

The term “bio-economy” includes all industries and economic sectors that produce, manage and otherwise exploit biological resources (e.g. agriculture, food, forestry, fisheries and other bio-based industries);

The European bio-economy has an approximate market size of over €1.5 trillion, employing more than 22 million people

Sector	Annual turn-over (billion €)	Employment (million)	Data source
Food	800	4.1	CIAA
Agriculture	210	15	COPA-COGECA
Paper/Pulp	400	0.3 direct (4 ind.)	CEPI
Forestry/Wood ind.	150	2.7	CEI-BOIS
Industrial Biotech.	50 (est.)		McKinsey*
Total	1610	22.1	

* estimated to be around €100-160 million by 2010

Life Sciences and Biotechnology in convergence with other technologies...

...provides the knowledge-base for the sustainable management, production and use of biological resources...

... provides new, safe, affordable and eco-efficient products ...

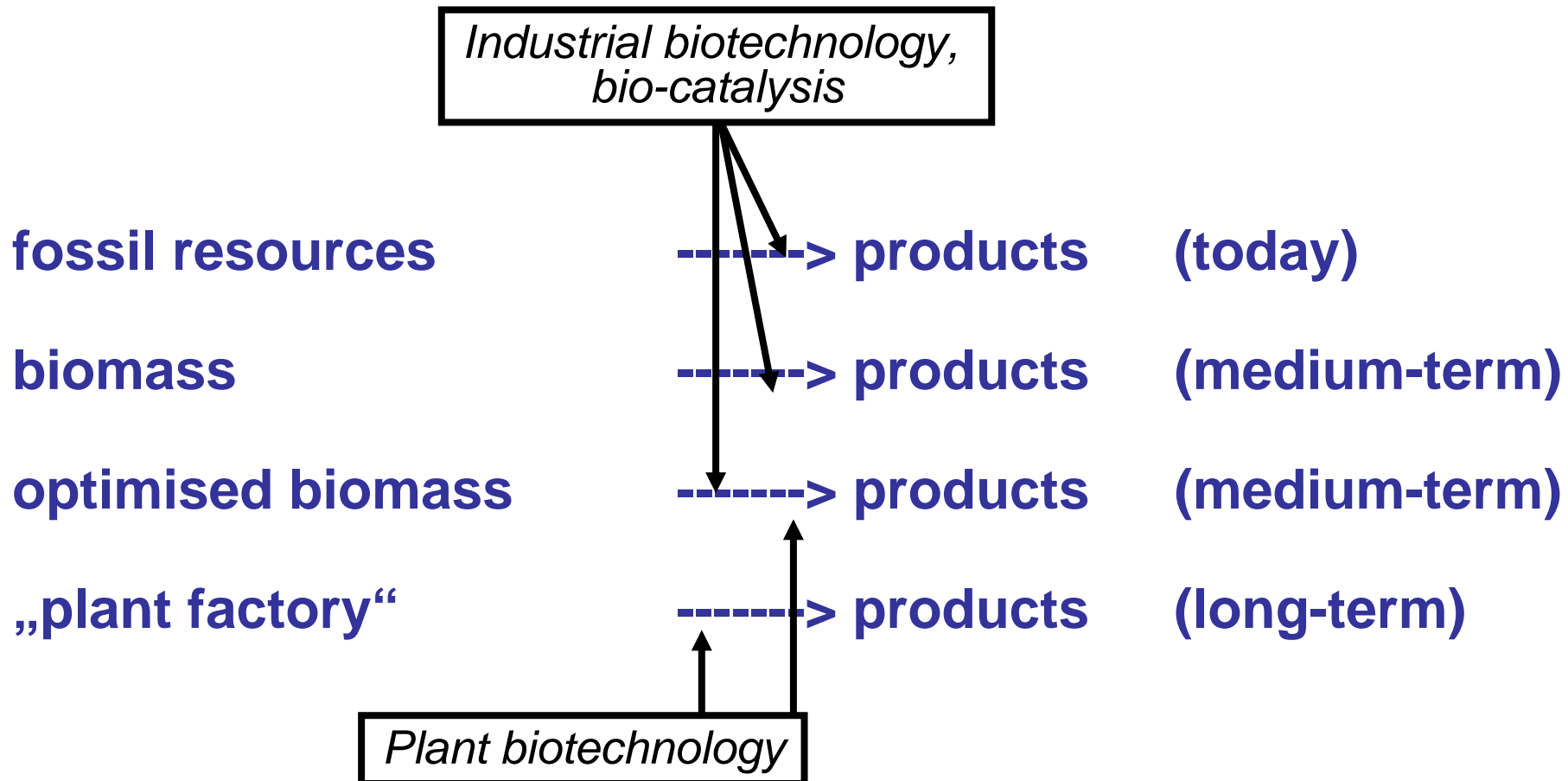
... supports competitiveness and sustainability of major European industries

