COST Action FA1407: Empowering NGS technologies for the study and diagnostic of plant viruses

Call to register on the Action website

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Viral thread:

Billions of damages on crops yearly amenacing grower income, food quality and food security

Current worstening factors :

Worldwide trade

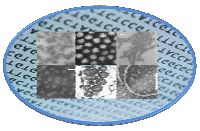
Climate change

50 % of emergent pathogens are viruses ([1])

The ability to provide fast, inexpensive and reliable diagnostics for any viral infection is a key measure for cost-effective control of these ubiquitous pathogens

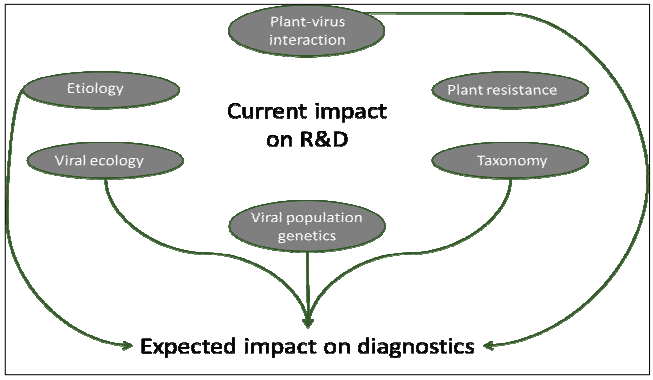
Drivers of the Action:

Technological revolution of NGS



« Virus Rush » with >50 new viruses

Bio-Informatic simplification



Challenges and Impact for diagnostic [(2)]:

Technical challenges
-Sampling protocol ?
-Extraction and library preparation ?
-Bio-informatic pipeline ?

Validation challenge
-Sensitivity ?
-Repeatability and reproducibility ?
-Contamination ?

Impact on trade
-For which diagnostic ?
-New virus identified ?
-Latent virus ?

Regulatory impact
-Certification?
-Quarantine ?
-Legal framework ?

Objectives of the Action : Leveraging plant virus control through NGS

1. Designing research framework for characterization of new viruses & evaluation of their impact
2. Developing and validating NGS technological standards for plant virus diagnostic
3. Proposing decision schemes on plant virus diagnostic for policy makers, NPPO, EPPO, diagnostic lab
4. Evaluating **impact of NGS on virus taxonomy and on the plant-virus interactions**

Working Groups (WGs)

WG1 Development of protocols for NGS → **WG2** Etiology and biological impact of new viruses ↔ **WG3** Taxonomy and viral population genetics → **WG4** Regulatory and socio-economic impact

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References
(1)Anderson, 2004. Trends Ecol.
(2)Massart et al (2014) Virus Research

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