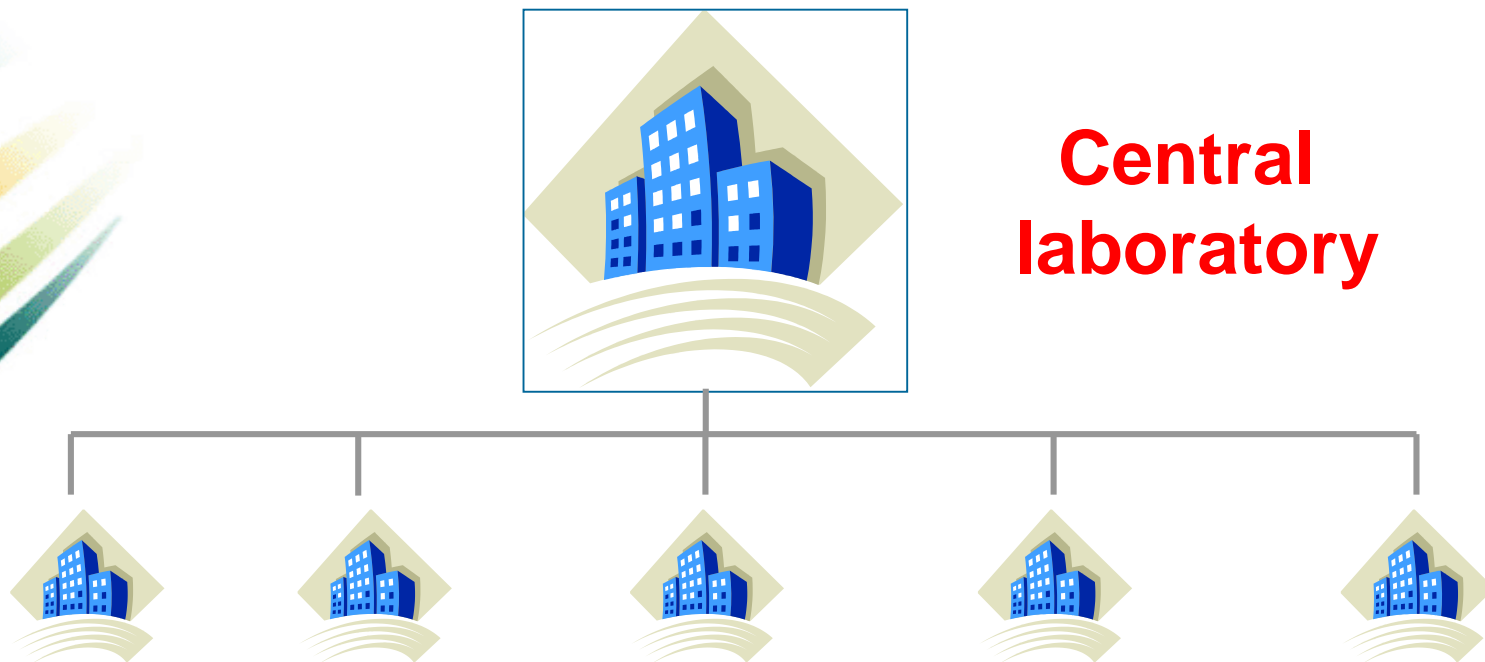




20 Regions

In the frame of Italian roles on phytosanitary aspects (D.L. n. 214 / August 19/2005)
a national laboratory organization is defined
as follows:



Laboratories distributed on the territory



Central laboratory



- To establish official diagnostic protocols
- To transfer official protocols to regional and private labs
- To train personnel
- To organize proficiency tests



**Armonization of all partners involved
in official diagnosis**



To establish official diagnostic protocols

Several **official diagnostic protocols** have been established , **transferred** to Plant Protection inspectors by **training courses**.



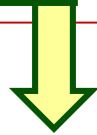
Most of them are routinely applied to run official controls

All of them have been validated

Interlaboratory tests among regional phytosanitary labs have been organized to test their reproducibility

The following reference protocols have been published

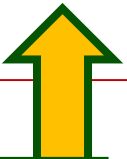
5 fungi
1 bacterium
2 phytoplasmas



Ceratocystis platani
Giberella circinata
Monilia fructicola
Guignardia citricarpa
Phytophthora ramorum
Xanthomonas arboricola pv. *pruni*
Candidatus *Phytoplasma mali*
Candidatus *Phytoplasma prunorum*

Pepino mosaic virus
Plum pox virus
Tomato infectious chlorosis virus
Tomato chlorosis virus
Grapevine viruses covered by phytosanitary roles (GLRaV 1, GLRaV 2, GLRaV 3, GVA, GVB, ArMV, GFLV, GFkV)

