

Grapevine collections free from pathogens: tools and their application

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EPPPO: two main areas of activities

- Plant protection products

Promotion of the use of modern, safe and effective pest control methods.

- Plant quarantine

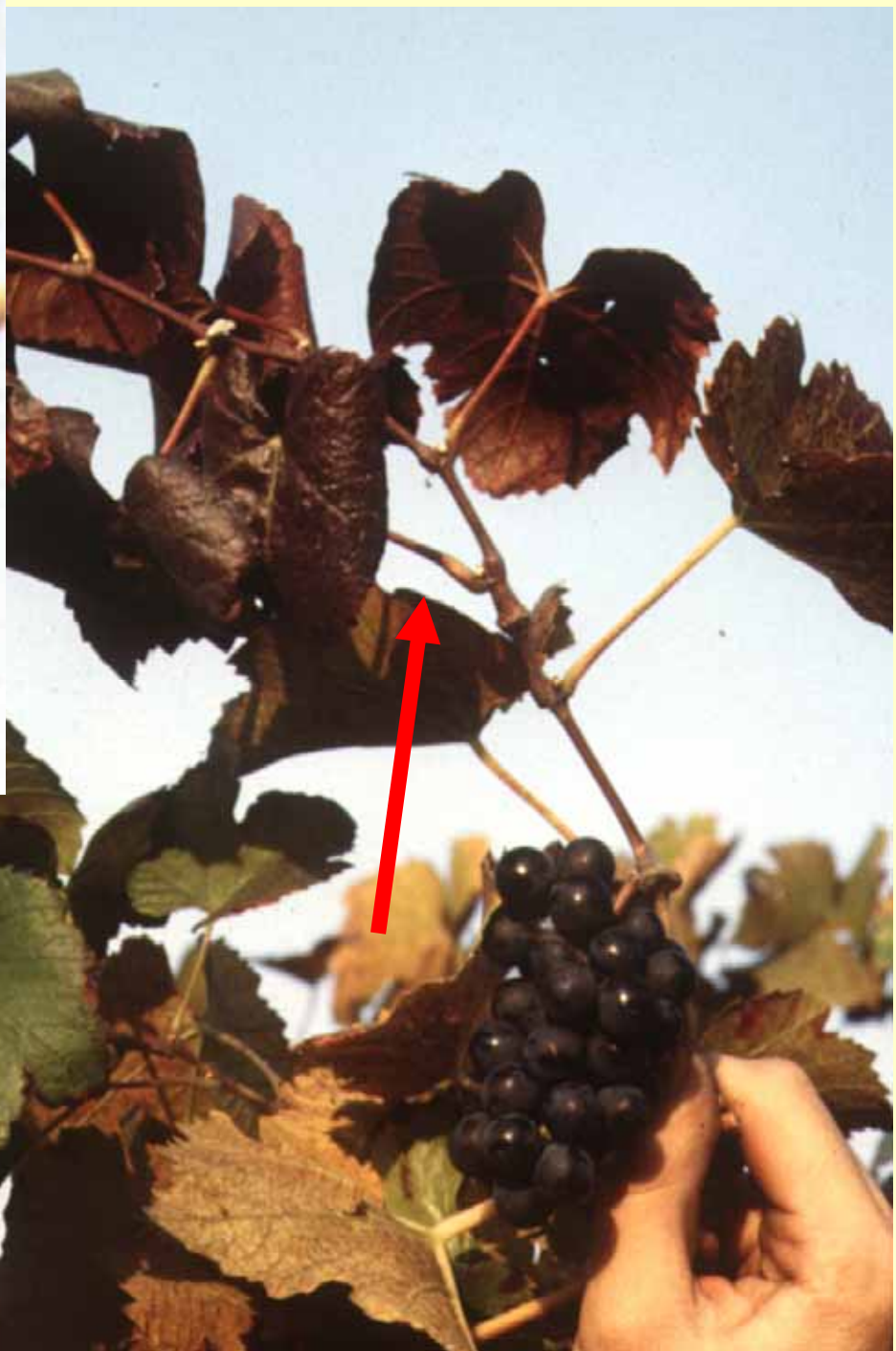
Prevent entry or spread of dangerous pests (plant quarantine).

