

**F**ood, **A**griculture and **F**isheries, and **B**iotechnology  
K n o w l e d g e - B a s e d B i o - E c o n o m y ( K B B E )

# EU Research in support of the bioeconomy

**European Commission**  
**Research & Innovation**  
**FP7 - Cooperation**

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**Directorate E – Biotechnologies, Agriculture, Food**

This presentation shall neither be binding nor construed as constituting commitment by the European Commission



25/09/11

# EU in support of the Bioeconomy:

- **Investing in the bioeconomy**
- **Providing a coherent policy framework for the bioeconomy**
- **Supporting skills for the bioeconomy**

# The Bioeconomy: An EU priority

## EU 2020 Strategy:

Smart growth

Sustainable Growth

Inclusive Growth

Building  
a sustainable  
**BIOECONOMY**  
For Europe

## The Innovation Union:

Turning innovative ideas into products and processes, for growth and job creation.

# The Bioeconomy...

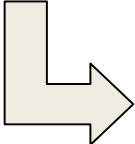
... INCLUDES full range of ecosystems, land and sea resources, biodiversity and biological materials (plant, animal and microbe), including their processing, and consumption

... ENCOMPASSES the agriculture, forestry, fisheries, food, biotechnology and chemical industry sectors

... CONTRIBUTES to the sustainable growth and production of food, feed, energy and renewable materials

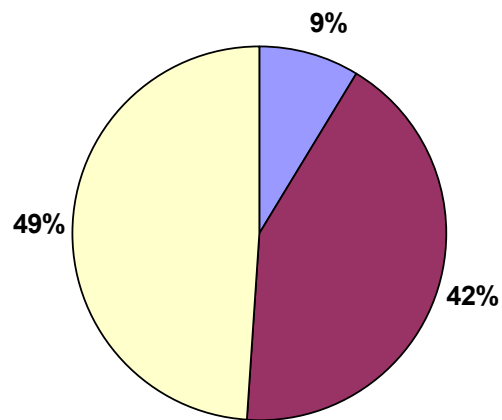
... SUPPORTS the development of rural and coastal areas, and the provision of essential public goods

... As a Framework for Policies:

- 
- Addressing societal Grand Challenges ( e.g. Food security, Climate Change)
  - Harnessing Innovation and Growth

# PUBLIC CONSULTATION A Bioeconomy for Europe: state of play and future potential

Attitude towards the Bioeconomy potential benefits (average respondents' perception)

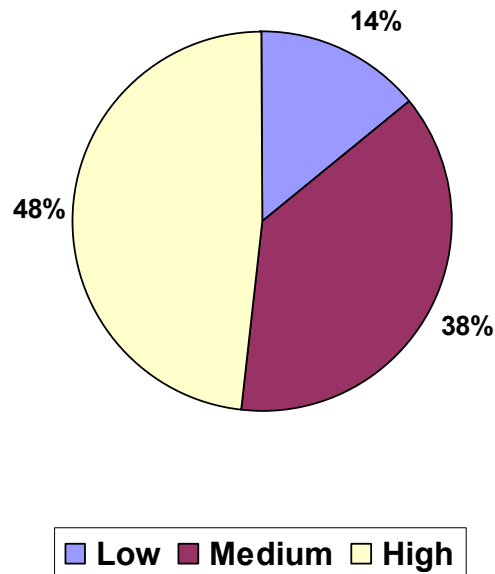


■ Skeptic ■ Confident ■ Optimistic

- Respondents are mainly "optimistic" or "confident" on the potential benefits.
- Strong consensus over the short term achievement on:
  - Reduction of waste and pollution
  - Provision of agricultural advisory services
- Respondents pointed out that some objectives can only be obtained in medium term (by 2030).

# PUBLIC CONSULTATION A Bioeconomy for Europe: state of play and future potential

Risks related to the expansion of the Bioeconomy (average respondents' perception)



Main concerns are focused on:

- Food security and resources in developing countries put under pressure because of increased production for non-food use
- Overexploitation of natural resources and decreasing biodiversity.
- Highlights the needs for trade-offs, and therefore the need for a comprehensive Strategy.

