

RT Pathogens Epidemiology

L. Mugnai & L. Guérin-Dubrana

MAIN TASKS:

- To assess the presence and spread of the different GTDs in Europe and their evolution over the last 10 years, on the base of recorded data from different countries. To gain data for an overview evaluation of the global health status of the vineyards
- To coordinate multi-site trials at different levels, states, viticultural regions, to evaluate different factors as cultivars, cultivar/rootstock combination, training system, soil, treatments and their applications.
- To evaluate the applicability of UAV (Unmanned Aerial Vehicles), and remote sensing with groundtruthing for the detection of spatial distribution and development of GTD.
- To gather information and data as a base to develop and test new prediction models (through the centralization of multi-site data) concerning the impact of soil and climate conditions in GTD symptoms expression.



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COST Objectives

- 1- Surveys to assess the presence and spread of the different GTDs in Europe
- 2- Multi site evaluation trials
- 3- Alternative tools for spatial distribution analysis
- 4- Databases for prediction models

1-Surveys to assess the presence and spread of the different GTDs in Europe

- Surveys for qualitative assessment

Objective: to define the distribution of each GTD in Europe

– Methods:

- To prepare guidelines to follow to gather informations from plant pathologists, extension agents or viticulturists

1-Surveys to assess the presence and spread of the different GTDs in Europe

The guidelines to follow to gather informations from plant pathologists, extension agents or viticulturists will include:

- a. To detect in each country the main the main viticulture areas with uniform productive/climatic conditions
- b. For each area we should gain information on:
 - Type of production (nursery, table grape, wine grape)
 - 3 main cultivars in the area -> economic relevance for the area
 - If there are cultivars that result to be more damaged by GTD (for each disease)
 - Rootstock (s) -> the main three rootstocks used in the area

1-Surveys to assess the presence and spread of the different GTDs in Europe

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b. For each area we must gain information :

- Age range (>50% of the total vineyards in the area)
 - 0-8 years
 - 8-15
 - 15-25
 - >25
- Main soil & climate characteristics in the each area
- Presence of monitored vineyards and existing databases on GTDs
- Survey of climatic data available for the previously monitored vineyards
- Presence of pre-existing experimental sites available for evaluation trials or surveys also regarding GTDs
- Which are the GT diseases present
- Level of occurrence of each disease: rare/intermediate/spread
- List the 3-4 main diseases (in order of relevance) and main pests in each area beside TD

EXPECTED OUTCOME 1-Surveys to assess the presence and spread of the different GTDs in Europe

- **To summarize final data to be obtained:**
 - Knowledge on the most representative viticultural areas in each country and on the main types of production
 - Knowledge on the vineyard age more commonly present in each area/country
 - Presence and relative importance of the different GTDs diseases in each country
 - Differences on GTDs presence between the main representative climatic areas / productive areas in each countries
 - Main cultivars and rootstock in each area/country
 - Main susceptible cultivars present in each area / country
 - Main soil & climate characteristics in the each area
 - Presence of monitored vineyards and existing databases on GTDs
 - Presence of pre-existing experimental sites available for evaluation trials or surveys also regarding GTDs
 - Other relevant diseases in the area/country

2-Coordinated multi-site monitoring

- Surveys for qualitative assessment

Objective: To evaluate the incidence of diseases in different European contexts

Procedure:

- To establish an agreed symptom description for the main diseases to have a common reference
- To select in each country 3 areas/country and 3 cultivars/area (economic importance)- One of them should be, if possible, Cabernet Sauvignon
- Age class: 12-25 years (7-12 for table grape)
- To select in each of the 3 areas 3 plots (one per cv. For monitoring (total 9 plots)
- The plots to be monitored should include at least 500 vines/vineyard

2-Coordinated multi-site monitoring

- Surveys for qualitative assessment

Objective: To evaluate the incidence of diseases in different European contexts

MONITORING:

- Each plot will be monitored following the specific guideline and possibly mapped in an excell file
- Monitoring will be carried out, taking always note of the BBCH stage on 50% of the vines
 - end of May (at fruit set)
 - end of July (at color change)
 - end of August (before harvest)

2-Coordinated multi-site monitoring

- MONITORING (*continues*)
- The main diseases/symptoms to be surveyed will be:
 - Eutypa dieback + Botryosphaeria canker :
 - Eutypa foliar symptom
 - Decline
 - Dead cordon
 - GLSD (Esca):
 - foliar symptom
 - measles
 - canes/clusters wilting
 - Apoplexy (halph or the whole plant)
 - Phomopsis
 - Black foot
 - Petri disease (0-7/8 year old)
 - Number of dead plant and presence of other diseases (viruses, phytoplasmas, heavy pests attacks...)

EXPECTED OUTCOME: 2- Coordinated multi-site monitoring

- To have available an agreed symptom description for the main diseases to have a common reference
- To establish an agreed network of vineyards with similar and comparable main characteristics where to monitor and compare in the different areas in the country, and in the different countries
 - the diseases present
 - their incidence
 - the differences in seasonal development of the diseases

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As for the last 2 tasks

- 3- Alternative tools for spatial distribution analysis:
 - to gather information on what available in each country
- 4- Databases for prediction models:
 - information on historical databases on GTD in each country with available climatic data will be gathered while completing tasks 1 and 2