Correct diagnosis tools and their use

- knowledge of **symptom expression** and their identification
- laboratory devices and proper technical skill for the **accurate pathogen** (as responsible agent) **characterization**
- management of the information















Pathogen sensitive detection

Prevention

Use of pathogens-free material

Elimination of symptomatic plants

Identification and elimination of insect vectors

Elimination of alternative host plants

✓ Flavescence dorée (FD)

✓ Viruses

✓ Bois Noir (BN)

✓ Grapevine yellows (GY)

✓ *Agrobacterium vitis*

Prevention

Elimination of symptomatic plants

Identification and elimination of insect vectors

Elimination of alternative host plants

Prevention

**Use of pathogens-free material as
main tool for grapevine collection**

Collection health status inspections

- Visual inspection in **Spring and Autumn** for **virus** symptoms presence
- Visual inspection from **July** for **phytoplasma** symptom presence
- Visual inspection **all year** round for ***A. vitis*** symptom presence

Testing grapevine plants in the collections for presence of relevant pathogens

Viruses

Phytoplasmas

Agrobacterium vitis

Management of their associated/caused disease presence

Testing grapevine plants in the collections for presence of relevant pathogens

When?

Viruses

in Spring

Phytoplasmas

in Autumn

Agrobacterium vitis

all year round

Testing grapevine plants in the collections for presence of relevant pathogens

When?

Viruses

in Winter

Phytoplasmas

in Autumn

Agrobacterium vitis

all year round

Testing grapevine plants in the collections for presence of relevant pathogens

How?