# The bioeconomy – a priority Why?

In industrialized countries, the percentage of the population suffering from food borne diseases each year has been reported to be up to 30%

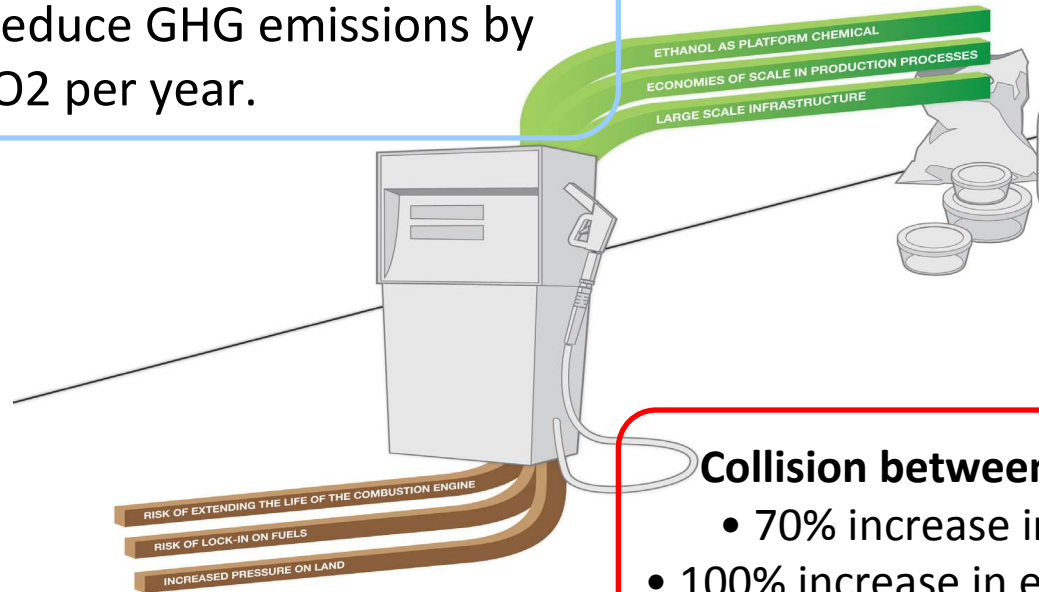


EU Food and Drink R&D expenditure at 0.37% of output - one of the lowest of developed countries

Estimated 30-50% or up to 90 M tons of food in Europe goes to waste.

# The bioeconomy – a priority Why?

Better use of industrial biotechnologies as processes, energy resources or materials to reduce GHG emissions by up to 2.5 BtCO<sub>2</sub> per year.



