



Science-Policy Interfaces and innovation in the context of Societal Challenge 2

Plant Biology
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"Plant relevant" Policy Framework

CLIMATE

BIODIVERSITY

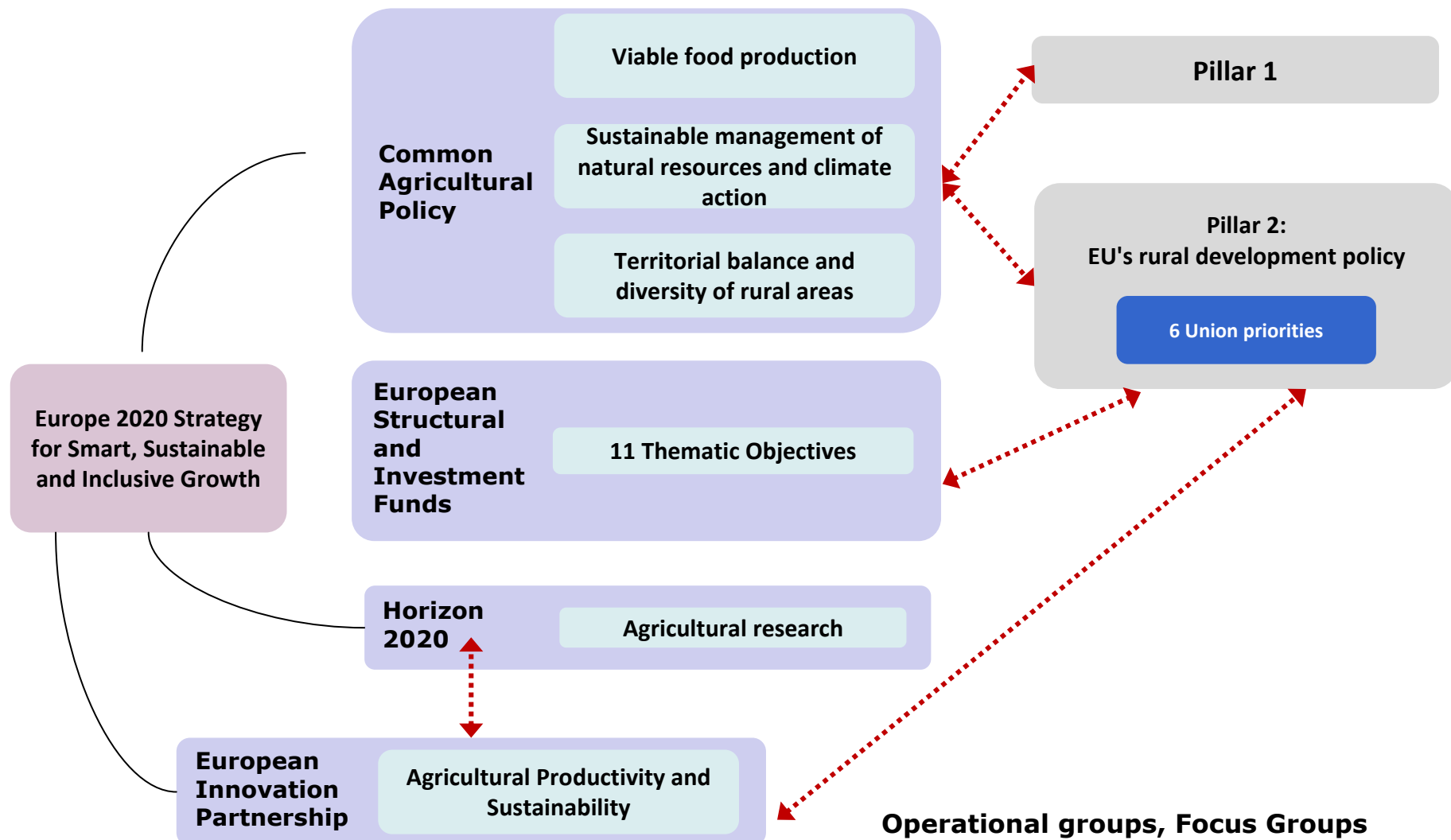


ENERGY

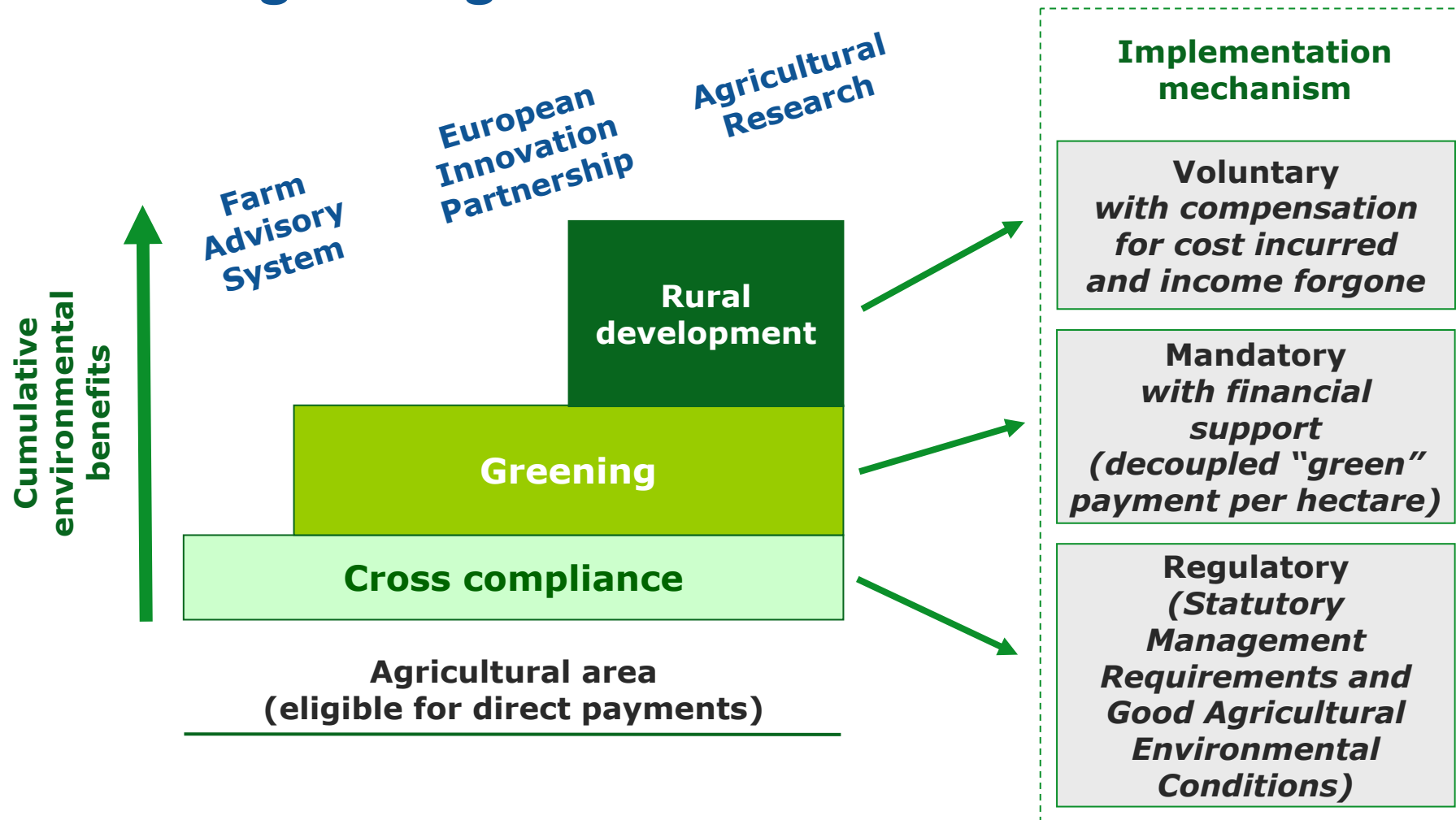
