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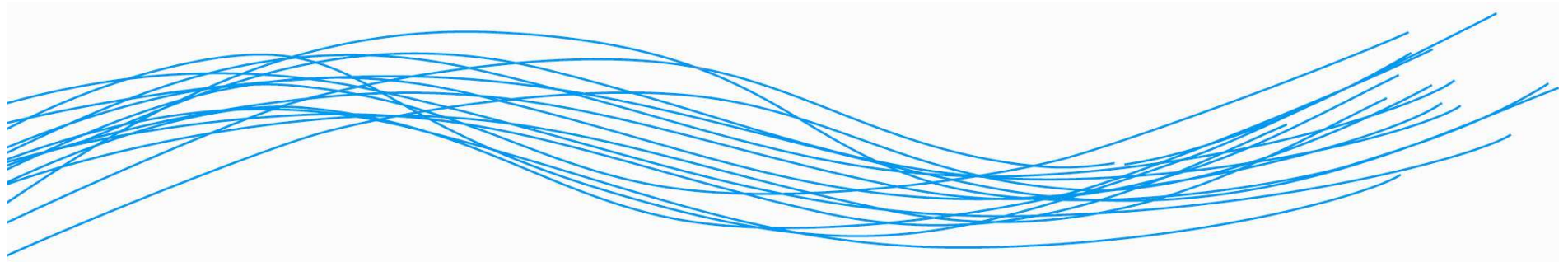
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The 7th European Research Programme (FP7)

Openings for research on agricultural biodiversity

Meeting at the Polish Science Contact Agency

27 May 2009 , Brussels



Food, **A**griculture and **F**isheries, and **B**iotechnology
Knowledge - Based Bio - Economy (K B B E)

Annette Schneegans
European Commission, DG Research
Unit E.4 "Agriculture, Forestry, Fisheries"





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EU International commitments for biodiversity

Following

- the Convention on Biological Diversity (CBD)
- Treaty on Plant Genetic Resources for Food and Agriculture (TPGRFA)

the EU has committed itself to **halt biodiversity loss in the EU by 2010** and beyond

and to provide support to developing countries in maintaining biodiversity





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How to reach objective?

Roadmap « Biodiversity Action Plan»

Development of European 2010 Biodiversity Indicators (SEBI 2010).
Currently set of 26 pan-European biodiversity indicators.

Regular indicator based assessment. First report to be published soon
(covering 2001-2006)

Community Programme on the conservation, characterisation,
collection and utilisation of genetic resources in agriculture
(managed by DG AGRI).

17 projects selected (19% crop, 12% trees, 29% animal species),
starting 2007.

178 partners located in 25 Member States and 12 non EU countries.
Total EU co-funding of EUR 8.9 million.





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How to reach the objective?

Council Regulation (EC) No 870/2004 to support the *in-situ* and *ex-situ* conservation and sustainable use of genetic resources in agriculture in the EU and internationally context.

Commission Directive 2008/62/EC: Allows for registration and marketing of a number of landraces and varieties which are locally/regionally adapted and threatened by genetic erosion and that do not meet the DUS criteria for marketing seeds.

Funding for research on biodiversity through the Research Framework Programmes (FP)





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Issues relating to agricultural biodiversity

- Europe's biodiversity has historically be embedded in a rural environment. Main ecosystems in EU 25 + Norway and Switzerland: croplands 33%; pastures 16%, urban land.
- Grasslands appear to be under particular pressure due to disappearance of traditional patterns of agriculture.
- Agricultural production continues to put high pressure on biodiversity, although policy measures and organic production are having positive effects.
- Main threats from agriculture: intensification, land abandonment, habitat loss.
- Loss of soil biodiversity: knock-on effects on other ecosystems services.
- Attention should be paid to effects of bio-energy crops on soil biodiversity.
- Future advances in breeding rely on increased use of genetic diversity
- Research to address: conservation of genetic resources, management of biodiversity in agricultural systems, enlarging genetic basis of crops and animals



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Research funding in FP5/FP6 for biodiversity

- **ERA-NET BIODIVERSA**
- **BIOTA cluster projects:** Scientific response to Convention on Biological Diversity, WEHAB, European Biodiversity Strategy.

