

CLIMATE-SMART
Agriculture
20**15**



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EU-Funded Research & Innovation Activities in Support to Climate-Smart Agriculture

Patrik Kolar

Head of Unit "Agri-food Chain"
DG Research and Innovation
European Commission

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Overview of:

Challenges for European agriculture

Agri-research in FP7 and Projects funded

Research relevant to CSA in H2020

Challenges for European Agriculture

Main new challenge for European Agriculture:

- produce sufficient food and non-food products from a limited variety of crops and livestock breeds

Highly dependent on:

- limited availability of soil and water
- sustainable use of nutrients
- suitable climatic conditions
- effective control of pest and diseases

Challenges for European Agriculture

The new CAP shows a greener approach, promoting good agricultural practices:

- more adapted to Climate change
- contributing to mitigate Climate change
- more beneficial to the environment

Climate-Smart Agriculture can help farmers to intensify their productions in an Ecological way

Satisfying an increasing demand for agri-products by respecting environmental standards and remaining competitive

Challenges for European Agriculture

Ecological intensification of agricultural production systems means "***producing more with less***":

- more efficient use of water and soil
- more efficient use of nutrients (for plants), and feed (for animals)
- reduction of GHGs (mitigation approach)
- resilience to climate change (adaptation approach)

The above points are not options, but obligations!

Challenges for European Agriculture

Moving from business-as-usual agriculture to Climate Smart Agriculture is a complex process

Reshape the role of the farmers: from producers of food and commodities into "*wise managers of the available natural capital*"

This transition must be supported by effective policy/legislation (CAP) and adequate research & innovation

Challenges for European Agriculture

Researchers should help farmers to tackle this main challenge:
"How to produce enough with limited resources, without polluting the environment, and contributing to CC mitigation"

Farmers need access to new knowledge, innovation and technical tools, which will allow them to meet environmental and policy requirements and remain economically viable

CSA in Europe and world-wide will be successful only if farmers can have easy access to technological advances, innovation and research outcomes, through an effective exchange of knowledge and information between researchers and end-users

Challenges for European Agriculture

The large-scale adoption of Climate Smart Agriculture will certainly benefit from embedding strong elements of Climate Change mitigation and adaptation in research programmes and activities aimed at improving the performance of agricultural production systems

Agri-research in FP7 and Projects funded

Agriculture and Climate change relations have been addressed under FP7, especially within the Knowledge Based Bio-Economy (KBBE) Thematic area

Several EU-funded research actions and projects have been launched to improve the use of natural resources in crop production and livestock, with particular attention to water, soil, GHGs emissions, genetic resources and support to policy



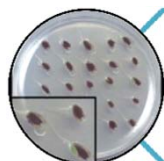
Sustainable Agriculture in FP7 (2007-2013) **Broad areas covered**



Crop production systems



Livestock production



Genetics, Plant Breeding & Biodiversity



Agri Policy & Rural Development



Crop production systems

Topics published (1/2)

Reducing the utilisation of mineral fertilisers by improving the efficiency of nutrient use in European crops

Novel approaches for reducing nitrogen losses

Towards land management of tomorrow - Innovative forms of mixed farming for optimized use of energy and nutrients

Reducing mineral fertilisers and chemicals use in agriculture by recycling treated organic waste as compost and bio-char products

Sustainable management of agricultural soils in Europe for enhancing food and feed production and contributing to climate change mitigation



Crop production systems

Topics published (2/2)

Plant growth-promoting bio-effectors (microorganisms and active natural compounds) for alternative plant nutrition strategies in non-leguminous crops

Water stress tolerance and water use efficiency in food crops

Irrigation water saving solutions for Mediterranean agriculture

Precision technologies to improve irrigation management and increase water productivity in major water-demanding crops in Europe



Crop production systems Projects funded (70 M€)

NUE-CROPS

CANTOGETHER

REFERTIL

SMARTSOIL

AGFORWARD

FIGARO

OPIRIS

EUPHOROS

N-TOOLBOX

INEMAD

FERTIPLUS

CATCH-C

SIRRIMED

TREAT&USE

BIOFECTORS



Livestock production Topics published

Reducing Nitrogen excretions in ruminants

New and converging technologies for Precision Livestock Farming in European animal production systems

Multifunctional grasslands for sustainable and competitive ruminant production systems and the delivery of ecosystem services

Integrating mitigation and adaptation options for sustainable livestock production under climate change