Viruses

ELISA, RT-PCR

Phytoplasmas

nested-PCR/RFLP, rt-PCR

Agrobacterium vitis

plate isolation, PCR

How to clean grapevine plants when all are infected

Termotherapy

Meristem-tip culture

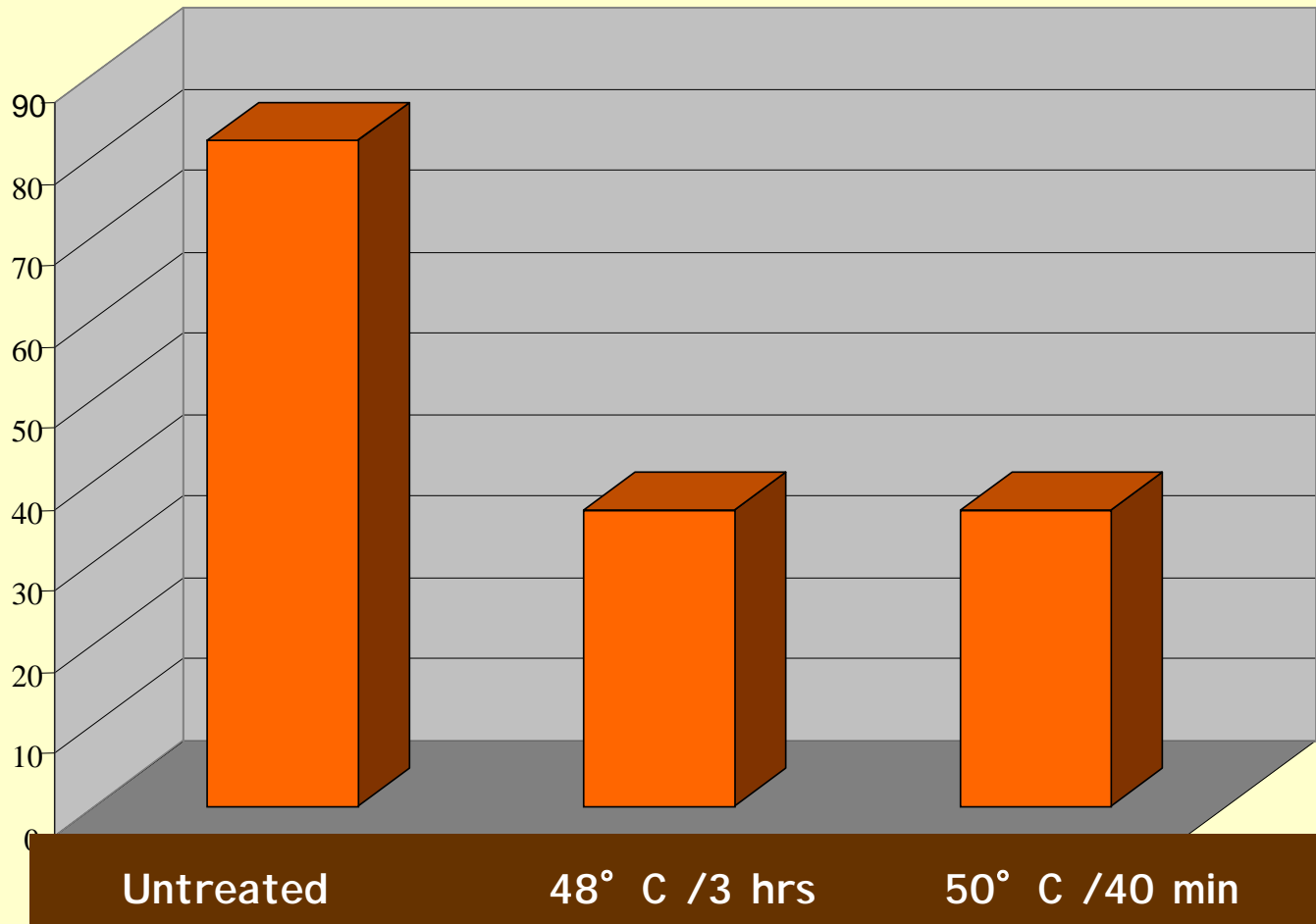
Chemiotherapy

Combinations

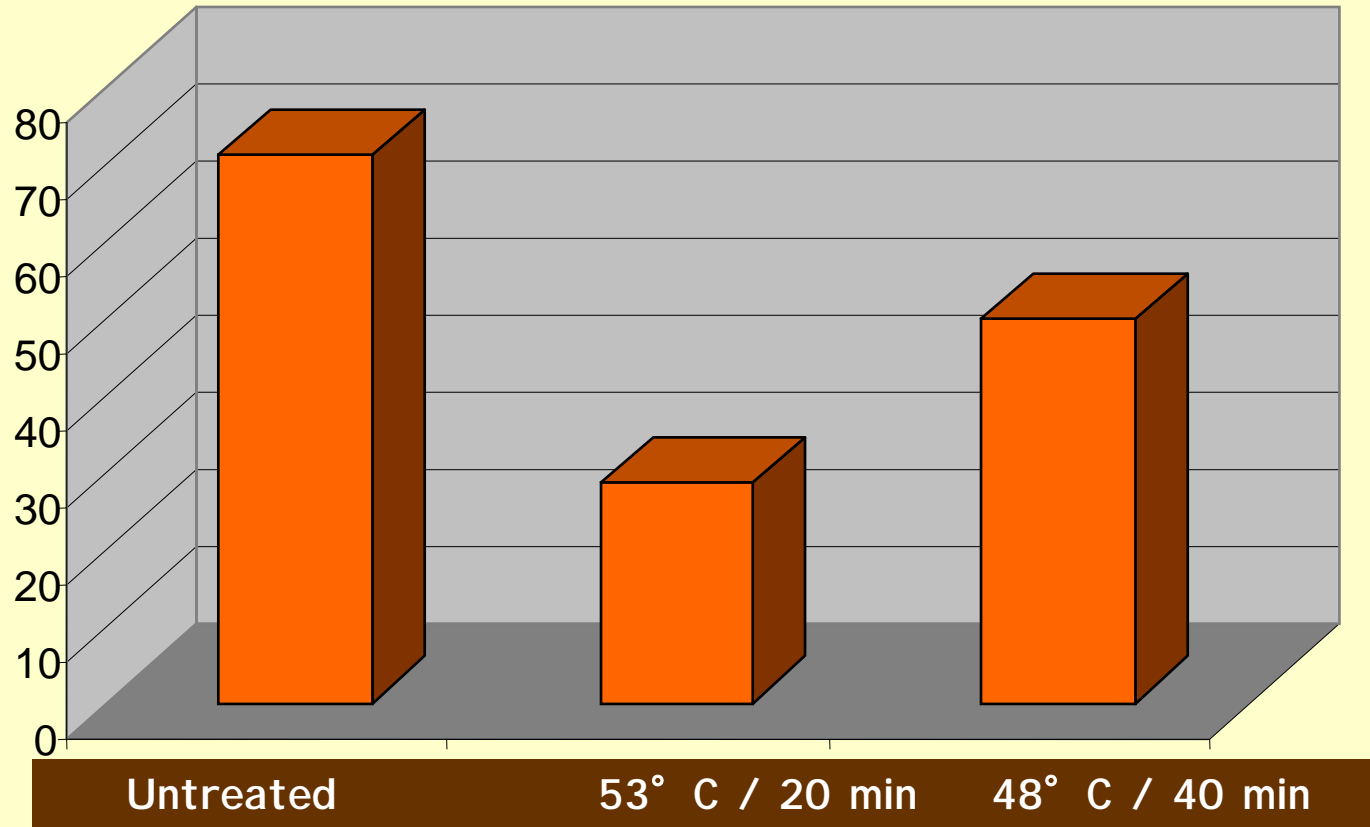
Thermotherapy

- Advantages
- Disadvantages
- *Agronomical aspects: dormancy, losses*
- *Pathogen detection (latency): how long a pathogen can stay latent?*

Phytoplasma elimination

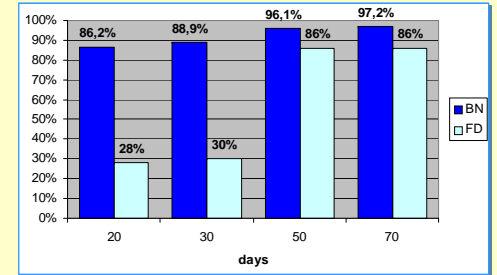


Phytoplasma elimination



Meristem-tip culture

- Advantages
- Disadvantages



Material from collections case a

Year 1

Spring and Autumn symptoms
visualization for virus diseases