AGRICULTURE



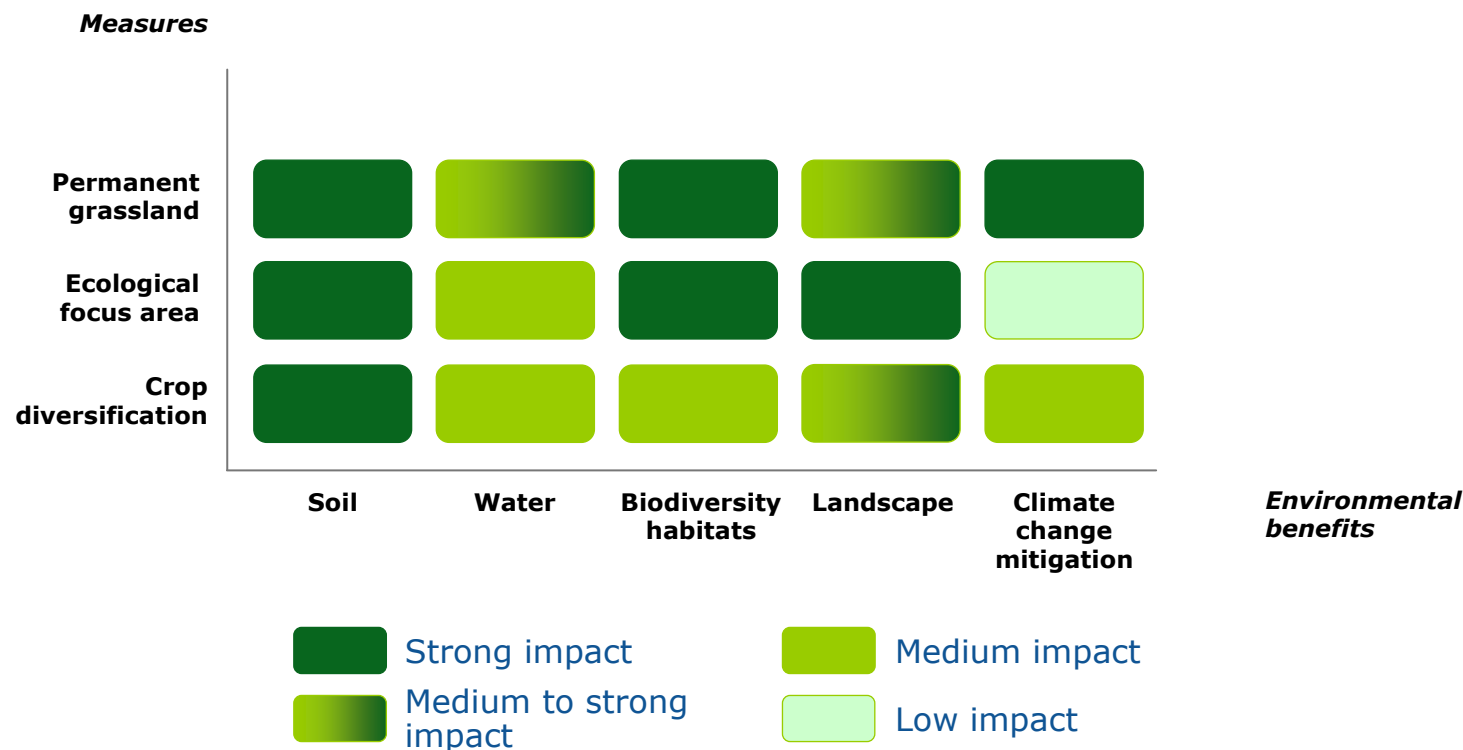
Context for EU rural development, research and innovation policies



