

FROM THE AGRICULTURAL EXPERIMENTAL AND CONTROL STATION TO MODERN DIAGNOSTIC LABORATORIES



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Looking back to the past

More intensive construction of Slovene diagnostic laboratories dates back to the year 1991.

Before independence the work in the field of plant protection was rather intensive; it was organised mainly in frame of the research and expert projects.

Agricultural and Control Stations

- The Act on Agricultural and Control Stations of the SHS Kingdom passed in 1922 could be considered as the beginning of an organised work in the plant protection of Slovenia.
- The Agricultural Experimental and Control Station which consisted of four sections, also a phytopathological one, was founded in Ljubljana.



Historical overview – Pests and fungal diseases

Soon after 1950, the plant protection service was already organized at four institutions (AIS, SFI, IHP, BF), followed by AF and AC NG and Mb).

The experimental, research and control work was reflected mainly in the study of several fungal diseases and pests.



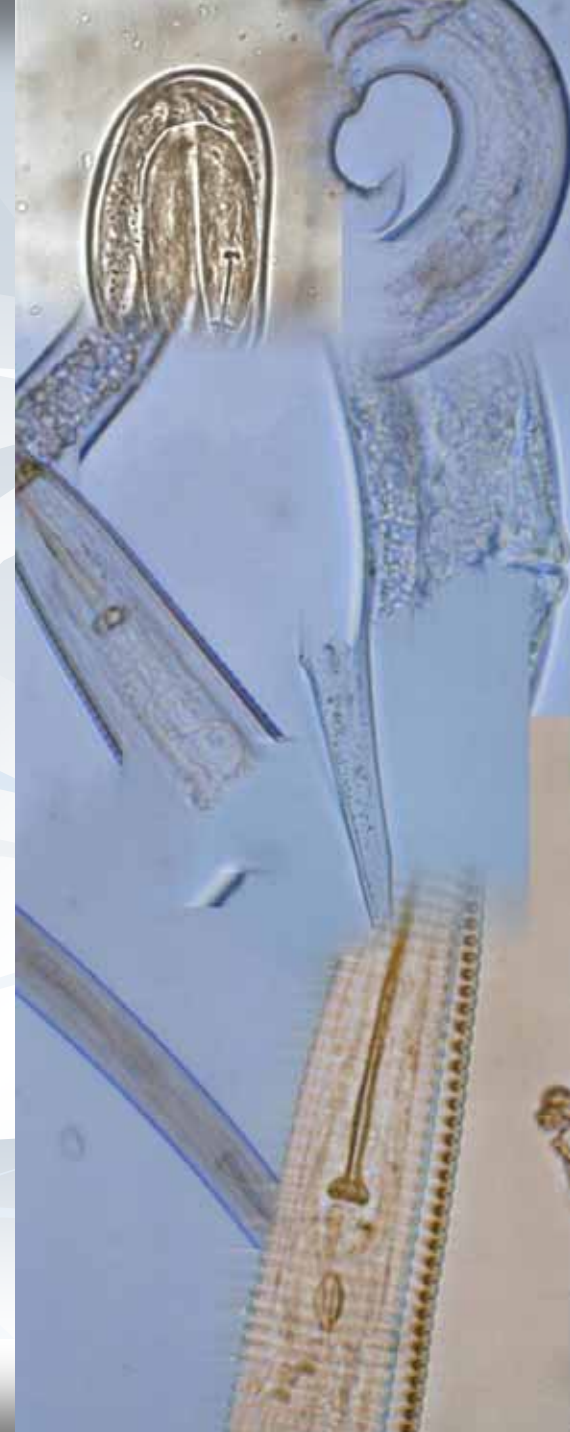
Historical overview – Virology

At the beginning of the fifties it was discovered that the cause of decay of grapevine in the coastal region of Primorska were not only fungal diseases but also viruses (Grapevine Fanleaf Virus (GFLV) and Grapevine Leaf Roll Associated Viruses (GLRaV)).



Historical overview – Nematodes

- The beginning of nematology dates back to 1963 when the nematological laboratory was founded at AIS.
- A systematic surveillance of potato nematodes was organised.
- Nematological work extend then to other species.



Historical overview – Bacteria diseases

- Bacteriology was introduced as the last on a diagnostic scale (1994).
- Everything started with the study of bacteria diseases of vegetables, and in the last few years, bacteria of potato, fruit trees, grapevine and ornamentals.



