

# RT Pathogens Epidemiology

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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

## 1st Level survey: GTDs spread in Europe

- Surveys for qualitative assessment

Objective: to define the distribution of each GTD in Europe

- To complete the survey with data from the missing European countries
  - To invite other Mediterranean countries to participate to the survey
  - To appoint a reference person for each country to deal with epidemiological data
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- The FILLED UP SURVEY QUESTIONNAIRE WILL BE SENT AGAIN to each country-reference person
    - The reference person will double check, possibly with the contribution of a viticulturist, the data on Viticultural areas and characteristics to avoid unreliable data as appeared in the preliminary survey

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

## 1st Level survey: GTDs spread in Europe

- The completed data will be analysed to know:
  - an overview of the GTDs spread
- An assesment of the most relevant GTDs
  - At European level
  - At Mediterranean area level
  - At each country level
- The most affected cultivar and rootstock
  - for each disease
  - for each country
- Relation of GTDs and Type of production (nursery, table grape, wine grape)
- Differences on GTDs presence between the main representative climatic areas / productive areas in each countries
- Other relevant diseases in the area/country

All data will have to be reliable so to be analysed and prepared for a reference paper to be cited in research projects applications for GTDs spread and relevance in Europe

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- 1- Surveys to assess the presence and spread of the different GTDs in Europe
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## 2- Coordinated multi-site monitoring

### 2nd Level survey: overview on factors affecting GTDs incidence in Europe based on the same reference cultivar(s)

- a. To gather information on vineyards with historical data in the country from previous assessments
- b. To detect in each country three reference viticulture areas with uniform productive/climatic conditions
- c. For each area to select 1 vineyard of a susceptible international cultivar chosen on the base of the 1st level survey
- d. In each of the 3 vineyards to select a GEO-REFERENCED plot for GTDs survey
  - The same training system
    - Possibly of know rootstock
  - 12-18 yers old
  - 500 vines at least

## 2- Coordinated multi-site monitoring

### 2nd Level survey: overview on factors affecting GTDs incidence in Europe based on the same reference cultivar(s)

- Surveys will be done after establishing:
  - - a reference disease scale and symptoms description
  - A reference survey protocol
  - If available surveys can be done using the APP under construction (UNIFI)
- To gather for each plot:
  - soil type information for each plot
  - rain and temperature data (at least from April to end of July, possibly all year long)
  - Pruning date, trellising system, type of pruning, wound protection, ....cultural practices...

## 2- Coordinated multi-site monitoring

**2nd Level survey: overview on factors affecting GTDs incidence in Europe based on the same reference cultivar(s)**

- - 2 survey times
  - A defined BCH stage in spring (taking always note of the BBCH stage on 50% of the vines)
  - The time of highest leaf symptom expression in the country (usually around harvest time)
  - The plot must be mapped

## 2- Coordinated multi-site monitoring

### 2nd Level survey: overview on factors affecting GTDs incidence in Europe based on the same reference cultivar(s)

- - Symple symptoms scale (for example):

Healthy 2/2

Leaf stripe symptom 2/2

Leaf stripe symptoms 1/2

Acute symptom 2/2

Acute symptoms 1/2

Cordon dieback (partial or total) 2/2

Cordon dieback (partial or total) ½

.....

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## 2- Coordinated multi-site monitoring

2nd Level survey: overview on factors affecting GTDs incidence in Europe based on the same reference cultivar(s)

- 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 (half or the whole plant)
  - Number of dead plant and presence of other diseases (viruses, phytoplasmas, heavy pests attacks...)

We will not survey:

Phomopsis

- Black foot
- Petri disease (0-7/8 year old)
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## 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

# Round Table Epidemiology

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