The new greening architecture of the CAP

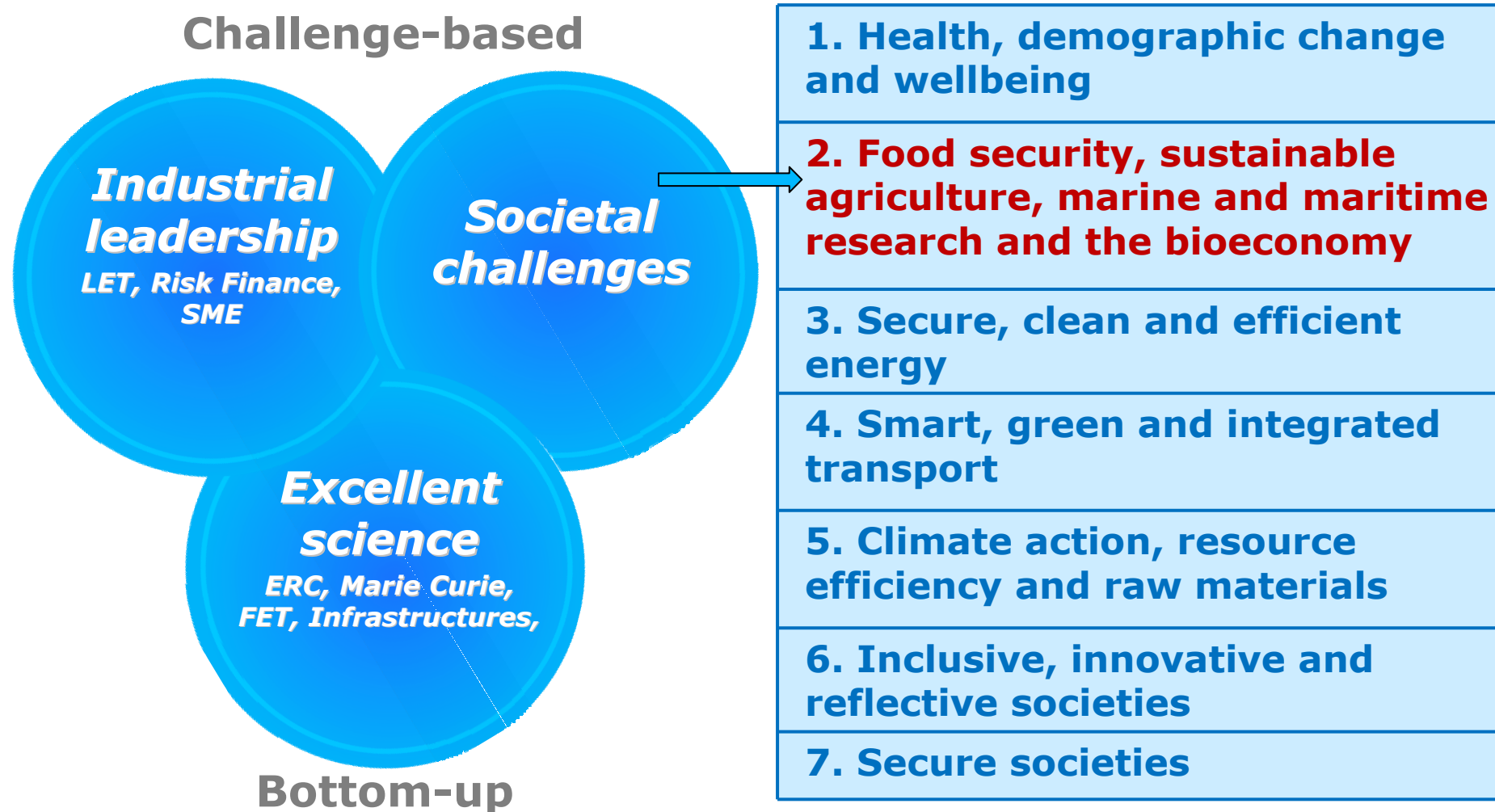


Environmental benefits of the green payment



➡ Policy requesting agenda for research and research informing policy

Agricultural research under HORIZON 2020





Societal Challenge 2: Food security, sustainable agriculture, marine and maritime research and the bioeconomy

2.1 Sustainable agriculture and forestry

**Production
systems**

**Ecosystem
services**

**Policies, Rural
Development**

Forestry

2.2 Sustainable, competitive agri-food sector

2.3 Unlocking the potential of aquatic living resources

2.4 Sustainable, competitive bio-based industries

2.5 Cross-cutting marine and maritime research

2.1.1 Production systems

- *Productivity of plants and animals in the context of resource efficiency (water, land, soil, nutrients, energy and other inputs) and low environmental impact*
- *Adaptation of plants and animals to varying/changing climatic conditions*
- ✓ *Integrated and diverse production systems*
- ✓ *Precision technologies*
- ✓ *Ecological intensification approaches*
- ✓ *Soil management*
- ✓ *Preservation and better use of genetic resources; plant and animal breeding for adaptation, health and productivity traits*
- ✓ *Plant and animal health: integrated, environmentally friendly pest management strategies, antimicrobial resistance*
- ✓ *Effect of practices on animal welfare*
- ✓ *Urban greening: Agriculture, horticulture and forestry*