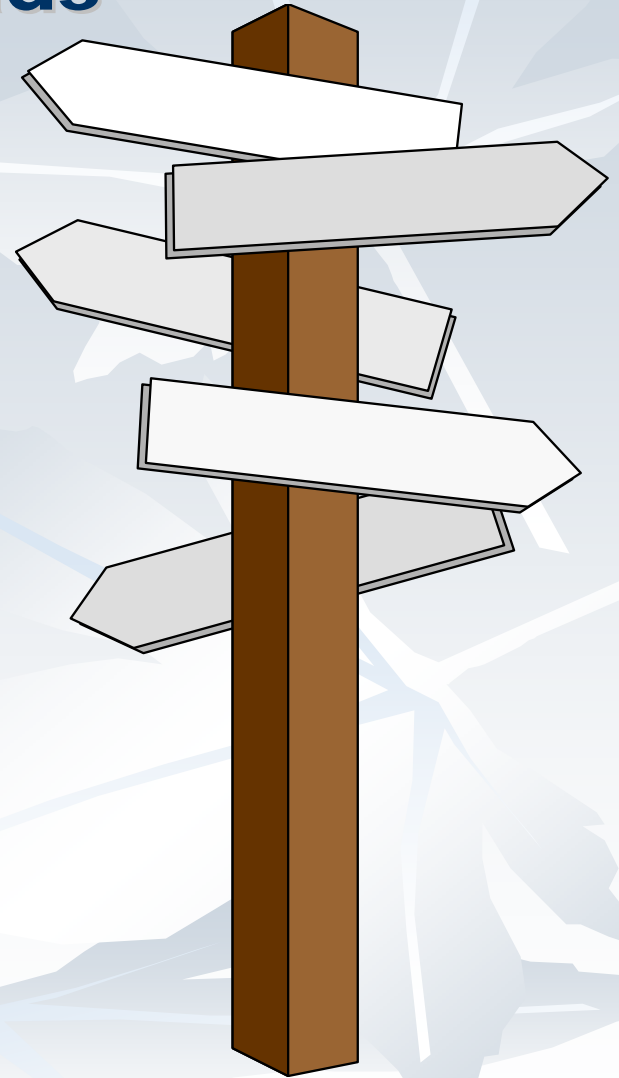
Historical overview – Phythoplasmas

- Last but not least important discipline is laboratory diagnostics of phythoplasmas.
- The first project started in 1997.
- In the last few years more intensive inspections and testing of 5 phythoplasmas of grapevine and fruit trees were performed.



