

Diagnosis and epidemiology of viruses infecting cereal crops (CEREVIR)



Funding

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Research consortium

Taltech (EE), UoK (DK), JKI (DE), MAFF (FI), Geves (FR), INRAE (FR), IRD (FR), Fera (GB), TEAGASC (IE), MOAG (IL), CNR (IT), UNITO (IT), VNIIKR (RU), SLU (SE), KIS (SI), Bioreba (CH), INRAE (TN), OGU (TR), CIMMYT (Int)

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Goals

Recent HTS-based studies on cereal viruses have indicated the existence and emergence of divergent new species, strains, and recombinant virus variants, indicating the gaps in the current knowledge about virus epidemiology. Therefore, global surveillance of virus diversity is critical to identify viruses with epidemic potential. The aim of project is to improve knowledge about the occurrence of cereal infecting viruses: diversity, distribution, transmission routes.

Objectives

The project will improve the knowledge on the epidemiology of virus populations from cereal crops, undersown crops and weeds, on the transmission of viruses from aphids and planthoppers and on the transmission of soil-borne cereal viruses. Diagnostic tests (serological and molecular) will be developed and validated for the detection/ identification of several cereal viruses.

Key outputs and results

Knowledge will be developed on highly pathogenic viruses such as yellow dwarf viruses, wheat dwarf virus, barley yellow striate mosaic virus, soil-borne cereal mosaic virus, soil-borne wheat mosaic virus, wheat spindle streak mosaic virus, barley yellow mosaic virus, barley mild mosaic virus, maize chlorotic mottle virus, wheat streak mosaic virus, and rice yellow mottle virus. The analysis of collected data, the improvement of diagnostic protocols, and the preparation of reports and publications will be conducted throughout the project lifespan and afterwards, depending on the complexity of the data analysis. It is estimated that the characterization of the current situation in cereal virus epidemiology and the improvement of diagnostic tools will create a basis to assess the risks related to known and previously undescribed novel viral pathogens.