2.1.2 Ecosystems services and public goods

- *Understanding complex interactions between primary production systems, ecosystems services and public goods*
- *Support delivery of ecosystems services (ES) and public goods by agriculture and forestry*
- ✓ *Assessment of market and non-market value of public goods and ES*
- ✓ *Development of management solutions and decision-support tools*
- ✓ *Identification of "supporting" farming /forestry systems and landscape patterns*
- ✓ *Climate change – role of agriculture and forestry in greenhouse gas mitigation and fostering adaptation*

2.1.4 Forestry

- *Promote multifunctional forests which deliver a variety of ecological, economic and social benefits*
 - ✓ *Production of biomass in sustainable ways*
 - ✓ *Continued delivery of ecosystem services*
 - ✓ *Resilience of forests vis-a-vis climate change*
 - ✓ *Biodiversity*
 - ✓ *Tree health*
 - ✓ *Restoration from forest fires*

A snapshot of European agriculture



80 % of the EU's land area is farmed or covered by forests.

Utilised agricultural area:

60 % arable land

33% permanent grasslands

6% permanent crops

► **Activities in primary sector have significant impact on landscape and natural resources**

13.7 m agricultural holdings with an average of 14,3 ha per farm:

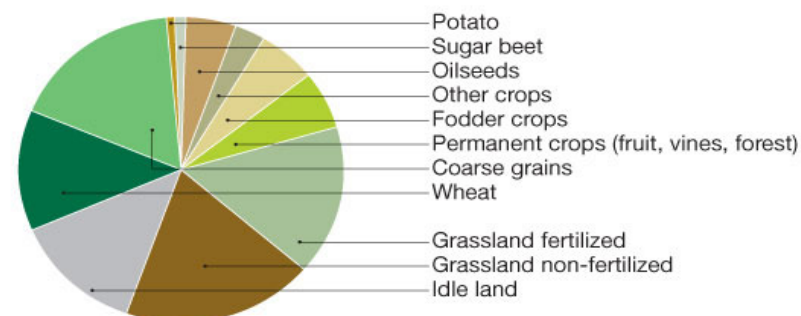
40% crop farming

22% livestock

38% mixed-farming holdings

► **Important economic, highly atomised sector with large number of individual decision-makers**

Agricultural Area in the EU-27
(current situation)



Overall, agriculture and forestry highly productive sectors.

But: No “European” agriculture as such.

Conditions, scale, types of production and economic importance vary considerably between the various MS



Reflections on innovation pathways and needs

- Innovations are not "straight forward" but take place in the context of diverse conditions and complex interactions between a high number of decision-makers
- Concept of "breakthroughs" may not always apply to innovations in the agricultural domain
- Instead: Research and practitioners to co-develop "tool boxes" that can be applied in more **specific, local and cost-efficient** ways
- Role for "Knowledge and Innovations Systems", e.g. EIP Agriculture
- From "big" to "smart": Changes in practices are not likely to come from single technical/biological innovations but rather from a comprehensive approach towards farm and land management
- Research to reflect this context

Context specific innovation: Example



Perennial Wheat



Farming systems

Rotations, soil, nutrients

Associations

Plant-Pathogen
dynamics

Pedo-climatic conditions

Integration of plant/breeding and farming systems
research



Useful links

Participant portal

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/index.html>

Horizon 2020 website

<http://ec.europa.eu/programmes/horizon2020/>

http://ec.europa.eu/agriculture/cap-post-2013/agreement/index_en.htm

http://ec.europa.eu/agriculture/statistics/rural-development/2013/indicators_en.pdf

Thank you for your attention!