Efficiency of (terrestrial) livestock digestive systems and reduction of the ecological footprint through a combination of systems biology, 'omics' and nutrition

Development and exploitation of genomic data and tools, phenotyping approaches and breeding concepts to sustainable animal production systems



Livestock production Projects funded (50 M€)

REDNEX

LOWINPUTBREEDS

BRIGHTANIMAL

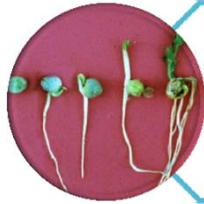
MULTISWARD

ANIMALCHANGE

RUMINOMICS

ECO-FCE

GPLUSE



Genetics, Plant breeding & Biodiversity Topics published (1/2)

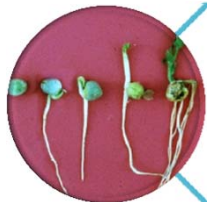
Annual Food crops with improved tolerance to multiple abiotic stresses

Legumes: key multifunctional legume crops for an energy-efficient and environmentally friendly future European agriculture

Improving performance and quality of crops in the context of organic and low-input systems by breeding and management

Characterisation of biodiversity resources for wild crop relatives to improve crops by breeding

Root signalling, growth and development under abiotic stress conditions



Genetics, Plant breeding & Biodiversity Topics published (1/2)

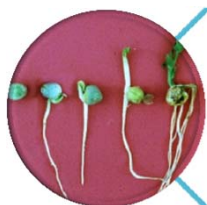
Integrated approach to studying effects of combined biotic and abiotic stress in crop plants

Translating knowledge on flowering time to improve breeding efficiency

Managing semi-natural habitats and on-farm biodiversity to optimise ecological services

Improving the capacity of agro-meteorological crop modelling to integrate climatic variability and extreme weather events

Legume breeding and management for sustainable agriculture as well as protein supply for food and feed



Genetics, Plant breeding & Biodiversity Projects funded (60 M€)

LEGUME-FUTURES

BIOBIO

PGRSECURE

SOLIBAM

ROOTOPOWER

EUROOT

SWUP-MED

ABSTRESS

EUROLEGUME

MODEXTREME

ADAPTAWHEAT

ECOSEED

DROPS



Agri-Policy & Rural Development Topics published

The farm of tomorrow

International food trade: Anticipating the impact of climate change on the safety of European and global food markets

Policy and institutional aspects of sustainable agriculture, forestry and rural development in the Mediterranean partner countries

Energy Efficiency in Agriculture

Development and application of methodologies and tools, including indicators, for the assessment of environmental impacts of rural development programmes in the EU

Measurement of research impact in European agriculture



**Agri-Policy & Rural Development
Projects funded (15 M€)**

FUTUREFARM

VEG-i-TRADE

SUSTAINMED

AGREE

ENVIEVAL

IMPRESA



Other Actions and Networking Activities

JPI FACCE

ERA-Net
RURAGRI

EIP Agri

ERA-Net
Arimnet2

Research relevant to CSA in H2020



Societal Challenge 2 "Food security, sustainable agriculture and forestry, marine, maritime and inland water research, and the bioeconomy"

Securing sufficient supplies of safe, healthy and high quality food and other bio-based products, by developing productive, sustainable and resource-efficient primary production systems, fostering related ecosystem services and the recovery of biological diversity, alongside competitive and low-carbon supply, processing and marketing chains



**H2020 SC2 Sustainable Food Security (SFS)
2014/2015 Calls**

*Genetics and nutrition and alternative feed sources
for terrestrial livestock production*

External nutrient inputs

Soil quality and function

*Sustainable food and nutrition security through
evidence based EU agro-food policy*



**H2020 SC2 Sustainable Food Security (SFS)
2014/2015 Calls**

Assessing sustainability of terrestrial livestock production

Assessing soil-improving cropping systems

Strategies for crop productivity, stability and quality

Management and sustainable use of genetic resources



H2020 SC2 Innovative Sustainable Inclusive Bioeconomy (ISIB) – 2014/2015 Calls

Sustainable and resilient agriculture for food and non-food systems

Sustainable crop production

Sustainable livestock production

Monitoring and mitigation of agricultural and forestry greenhouse gases (GHGs)



Conclusions

FP7 properly addressed
CC-related issues in
Agricultural research

In H2020 CC is a cross-
cutting priority to be
addressed in both
mitigation and adaptation
aspects

Agricultural sector's
contribution to CC
mitigation should
increase in the future



Thank you for
your attention!

Find out more about H2020:

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>