Projects in the BIOTA cluster:

- Assess and predict the impact of major drivers of biodiversity
- Develop tools, such as biodiversity indicators, to promote the conservation and sustainable use of biodiversity
- Seek to identify/resolve conflicts between society, economy and biodiversity
- Create databases on the taxonomy, biology and ecology of Europe's plants and animals.
- Strengthen scientific and technological excellence on biodiversity research through integration of research capacities across Europe





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Examples of on-going FP6 BIOTA cluster projects

- BIOSTRAT – Delivering the EU Biodiversity Strategy
- ECOCHANGE – Challenges in assessing and forecasting biodiversity and ecosystem changes in Europe
- EDIT European Distributed Institute of Taxonomy
- EVOLTREE – Evolution of trees as drivers of terrestrial biodiversity
- MODELKEY – Moles for assessing and forecasting the impact of environmental key pollutant on marine and freshwater ecosystems and biodiversity
- SESAME – Southern European Seas: Assessing and Modelling Ecosystems changes



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Examples of projects from FP6 agricultural research programme

- RUBICODE: Rationalising Biodiversity Conservation in Dynamic Ecosystems (2m€)
- 2E-BCAS IN CROPS: Enhancement and Exploitation of Soil biocontrol Agents for Bio-Constraint Management in Crops (2.3 m€)
- BIOEXPLOIT: Exploitation of natural plant biodiversity for the pesticide free production of food (15.8 m€)
- RHIBAC: Rhizobacteria for reduced fertiliser inputs in wheat (2m€)
- MICRO-MAIZE: Management of plant-beneficial microbes to balance fertiliser inputs in maize monoculture (1.9m€)



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CURRENT FP6 EU-INCO PROJECTS ON UNDERUTILISED CROPS (1)

ACRONYM	TITLE	COORDINATOR
CHERLA	Sustainable cherimoya production systems in Latin America	Jose I. HORMAZA, CSIC
INDIGENO	Sustainable production and marketing of indigenous vegetables in sub-Saharan Africa.	Einir YOUNG, University of Wales Bangor
GUAVAMAP	Improvement of guava: Linkage mapping and QTL analysis for marker-assisted selection	Wolfgang ROHDE, Fraunhofer Institute
PAVUC	Producing added value from under-utilised tropical fruit crops with high commercial potential	Fabrice VAILLANT, CIRAD
FONIO	Upgrading quality and competitiveness of fonio for improved livelihoods in West Africa	Jean-François CRUZ, Centre de Coop. Int. Rech. Agron.pour le Dévelop.
BAMLINK	Molecular, Environmental and Nutritional Evaluation of Bambara Groundnut for Food Production in Semi-Arid Africa and India	Sayed AZAM-ALI, University of Nottingham





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CURRENT FP6 EU-INCO PROJECTS ON UNDERUTILISED CROPS (2)

ACRONYM	TITLE	COORDINATOR
SAFRUIT	Sahelian Fruit Trees	Anders RAEBILD, Royal Veterinary and Agric. Univ.
LOTASSA	Bridging Genomics and Agrosystem Management: Adaptation and Sustainable Production of forage Lotus species in Environ.-Constrained South-American Soils.	Juan SANJUAN, CSIC
INNOVKAR	Innovative Tools and Techniques for Sustainable Use of the Shea Tree in Sudano-Sahelian zone	Jean-Marc BOUVET, CIRAD
FOSRIN	Food security through ricebean research in India and Nepal	Philip HOLLINGTON, Univ. of Wales, Bangor
MARAMAI	Development of innovative and healthful marama bean products targeting niche markets	Ase HANSEN The Royal Veterinary and Agricultural University
Agro-folio	Benefiting from an improved agricultural portfolio in Asia Markus SCHMIDT University of Vienna	Markus SCHMIDT, University of Vienna



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CURRENT FP6 EU-INCO PROJECTS ON UNDERUTILISED CROPS (3)

ACRONYM	TITLE	COORDINATOR
DADOBAT	Domestication and development of baobab and tamarind	Patrick VAN DAMME, University Ghent
ACACIAGUM	Innovative management of Acacia senegal trees to improve resource productivity and gum-arabic production in sub-Saharan Africa	Didier LESUEUR, CGIAR
AMARANTH: FUTURE-FOOD	Providing the Key Tools for the Exploitation of Amaranth – the Protein-Rich Grain of the Aztecs	Fomsgaard INGE, Dansih Institute of Agricultural Sciences



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The 7th EU Framework Programme (2007-2013)

10 Themes



Specific Programmes: Total 53 billion €

There is no specific « Biodiversity Programme ». However, various entry points exist...

