ERA-PG
European Research Area
Plant Genomics

Framework Program 6
Support co-operation and co-ordination of
Research activities carried out at national
and regional level

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Why plant research?

- Plants produce all global food as well as offering renewable resources of energy and materials
- From forestry to pharmaceuticals plants are central to a significant portion of European industry
- Studying plant genomes is essential to drive innovation, to stimulate commercial exploitation and to keep Europe's economy healthy

Economic importance of plants and plant-derived products in EU25

- 8% of EU25 workforce is employed in the agricultural sector and there are over 17 million farms.
- Food and drink industry is the leading European industry sector with €700 billion annual turn over and a workforce of 2.6 million.
- EU seed market, worth €8.4 billion annually, is the largest regional market (30% of the global market).
- EU25 forestry and its related industries employ more than 3.5 million people with an annual turn over of over €200 billion.
- Livestock production in EU25 consumes 400 million tones of feed, including grazing land, of which 90% is produced in Europe.
- EU currently accounts for only 10% of the fast-growing markets for crop-derived fibers and raw materials, which increased globally from 51 to 70 million tons over the past five years.

Long term EU and global challenges

- If supported by the public plant genomics may contribute to solve global challenges:
  - Feeding an increasing world population
  - Growing demand for high quality, safe and affordable food
  - Limited availability of arable land: 0.26 (1997) to 0.15 ha per capita (2050)
  - Limited availability of fossil resources that will need to be replaced by renewable resources, in particular plants
  - Fossil resources are also the major source of greenhouse gas emissions, which threaten our climate and the health of citizens

EU plant research is fragmented

- Europe invests €80 million annually in plant genomics.
- USA invests same in 2004 but increase anticipated to $200 million annually.
- Europe splits this sum between numerous national research programs.
- Coordination of the national research programs would help EU:
  - to deploy its budget more coherently,
  - optimize its investments in expensive resources,
  - and ensures that Europe plant genomics secures a leading position in international business and political arenas.

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Aims of ERA-PG

- Bring EU plant genomics programs under one flag.
- Provide it with the critical mass needed to be truly competitive.
- Avoid fragmentation, find synergy.
- Encourage cooperation and coordination between the national/regional programs.
- Use the limited resources as efficiënt as possible.
- Facilitate opening of national research programs.
- Establish transnational joint programs.

ERA-PG partners believe this is how to meet European demand for plant genomics in medicine, agriculture and industrial innovation.

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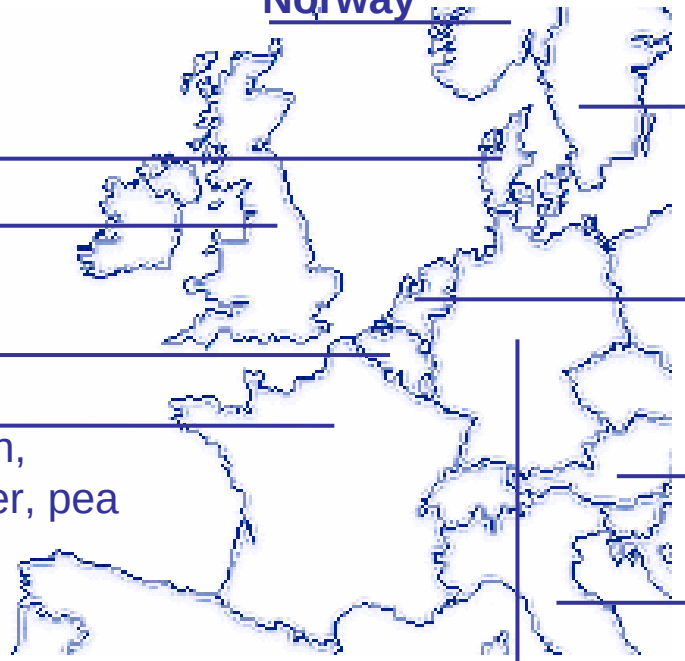
EUROPEAN Plant Genomics Initiatives



Norway

Sweden, **Finland**
Arabidopsis,
poplar, birch

Denmark

UK, *Garnet*
Arabidopsis

NL, *CBSG*
Arabidopsis,
potato, tomato

Belgium

France, *Genoplante*
Arabidopsis, wheat, corn,
rice, rapeseed, sunflower, pea

Austria

Italy

Spain, *MCyT*
Arabidopsis, tomato, potato,
grape, pine, oak

Germany, *GABI*
Arabidopsis, barley, corn,
sugarbeet, wheat, potato

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ERA-PG basis

- Existing national genomics programmes
  - GABI: Germany
  - Génoplante: France
  - GARNET: UK
  - Centre for BioSystems Genomics: NL
  - MCyT: Spain
  - DEN, FI, IT, AU, BE, NO
- Joint projects between GABI and Génoplante
- Trilateral cooperation between GABI, Génoplante and MCyT
  - Joint projects in 2004

ERA-PG partners

- Partners:
  Netherlands, Germany, France, UK, Spain, Belgium, Denmark, Finland, Austria, Italy and Norway
- The network is committed to expand its membership to especially new member states that are themselves launching plant genomics initiatives

ERA-PG activities: 1st stage

- Exchange of information between the participants to determine the current status of genomics research, its management, administration and the research priorities of each country
- Identify and encourage best practices among the participants
- This benchmarking exercise will help the partners to formulate strategic actions:
  - identify barriers that hinder co-operation and look at initial areas of joint activities
  - Through short-term exchange of program managers and discussion between program makers and managers development of a common legal framework to ensure durable collaboration between national and industrial partners

ERA-PG activities: 2nd stage

- National programs are directed to common objectives – in particular, by joint calls for research.
- Development mechanisms to open up national laboratories and share investments in expensive equipment and personnel.
- Joint training programs and scientist exchange to quickly distribute and implement novel technologies.
- Vision-2025 meetings and position papers:
  - EU Technology Platform Plant Genomics and Biotechnology: 'Plants for the Future'.
  - Future long-term structuring of plant genomics research in Europe and the creation of joint strategies, programs and funding.
  - Formulate long-term goals and research priorities for plant genomics.
  - Identification new research avenues in which Europe should contribute to international programs or attempt to secure worldwide leadership.

Improving the yield

- Europe has an important role to play in the future production of safe and healthy food for the world's growing population
- Tight co-operation and coordination of national plant research programs will create the critical mass that Europe needs to sustain the competitiveness in this area
- By intensifying the contacts between program makers, program managers and scientists ERA-PG will help to ensure that plant genomics addresses the most pressing scientific and societal issues that Europe faces in this field today

Perspective for the future

- We must demonstrate the societal utility of plant genomics by some success stories in the real world
- Cooperation between disciplines has the future: genetics and molecular biology with physiology, breeding, biochemistry, informatics, food technology, human heath, social sciences ….

ERA-NET supported activities

- Strategic activities
  - Identifying/analyzing synergies
  - Future multinational programmes
  - Mutual opening mechanisms
  - Administrative and legal barriers
  - New research opportunities and gaps
  - Stimulation of interdisciplinary work
  - Design of common evaluation procedures
- Transnational research
  - Implementing a transnational research programme which is the strongest form of networking

ERA-NET supported activities

- Systematic exchange of information
  - Fora of research programme makers and managers
  - Short- term exchanges of programme managers
  - Benchmarking and dissemination of 'good practices'
- Implementation of joint activities
  - Clustering of current nationally-funded research projects
  - Systematic use of multinational evaluation procedures
  - Joint training activities
  - Mutual opening of facilities or laboratories