and Winter testing
Autumn testing for phytoplasmas
All year testing for crown gall

Mobilization of clean material

After...

Propagation on clean rootstocks
Micropropagation?

Further testing to verify health
condition at least 2 years after

Material from collections Case b

Year 1

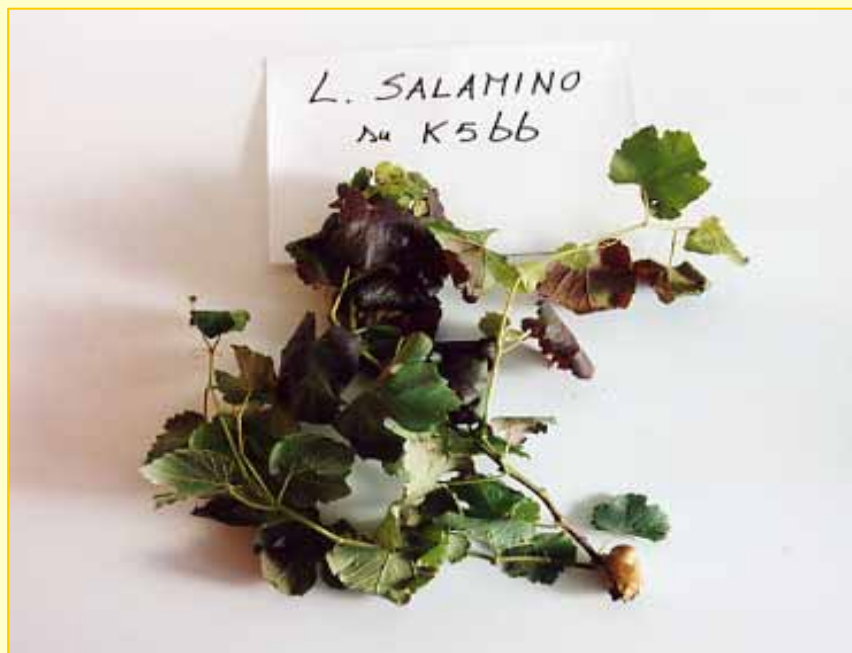
Spring and Autumn symptoms
visualization for virus diseases
and Winter testing
Autumn testing for phytoplasmas
All year testing for crown gall

Cleaning of infected material
or mobilization under protected
conditions (screen house or
micropropagation)

After...

Pathogen elimination procedures

Further testing to verify health
condition at least 2 years after



Negative



Positive