Agrifood and Bioeconomy in Europe and Italy

Fabio Fava

Italian Representative, i) Horizon2020 Societal Challenge 2 EU Bioeconomy Challenges: Food Security, Sustainable Agriculture and Forestry, Marine, Maritime and Inland Water Research, ii) “States Representatives Group” of Public-Private Partnership Biobased industry (BBI JU), and iii) BLUEMED initiative &

School of Engineering, Alma Mater Studiorum-University of Bologna, Bologna

(E-mail: fabio.fava@unibo.it)
The European Bioeconomy

About 2.000 Billion €/y and 20.0 Million of jobs
The European Bioeconomy: Turnover

~2.000 Billion €/y

- Agriculture: 19%
- Food products: 44%
- Forest-based industry: 6%
- Paper and paper products: 6%
- Textiles and textile products: 1%
- Biofuels: 4%
- Bioenergy: 3%
- Beverages: 8%
- Pharmaceuticals: 0.6%
- Forestry: 2%
- Tobacco products: 2%

Prepared by nova-Institute.eu | 2015
The European Bioeconomy: Employment

~20.0 Million of jobs
The European Bioeconomy Strategy: major priorities

- Productive and resource-efficient primary production systems
- Sufficient supplies of safe and high quality food and bio-based products, including bioenergy
- Competitive and low carbon supply chains.

Making the best from our biological resources, accelerating the transition to a sustainable European bioeconomy

EU Bioeconomy Strategy (currently under revision)
**Societal challenges**

1. Health, demographic change and wellbeing (7.472 Bln)

2. Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the bioeconomy (3.851 Bln)

3. Secure, clean and efficient energy (5.931 Bln)

4. Smart, green and integrated transport (6.339 Bln)

5. Climate action, resource efficiency and raw materials (3.081 Bln)

6. Inclusive, innovative and reflective societies (1.310 Bln)

7. Secure societies (1.695 Bln)
A Public-Private Partnership on Bio-Based Industries

Realising the European Bio-economy Potential

A PPP between European Commission & BIC (PPP BBI JU)

BBI JU Budget: € 3.7 bilion
(75% from industry)

Supported by http://www.bbi-europe.eu/
The Italian Bioeconomy

~260 Billion €/y (and 2 Million jobs)

After: Eurostat data, 2015, under revision by Banca Intesa, Assobiotec and CREA
The Italian Agriculture

Employment

~ 830,000 jobs
Agriculture
Livestock &
Aquaculture

Annual Turnover

~ € 57.0 Billion
Agriculture
Livestock &
Aquaculture

After: Eurostat data, 2015, under revision by Banca Intesa, Assobiotec and CREA
**The Italian Agriculture: main R&I needs**

- Improve soil fertility and bioavailability of nutrients, via organic farming (compost application), crop rotation etc;
- Improve the quality and management of water resources;
- Crops selection and improvement for increased productivity and sustainability, resilience, nutritional properties, protection from infections;
- Precision farming, agro-ecological modeling, prevention of biomass losses;
- Evaluation/exploitation of national biodiversity and genetic patrimony;
- Innovative use of abandoned and marginal lands.

| Genetic improvements of terrestrial livestock for increased functional longevity, nutritional properties, resistance to diseases; |
| Hormone/antibiotics reduction/substitution in animals; |
| Sustainable management of livestock effluents/waste (with energy and fertilizers production); |

- Improve productivity, tackling disease related challenges and threats of farmed aquatic animals.
Top 5 Member States in terms of food & drink industry turnover, 2015* (€ billion)

- **Germany**: 160 billion €
- **France**: 140 billion €
- **Italy**: Turnover: 134 billion €, Export: 21%, 28.6 billion €
- **UK**: 100 billion €
- **Spain**: 80 billion €

400,000 employees.
Over than 55,000 companies; 6,845 with more than 9 employees.

*(After: Federalimentare, 2015)*
Production of new ingredients and foods for specific nutritional needs and/or for combating obesity and ageing;

Production of new “typical/quality” foods (DOP, IGP, STG, etc.);

Develop new strategies and tools for improving safety and preservation;

Develop strategies and tools for food authentication and combating counterfeiting and imitations;

Improve efficiency of the food making value chain by: lowering raw material losses, byproducts and waste production, and water and energy consumption and improving food preservation and distribution;

Integrated exploitation of food processing byproducts and waste with the production of food ingredients and products, biochemicals, biomaterials (packaging) and biofuels;

Promote healthy diets via science-based information and education and improve knowledge on the nexus diet, life style and health.
University of Bologna: education, research, innovation in Food & Bioeconomy

1st Italian University in QS World University Rankings 2015/2016
6th-8th in Italy [group 201-300] Shanghai Academic Ranking of World University

Excellent education system

Education

Research & Technology

Business

Innovation and development projects

Product and business development camps

Agreements with large companies

Almacube business incubator

Board of directors of the National technological clusters on agro food and green chemistry

H2020 SC2 - 2nd at IT level in 2014-15 with 3,5 M budget

2nd University in Italy for European FP7 Funded Projects*
• 274 projects**
• 58 coordinated prj
• 87,8 million € (17 M in KBBE)
• 500 industries involved (Large + SMEs)

Students’ entrepreneurship support

1st University at national level for creation of academic spin-off

6th-8th in Italy [group 201-300] Shanghai Academic Ranking of World University

Board of directors of the National technological clusters on agro food and green chemistry

H2020 SC2 - 2nd at IT level in 2014-15 with 3,5 M budget

2nd University in Italy for European FP7 Funded Projects*
• 274 projects**
• 58 coordinated prj
• 87,8 million € (17 M in KBBE)
• 500 industries involved (Large + SMEs)

Students’ entrepreneurship support

1st University at national level for creation of academic spin-off

6th-8th in Italy [group 201-300] Shanghai Academic Ranking of World University

Board of directors of the National technological clusters on agro food and green chemistry

H2020 SC2 - 2nd at IT level in 2014-15 with 3,5 M budget

2nd University in Italy for European FP7 Funded Projects*
• 274 projects**
• 58 coordinated prj
• 87,8 million € (17 M in KBBE)
• 500 industries involved (Large + SMEs)

Students’ entrepreneurship support

1st University at national level for creation of academic spin-off

6th-8th in Italy [group 201-300] Shanghai Academic Ranking of World University

Board of directors of the National technological clusters on agro food and green chemistry

H2020 SC2 - 2nd at IT level in 2014-15 with 3,5 M budget

2nd University in Italy for European FP7 Funded Projects*
• 274 projects**
• 58 coordinated prj
• 87,8 million € (17 M in KBBE)
• 500 industries involved (Large + SMEs)
Coordinators/facilitators at EU level:

- University of Bologna (IT)
- Wageningen University (NL/B🇪)
- University of Lund / University Copenhagen (DK/SE)
- IRTA/University of Valencia (🇪🇸)
- INRA/AgroParisTech (🇫🇷)

UNIBO acts as coordinator & facilitator of the IT system. FoodNexus IT was set up in 2012 and defined in 2013 as a consortium composed by **27 partners** (8 public, 19 private).