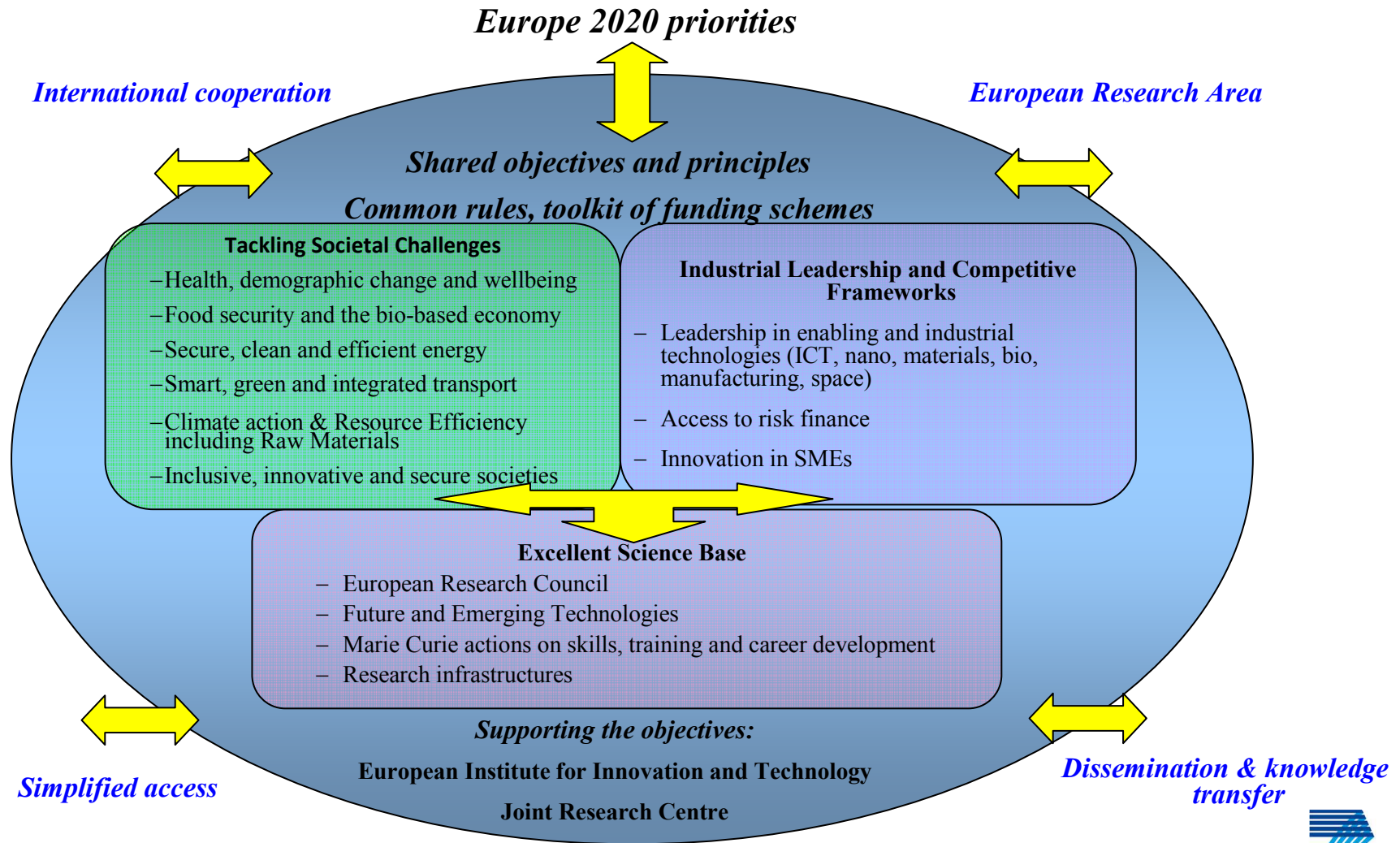
**Collision between food and biofuels?**

- 70% increase in food demand and
- 100% increase in energy demand by 2050

1st gen. bio-fuels to save 530 MtCO<sub>2</sub>e /y  
2<sup>nd</sup> gen. bio-fuels to save up to 1 BtCO<sub>2</sub>e /y



# Horizon 2020 Objectives and structure



# Investing in bioeconomy with Horizon 2020

- Time frame: **2014-2020**
- Proposed amount: **EUR 80 billion** in constant 2011 prices (EUR 90 billion in current prices)
- **46% increase** compared to current period (2007-2013)
- Share of research and innovation in EU Budget increase to **8.5%** in 2020

# Investing in bioeconomy with Horizon 2020

## Tackling Societal Challenges:

- **EUR 4,5 Billion** as a proposal in the Commission Multiannual Financial Framework have already been proposed for Agricultural research and the **Bioeconomy (+130% compared to FP7)**
- One of the 4 pillars dedicated to support research for **“Safe and Sustainable Food and Healthy Diets”**

## Excellence in the science base:

- Support to Marie Curie actions on skills, training and career development

# A coherent policy framework for the bioeconomy

**European Commission Communication:  
Innovating for sustainable growth:  
a Bioeconomy for Europe**

**Strategy and action plan to:**

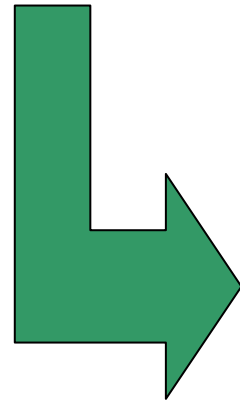
- Ensure food security
  - Mitigate and adapt to climate change
- Reduce the dependency on fossil resources
  - Manage sustainable natural resources
- Create jobs and maintain European competitiveness

Planned adoption: **February 2012**

## Horizon 2020 for the Bioeconomy

+

## Bioeconomy Strategy



➤ + 400.000 jobs

➤ + 0.43% GDP

By 2025

# The Bioeconomy needs: Scientific and engineering skills

**Key knowledge gaps:** *biocatalytic transformation, fermentation technologies, enzymatic engineering, metabolic engineering, synthetic biology, process optimization, scale-up*



