

# **WORKSHOP ON PLANTS MICROBIOME RESEARCH AND INNOVATION**

**EC- H2020**

Summary of the Discussions

Brussels, 22 February 2016

# Workshop aims

- The Workshop was planned to gather world-wide experts on microbiomes mainly from plants but also from other systems including human and marine microbiomes.
- The aim was to assess the state of play of plant microbiome research in the EU and world-wide, and explore opportunities for the establishment of an International public/private partnership for research and innovation to contribute for sustainable food and energy production.

# What are the current status and the main goals of plant microbiome research ?

- The use of NGS has increased our capacities to generate comprehensive inventory of microbial communities from soil, plant organs as marine samples
- The scientific community is quickly accessing the potential for active management of plant microbiomes to enhance plant productivity and both human and ecosystem health
- There was a consensus that world-wide efforts are needed to make available globally-integrated and accessible databases that can accelerate the understanding of plant microbiome composition and functions

# What are the opportunities and potentials of plant microbiome for the EU and for the World?

- Detailed analysis of microbiome composition and function will help to decipher the molecular and biochemical mechanism involved in plant/microbiome microbe/microbe communication
- This may help understanding the chemical biology of plant/microbiome interaction and establish the grounds to support developing new technologies to enhance plant healthy and productivity in a more sustainable way
- This new biology could also help develop technologies to face the challenges of increasing plant productivity under the stress conditions imposed by the climate changes

# What are the Bottlenecks and Needs?

- Regulation/registration of microorganisms
  - Elaborate a revision of current rules and formulate a proposal to accelerate exchange of microorganisms among international institutions including commercialization
  - Improve communication with the public
- Big data management. Integration of datasets
  - Bring in big internet partners. Establish central labs to develop tools for processing big data including genomics and metadata.
- Process standardization
  - Methods, protocols, etc for sampling and analysis of microbiome
- High throughput constructions and anotation of culture collections. Long term and stable culture collection repository for storage and distribution
  - Develop new tools and establish international CC Centers
- Long term and stable funding
  - Political decision of funding agencies

# What are the Bottlenecks and Needs

- Establish the rules for construction of an Open Access Innovationan Network/Consortium
  - Needs the involvement of scientist, funding agencies and private sector
- Overcome the difficulties in bringing private partnership in an Open Access Innovation environment
  - Needs high level negotiations between public funding agencies and private sectors.
  - Hiring coordination to organize and conduct big public/private partnership negotiations

# What are the Next Steps

- Explore existing funding programs to start collaborative networks among research groups each focused in one major crop. For example the EC JPI.
- Start designing how to manage big data, accessible databases, best practices, consistent protocols and pipelines.
- Start elaborating of a proposal for the establishment of International, Public-Private, Public-Public, all possible forms collaboration.
- Start improving communication with policy-makers, funding agencies, farmers, the general public---building our case and our story.
- Planning microbiome education: building our students' capacities, enriching the next-generation workforce.
- Application/documentation: building our track record, documenting and achieving and publicizing field successes.

Thank you  
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