

Application of next generation sequencing for the study and diagnosis of plant viral diseases in agriculture

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Viral threat: Plant viruses cause millions of Euros of damages in food security, quality and grower income. Sensitive and reliable diagnostics are key for their control.



Worldwide trade



Climate change

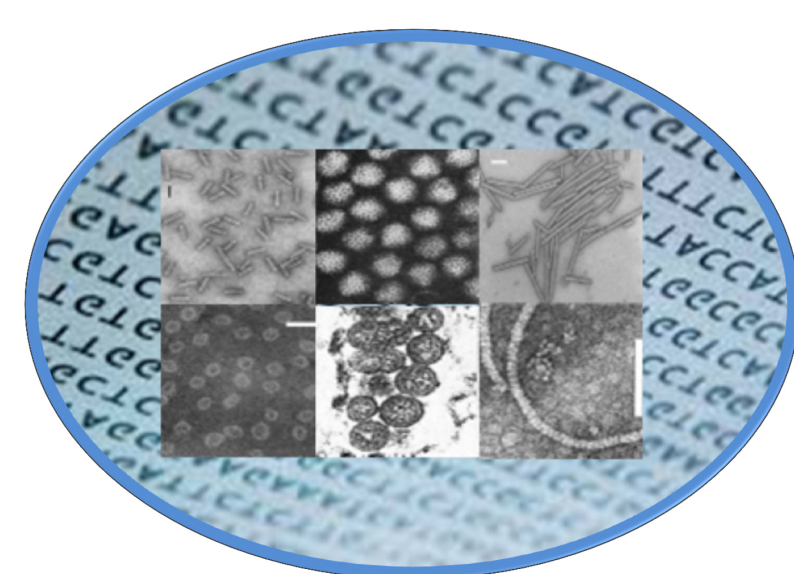


50 % of emerging pathogens are viruses ⁽¹⁾

Drivers of the Action:



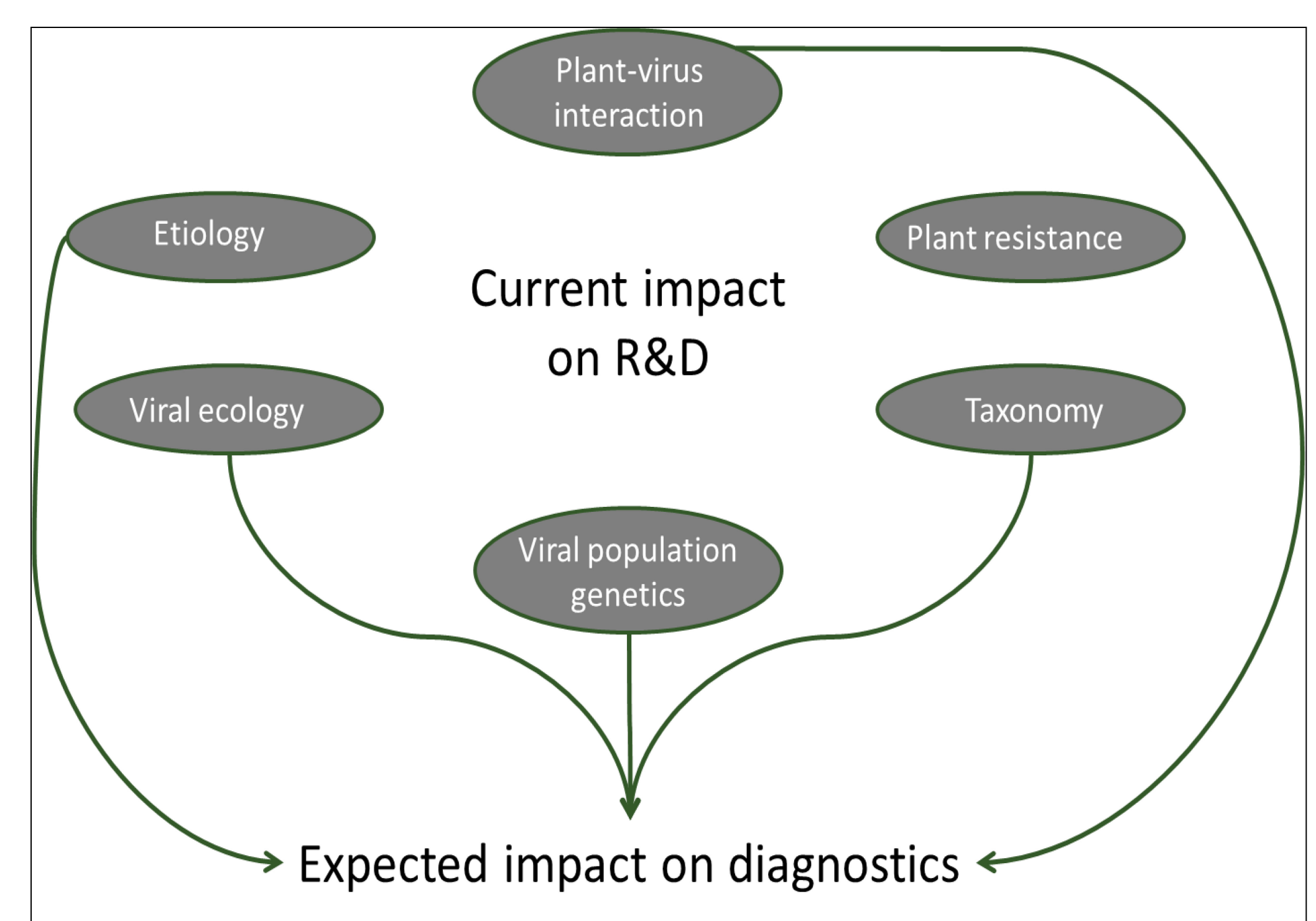
Technological advancements in NGS



'Virus discovery'



Bio-Informatics developments



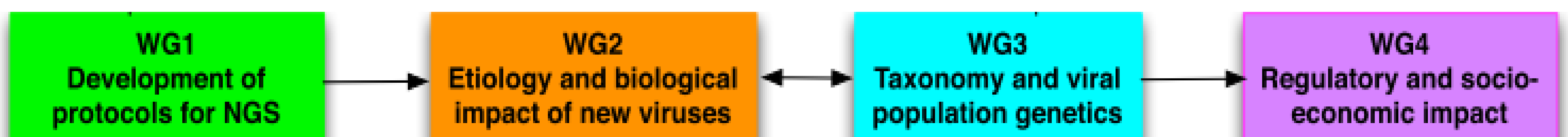
Challenges and Impact of NGS for diagnostics ⁽²⁾:

<u>Technical challenges</u>	<u>Validation challenge</u>	<u>Trade Impact</u>	<u>Regulatory impact</u>
Sampling protocol ?	Repeatability & reproducibility ?	New diagnostics ?	Certification ?
Extraction and library prep ?	Sensitivity ?	New virus identified ?	Quarantine ?
Bio-informatics pipeline ?	Contamination ?	Latent virus ?	Legal framework ?

Objectives of the Action

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

Action Working Groups (WGs)



Contact us...www.cost.eu/COST_Actions/fa/Actions/FA1407

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