**Broad competences in biology comprising knowledge from genomics to much more complex phenotyping**

**Innovative integration of biotechnology with chemistry, biology, engineering, energy and environmental sciences, as well as bioinformatics, nanotechnology, mathematics and computer science**

# Biocconomy needs: Cross- disciplinary and hybrid skills

**Scientific knowledge base mixed with complementary and transferable skills, such as:**

- Economics
- Entrepreneurship
- Management
- Sustainability
- Scientific social responsibility, ethics
- Legislative framework and IPR
- Communication, team work, languages



# The Bioeconomy needs: Entrepreneurship and business development skills:

**Acute need for skilled entrepreneurs who are able to develop and implement business models creating new value chains and value-added bioproducts that are successful in the global marketplace.**

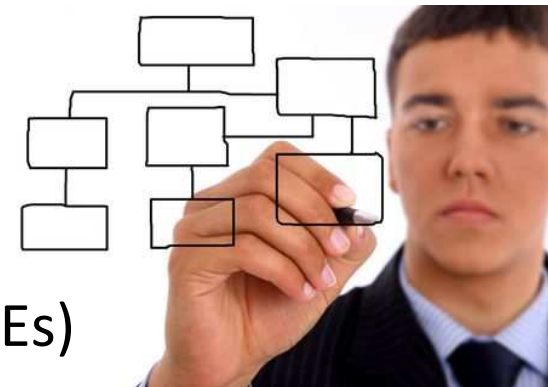
Leadership

Organizational change management

Networking skills (especially crucial for SMEs)

Competences in specific technologies

Understanding of sustainability calculations





# Researchers and the Bioeconomy Strategy's

**Provide research training opportunities and attractive research careers in the EU, to stimulate the availability of world class researchers in bioeconomy sectors.**

- Promote EU talented researchers training, mobility, career development and exchange opportunities across public and private sectors
- Enhance the development of an open European market for researchers and facilitate researchers careers in the bio-based areas

**Stimulate and adapt higher and technical education in the bioeconomy, to secure a sufficient workforce with the necessary diverse skills and awareness.**

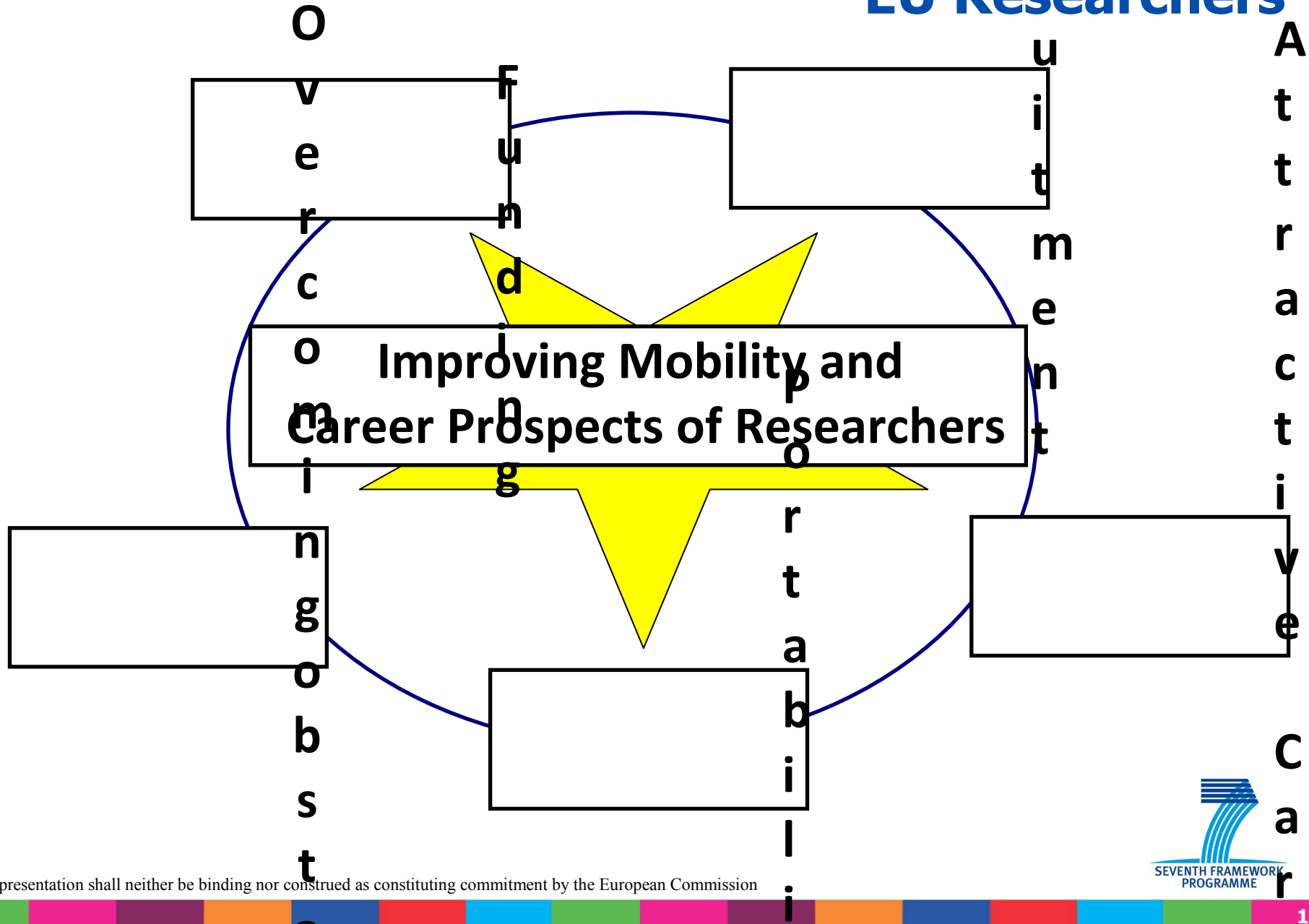
- Stimulate bio-science studies - including providing subsidized university study
- Promote international training and mobility of bioeconomy higher-education students
- Boost bio-based technical education and training