Potato spindle tuber viroid



12 viruses
1 viroid

Under preparation

Soil fungi covered by certification protocols by macroarrays
(*Chondrostereum pupureum*, *Verticillium dahlie*, *V. albo-atrum*, *Armillariella mellea*, *Nectria galligena*, *Phytophthora cactorum*)

Tilletia indica

Guignardia citricarpa

Phytophthora lateralis

Phytophthora kaernoviae

Chalara fraxinea

Plasmopara halstedii

Xylella fastidiosa

Xanthomonas vesicatoria

Pseudomonas syringae pv. *actinidiae*

Acidovorax citrulli

Ca. *Liberibacter solanacearum*

Plum pox virus **LAMP**

Grape vine Pinot gris virus

Prune dwarf virus

Prunus necrotic ringspot virus

Peach latent mosaic viroid

Tomato chlorotic dwarf viroid

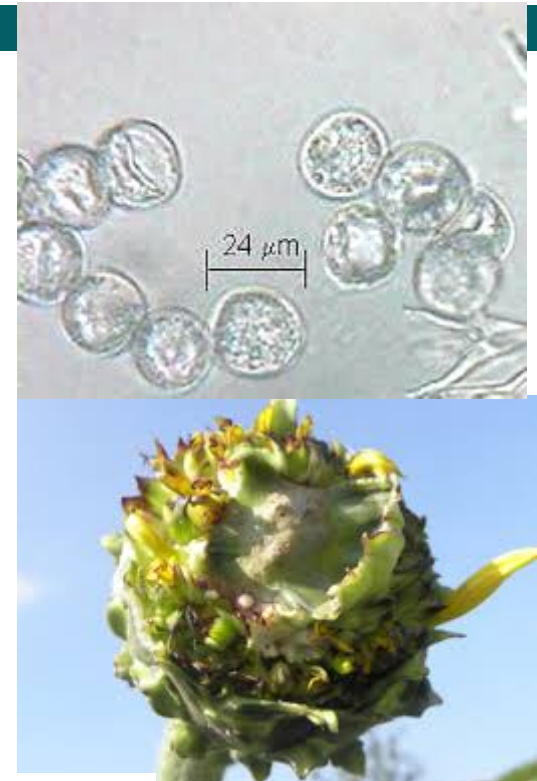
Flavescence dorée

Candidatus Phytoplasma pyri

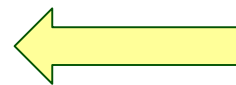
Interlaboratory test

Plasmopara halstedii

PCR and Real time PCR (EPPO protocol)
Sunflower seeds
6 laboratories



Samples (seed DNA spiked with fungal DNA)
Protocols
Primers and probes
Results elaboration



CRA-PAV

Interlaboratory test

Xylella fastidiosa



ELISA, PCR, Real time PCR, LAMP PCR (selected from bibliography)

**Liophilized plant extracts spiked with devitalized bacterial cells
18 Italian labs**

Pre test among 3 labs to confirm the stability of samples and the analytical sensitivity of each method



Interlaboratory test



PPV

Lamp PCR (set up by IPAD LAB and validated by CRA-PAV)

Fresh tissue of stone fruits

18 laboratory

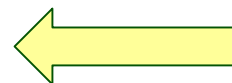
Pre test among 5 labs to confirm the analytical sensitivity of the method

Samples (fresh tissue)

Protocol

LAMP kit

Results elaboration



CRA-PAV

Interlaboratory test

Grapevine pinot gris virus
RT-PCR, RT-Real time PCR
Leaves and woody material
17 italian labs



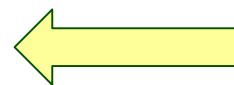
Pre test among 5 labs to select the best methods according to different parameters (Analytical sensitivity, specificity)

Samples (FED MACH San Michele all'Adige)

Protocol

Reagents

Results elaboration



CRA-PAV



The Central laboratory must be accredited

ACCREDIA is the national body

We are under way for accreditation.

The inspection visit is planned next November

PSTVd
Viruses

**RT-PCR+RFLP, Real Time
ELISA* (Flexible scope has been
acknowledged)**

Erwinia amilovora
Monilinia fructicola
Guignardia citricarpa

**morfological, immunofluorescence, PCR
PCR multiplex
Real time PCR**

Problems:

Personnel

Costs

Availability of quarantine structures

labs, screen houses, glass houses

Validation of protocols:

Reference samples*

Quality system of labs joining interlaboratory tests