Examples:

- Advances in diagnostics have increased food safety and control of animal diseases (foot and mouth; BSE)
- Use of enzymes in industrial and household processes (washing powder), and in food production, have strongly reduced energy/water consumption and led to new “functional” foods.

Transforming the Bio-Economy

Applying new knowledge to the production and conversion of bio-resources will transform the existing bio-economy and create new industries



Knowledge Based Bio-Economy: Opportunities and challenges beyond growth and employment

- Secure a sustainable agriculture and fisheries production for a rising world population, on limited arable land and facing impacts of climate change;
- Secure the demand for renewable bio-resources for eco-efficient products and biofuels;
- Serve public health through safer, healthier and higher quality foods;
- Control and prevent epizootic and zoonotic diseases like avian flu, and food related disorders, such as obesity.

Knowledge Based Bio-Economy: European assets

European bio-economy cannot compete on a global level by delivering only basic agricultural commodities, but needs to build on European strengths:

- excellent science, technology and industry base to deliver innovations;
- biotech companies have developed genetically engineered crops used world-wide;
- world leader in innovative food technologies and products;
- leader in innovative animal breeding technologies;
- strong chemical and manufacturing industry base.

Knowledge Based Bio-Economy: How to make it happen!

- Policy-makers, governments, industry, public and private research bodies, civil society to recognise that life science and biotechnology potential has to be carefully nurtured if it is to continue to grow;
- Establish a regulatory, institutional and societal environment supportive of the bio-economy;
- Demonstrate clear benefits for the consumer;
- Incentives to exploit its benefits in terms of competitiveness, environmental compatibility and potential for rural development;
- Participants in the chain – farmers, industry, regulators and consumers – need to get together to actually make the bio-economy work.

Knowledge Based Bio-Economy: Policy drivers

directly relevant:

Research & Innovation; Common Agricultural Policy, Common Fisheries Policy, Forestry Strategy, agriculture and trade issues, food safety regulations, Community Animal Health Policy, Environment and Health Strategy, Competitiveness, Consumer Policy, Regional Policy;

others:

energy (biomass), transport, environment and biodiversity (climate change, waste, biodiversity,) education and training, employment, internal market (data protection, IPR), European neighbourhood policy;

Knowledge Based Bio-Economy: The role of research

- Focus on sustainable management, production and use of biological resources, through life sciences and biotechnology and convergence with other technologies;
- Realise opportunities (healthier food; cleaner bioproducts/-processes) and address challenges (increasing demand for bioresources);
- Technology platforms and other stakeholders fora for reflection on and development of research policy;
- Support to formulation and implementation of policies and regulations.

Knowledge Based Bio-Economy: Where are we?

FP6 (2002-2006)

- Creation of 7 Technology Platforms relevant to the KBBE
- A number of relevant ERA-NETs
- KBBE stakeholder conference (Sep 2005)

FP7 (2006-2013)

- Theme « Food, Agriculture and Biotechnology » to support the KBBE

THE EUROPEAN KNOWLEDGE-BASED BIOECONOMY

NUTRITION (nutrigenomics) - PATHOGENS
CONTAMINANTS - ALLERGENS

CONSUMER CHOICE

STABILITY - BIODEGRADABILITY
FUNCTIONALITY (Chirality)

SAFE HEALTHY
& DIVERSE
FOOD SUPPLY
"Fork to Farm"

BIOBASED
MATERIALS
FOR HEALTH
INDUSTRY
& ENERGY



TRACEABILITY SYSTEMS
ADVANCED FOOD TECHNOLOGIES

PROCESSING

WHITE BIOTECH
CLEAN BIOPROCESSES
RAW MATERIALS/WASTE

LOW INPUT FARMING - BIODIVERSITY
ANIMAL HEALTH - RURAL DEVT.

PRODUCTION

GREEN / BLUE BIOTECH
OPTIMISED RAW MATERIALS



SUSTAINABLE MANAGEMENT OF BIOLOGICAL RESOURCES

(LAND, FOREST, MARINE)