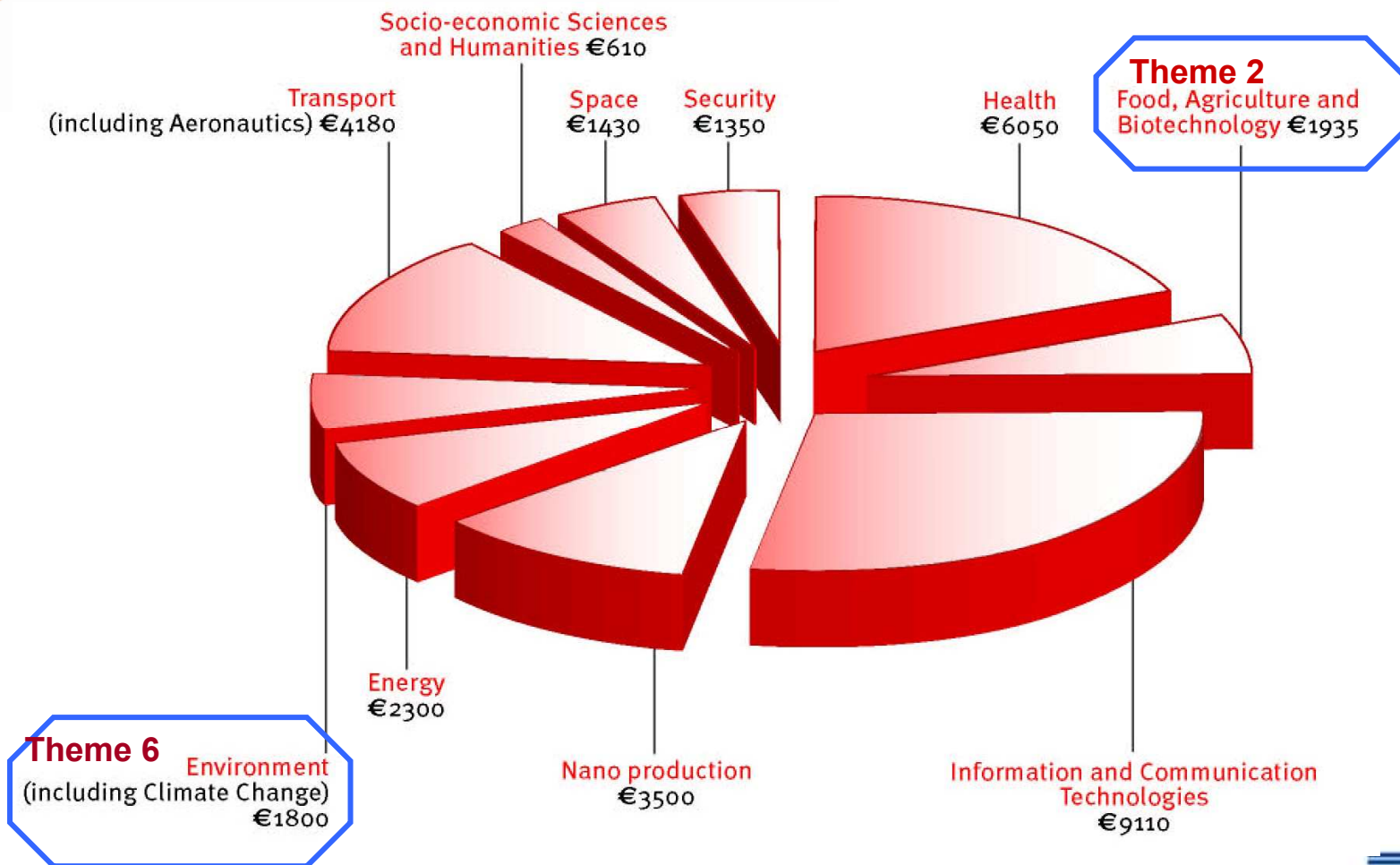




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FP7- Cooperation : 10 thematic areas





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FP7, Theme 6: Environment

- **In first two calls: 8 biodiversity projects (total €23m).**

For example, BIOTA cluster projects

- EBONE: European biodiversity observation network
- HighArcs: Highland Aquatic Resources Conservation and Sustainable Development
- HUNT: Hunting for sustainability
- LiveDiverse: Sustainable livelihoods and biodiversity in riparian areas in developing countries
- PALMS: Palm harvest impacts in tropical forests
- SOILSERVICE: Conflicting demands of land use, soil biodiversity and the sustainable delivery of ecosystem goods and services in Europe



