thank you*

*Jean-Charles Cavitte, "Research and Innovation"  
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