# Building the ERA to support EU Research

## ERA Themes / problems

- Researchers:** **career prospects/ employment conditions, cross border, transnational & intersectoral mobility**
- Cross-border operation:** **combining effort on major challenges; incompatibilities between systems, rules, definitions, priorities, etc.**
- Infrastructures:** **exponential growth of research data, sub-optimal exploitation of RIs' potential, sustainability, development of new RIs**
- Knowledge circulation:** **lack of common strategic approaches on KT, use of public research by industry & level of cooperation; OA**
- International dimension:** **under-exploitation of potential; disconnection between EU & MS; lack of critical mass for joint EU-MS initiatives; insufficient info sharing**

# Building the ERA to support EU Researchers



[http://ec.europa.eu/research/consultations/era/consultation\\_en.htm](http://ec.europa.eu/research/consultations/era/consultation_en.htm)

- ***Timing***
  - From 13.09.2011 to 30.11.2011
- ***Results***
  - summary of results of the consultation will be published on the ERA portal
  - [http://ec.europa.eu/research/era/index\\_en.htm](http://ec.europa.eu/research/era/index_en.htm)
- ***Consultation document***
  - [http://ec.europa.eu/research/consultations/era/consultation\\_era.pdf](http://ec.europa.eu/research/consultations/era/consultation_era.pdf)

# Food, Agriculture and Fisheries, and Biotechnology

Knowledge-Based Bio-Economy (KBBE)



EU research: [www.europa.eu.int/comm/research](http://www.europa.eu.int/comm/research)

Sixth Framework Programme:

[www.cordis.lu/fp6/home.html](http://www.cordis.lu/fp6/home.html)

[www.cordis.lu/fp6/food.html](http://www.cordis.lu/fp6/food.html)

Seventh Framework Programme:

[www.cordis.europa.eu/fp7/home.html](http://www.cordis.europa.eu/fp7/home.html)

Information requests, Europe Direct

[www.ec.europa.eu/research/index.pg=enquiries](http://www.ec.europa.eu/research/index.pg=enquiries)

DG Research Site:

[www.europa.eu.int/comm/research/index\\_en.html](http://www.europa.eu.int/comm/research/index_en.html)

RTD info magazine:

[www.europa.eu.int/comm/research/rtdinfo/](http://www.europa.eu.int/comm/research/rtdinfo/)

<http://bookshop.europa.eu>