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Theme 2: Agricultural, Food and Biotechnology Research - Rationale



By building a Knowledge-Based Bio-Economy (KBBE)

....the wide area of life-sciences and
biotechnology research can contribute to
meeting

- the **Lisbon objectives** on economic growth, employment, sustainable development (e.g. through developing new eco-efficient and competitive bio-based products)

- the **Millenium Development Goals** and other global challenges and commitments, such as the CBD



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Major global trends/challenges affecting the Bio-economy

- Feeding increasing world population:**
- 6.5 bn in 2005 - up to 8.3 bn in 2030
 - Increasing and calorie consumption per capita
 - Rising meat demand – up 70% by 2030

- Coping with climate change:**
- Variability in water supply
 - Spread of diseases
 - Soil degradation

- Environmental considerations:**
- Minimizing further agricultural land use
 - Increase resource efficiency of agricultural production
 - Habitat protection and maintenance of biodiversity

- Shifts in energy supply:**
- Higher costs of fossil fuels/scarcity
 - Security of supply
 - CO₂ reduction

- Changing patterns in world trade:**
- Globalisation
 - Reform of the European Common Agricultural Policy
 - Consumer-led production



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Theme 2 (KBBE) - Structure



KBBE - Activity 2.1

Sustainable food production and management of biological resources from land, forest and aquatic environments



KBBE - Activity 2.2

“Fork to farm”: Food, health and well being



KBBE - Activity 2.3

Life sciences, biotechnology and biochemistry for sustainable non-food products and processes

Following publication of specific call topics, proposals can be submitted under each activity. Call topics are open for international cooperation!





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FP7 KBBE - Activity 2.1

Sustainable production and management of biological resources
from land, forest and aquatic environments



Food, Agriculture and Fisheries, and Biotechnology

Agriculture, forestry and fisheries:
meeting tomorrow's economic, social
and environmental objectives

- Enabling research (e.g. 'omics, bioinformatics, systems biology) for plants, animals, microorganisms
- Production systems for agriculture, forestry, fisheries and aquaculture
- Animal health, production and welfare
- Support to policies



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Plant research in FP7 examples

Enabling technologies, tools and resources:

→ "Tools for molecular breeding"; Novel tree breeding

Basic research on biological processes:

→ "Molecular genetic basis of nutrient use efficiency in plants"

Model plants

Applied research for sustainable agriculture:

→ Food crops with improved tolerance to multiple abiotic stresses in the Mediterranean region

Crop plants

Support to policies

→ e.g. on Plant health, co-existence measures

« New » Plants

Plant biotechnology

→ e.g. Novel plants for energy production and providing oil for the future, optimising the potential of plant cell walls for Biomass production



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FP7. Theme 2: KBBE examples of published call topics with relevance for agricultural biodiversity

- KBBE-2007-1-2-05: Novel forest tree breeding
- KBBE-2007-1-2-06: Developing new methods for valuing and marketing of currently non-marketable forest goods and services
- KBBE-2007-1-2-09: From capture based to self-sustained aquaculture
- KBBE-2007-1-2-13: Mitigating adverse impacts of fisheries
- KBBE-2007-1-4-21: Interactions of fisheries and aquaculture of bluefin tuna



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Theme 2: KBBE examples of published call topics with relevance for agricultural biodiversity

- KBBE-2008-1-2-01: "Development of appropriate **indicators** of the relationship between organic/low-input farming and **biodiversity**".
- KBBE-2008-1-2-03: Assessment and mitigation of the impact of aquaculture on **wild populations** (expected impact: to promote **co-existence of natural and culture populations without losing biodiversity** and exchange diseases to ensure further development of aquaculture)
- KBBE-2008-1-2-05: Improved agro-forestry systems for sustainable farming – SICA (indirectly supporting biodiversity through **promotion of adapted and sustainable farming practices in dry areas**)
- KBBE-2008-1-2-06: Forecasting **forest diversity under the influence of climatic changes** and the consequences for stability and productivity of forest ecosystems
- KBBE-2008-1-4-08: Characterisation and valorisation of **Andean soil microbial diversity** to support sustainable crop productions and agro-ecosystems (SICA)



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FP7, Theme 2: KBBE examples of published call topics with relevance for agricultural biodiversity

- KBBE-2009-1-1-03: Optimisation of methods to maintain farm **animal biodiversity**
- KBBE-2009-1-2-01: Key multifunctional **legume crops** for an energy-efficient and environmentally friendly future European agriculture
- KBBE-2009-1-2-02: **Multifunctional grasslands** for sustainable and competitive ruminant production systems and the delivery of ecosystems services
- KBBE-2009-1-2-04: Improving performance and quality of crops in the context of **organic and low-input systems** by **breeding and management**
- KBBE-2009-1-2-09: Impact and development of **Conservation Agriculture techniques in developing countries (Africa)**
- KBBE-2009-1-2-12: Sustainable inland extensive and semi-extensive aquaculture
- KBBE-2009-1-2-14: Sustainable use of seas and oceans – **importance of foraging fish in the ecosystem**
- KBBE-2009-1-3-03: Bee health



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Upcoming research topics for proposals in 2009/2010 (tentative!)

- Improving European berries production, quality, nutraceutical and nutritional value
- Genetic and genomic tools to increase the breeding efficiency in fruit trees
- Characterisation of biodiversity resources for wild crop relatives to improve crops by breeding (*see also complementary topic under the Capacities on infrastructures for genetic resources of crop plants!*)
- Promoting global cooperation to facilitate and accelerate knowledge transfer on abiotic stress tolerance of plants
- Sustainable culture of marine microorganisms, algae and/or invertebrates for high added value products
- Sustainable water resources management and soil fertility conservation for food production in Africa
- EU-Russia Partnership initiative in Microbes – Plants Biodiversities
- Integrated pest management in farming systems of major importance for Europe
- Sub-seabed carbon storage and the marine environment





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International Cooperation in FP7 with Third Countries (non-EU)

- 1- **Associated (candidate) countries** (Croatia, FYR Macedonia, Iceland, Israel, Liechtenstein, Norway, Serbia, Switzerland, Turkey, Albania, Montenegro)
- 2- **Industrialised countries** (Australia, Canada, USA, New Zealand....)
- 3- **International Cooperation Partner Countries (ICPC):**

....are classified as low-income, lower-middle-income or upper-middle-income third countries

- **Countries neighbouring the EU** (Mediterranean Partners , Western Balkans, Eastern Europe and Central Asia)
- **Emerging economies** (e.g. Brazil, China, India, Russia, South Africa)
- **Developing countries** (from ACP, ASIA, Latin America)
- **Least Developed Countries**, with focus on MDGs



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MODALITIES of International Cooperation

1. GENERAL OPENING

All activities / topics are open to participation by Third Countries as additional partners, i.e. above the minimum requested

2. TARGETED OPENING:

Some topics encourage international cooperation with some Third Countries

3. SICAs - Specific International Co-operation Actions

Topics of mutual benefit, with mandatory participation of some Third Countries, in particular ICPC

4. COORDINATED CALLS

Synchronised Calls, between FP7-Theme 2 and Third countries on topics of shared interest and with co-funding from Third Countries (e.g. Russia 2008, India 2009)

5. TWINNING of projects

between FP7-Theme 2 and related programmes from Third countries (e.g. Canada, Argentina)

....and regional dialogues





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Funding for International Research Cooperation

Community financial contribution is granted to:

- (a) any legal entity established in a Member State or an Associated Country;
- (b) any international European interest organisation;
- (c) any legal entity established in an international cooperation partner country (ICPC)
- (d) In the case of a legal entity established in a third country other than an associated country or international cooperation partner country, a Community financial contribution may be granted if the contribution is essential for carrying out the indirect action





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Examples of SICAS or Targeted Topics published under first three calls for proposals

- Characterisation and valorisation of Andean soil microbial diversity to support sustainable crop production and agro-ecosystems
- Sweet Sorghum - An alternative energy crop for biofuel production in semi-arid and temperate regions
- *Jatropha curcas* – breeding strategy – towards a sustainable crop for biomaterials and biofuels
- Biomass and bioproducts: sustainability certification and socioeconomic implications
- Biomass pre-treatment for optimised biomass deconstruction and analytical characterisation



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More Information

http://cordis.europa.eu/fp7/kbbe/home_en.html

http://cordis.europa.eu/fp7/environment/home_en.html

Contacts

- **DG Research, Dir. E**
Agriculture, Forestry, Fisheries, Aquaculture
Dr Timothy Hall, Head of Unit
timothy.hall@ec.europa.eu
- **DG Research, Dir. I**
Management of Natural Resources
Pierre Mathy; Head of Unit
pierrel.mathy@ec.europa.eu



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**Thank you for
your attention!**