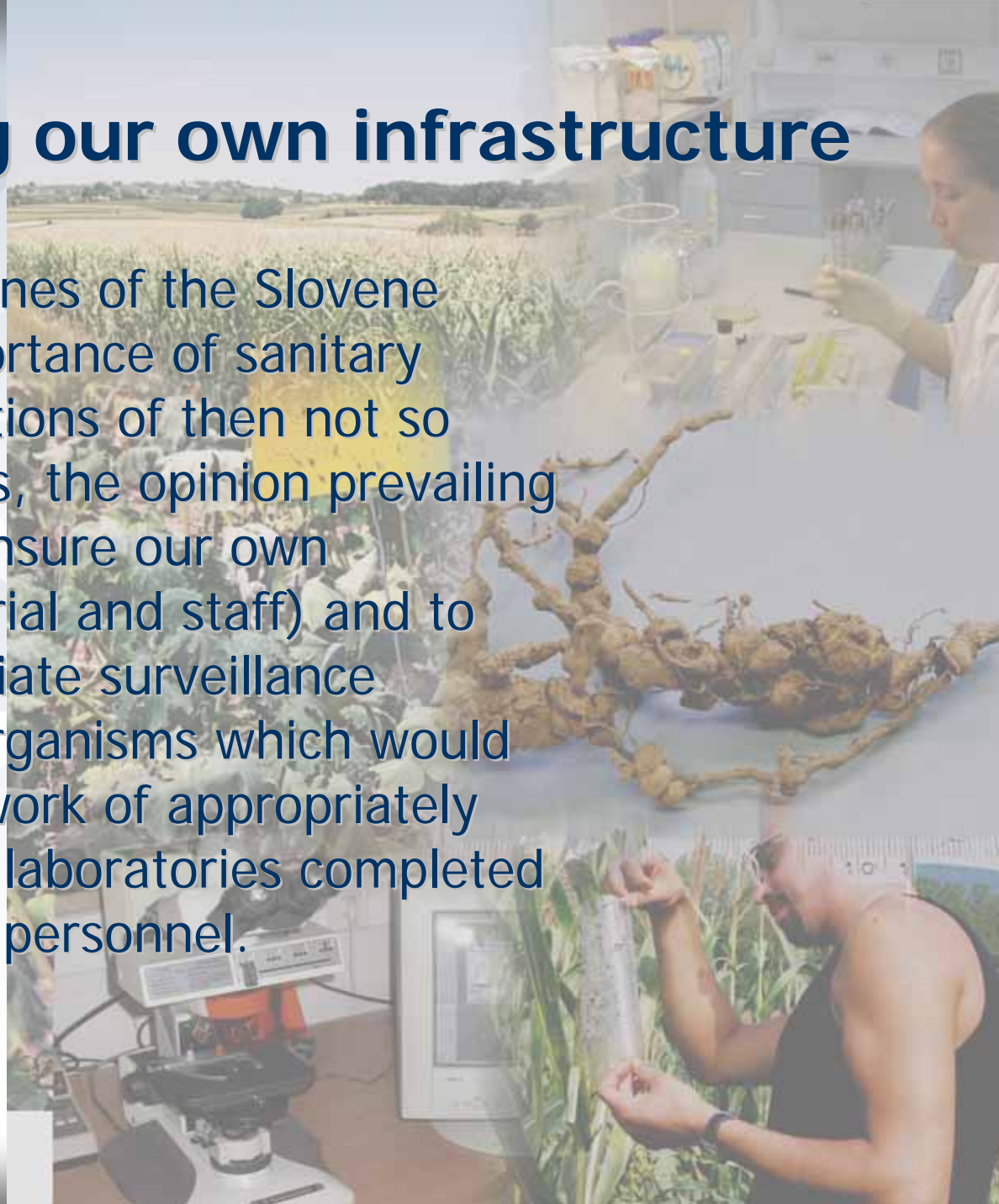
At the crossroads

Immediately after the acquired independence Slovenia stood at the crossroads: whether to organise the diagnostics of harmful organisms in frame of the plant protection service on the basis of its own know-how or leave the work to foreign specialists.



Establishing our own infrastructure

Following the guidelines of the Slovene agriculture, the importance of sanitary protection and ambitions of then not so numerous individuals, the opinion prevailing in Slovenia was to ensure our own infrastructure (material and staff) and to establish an appropriate surveillance system of harmful organisms which would be based upon the work of appropriately furnished diagnostic laboratories completed with highly qualified personnel.



Development of Diagnostic Laboratories

- From 1991 on, individual institutions have been investing much of their energy and financial means in the development of diagnostic laboratories.
- The number of personnel was growing, suitable equipment and books were purchased, various contacts with foreign experts started to be made, so that it could be said that an enviable basis for further development and expansion of diagnostic laboratories was established.
- In the past ten years an invaluable support has been offered by MAFF, MS and EU in the shape of Phare Projects and Taiex Program.

Twinning programs

- All these efforts culminated in the period 1998-2001 – Twinning Programs:
- **The Twinning covenant 1998**
- **The twinning covenant SL99/IB/AG/02**
- **The twinning covenant SI2001/IB/AG/01**

- The Slovene plant protection experts succeeded in bringing the diagnostics of harmful organisms to a rather enviable level.

- We got an invaluable experience in field and laboratory diagnosing of important harmful organisms and in detection and identification of quarantine organisms.

Diagnostic Laboratories in SLO today - where?

At present, diagnostic laboratories which are involved in practical diagnostic work and are officially authorised by Phytosanitary Administration are located at 6 different institutions:

■ Agricultural Institute of Slovenia, Ljubljana



■ Institute of hop research and brewing of Slovenia, Žalec



■ National Biological Institute, Ljubljana



■ Biotechnical Faculty in Ljubljana



■ Agriculture Center in Nova Gorica



■ Slovenian Forestry Institute

A photograph of a laboratory workstation. In the foreground, there is a white pipette and a clear plastic pipette tip box. To the right, a glass funnel is mounted on a stand. In the background, a red 'Diametra' power supply unit is visible on a shelf, with various cables connected to it. The workstation is cluttered with various laboratory supplies, including bottles and containers.

Diagnostic Laboratories in SLO today - Equipment

Diagnostic procedures of our diagnostic laboratories today are based on application and introduction of various up-to-date detection and identification methods for fungi, viruses, viroids, bacteria, phytoplasmas, insects and nematodes (RT-PCR, PCR, PHASTSystem, serological methods, microscopic image analysis, transmission electron microscopy, real-time PCR, immuno-electron microscopy)

Diagnostic Laboratories in SLO today - how?

Standard Laboratory Procedures, Quality Assurance and compliance with regard to the Directive 95/44 were put on the track in the period of our Twinning programmes.

Rules on conditions with regard to professional, spatial and technical qualification of laboratories for carrying out laboratory tests with a view to diagnosing harmful organisms (Official Gazette of RS, 82/02) were put into force in Slovenia.

Quality of Diagnoses



- According to these rules a complex of procedures for diagnosis and identification of harmful organisms is more or less completely established at our diagnostic laboratories. The process of establishing the quality assurance in our labs has not been completed yet. In spite of that we can say that the procedures already implemented assure our clients reliable and unequivocal results of diagnoses.

Spheres of activity of our diagnostic specialists

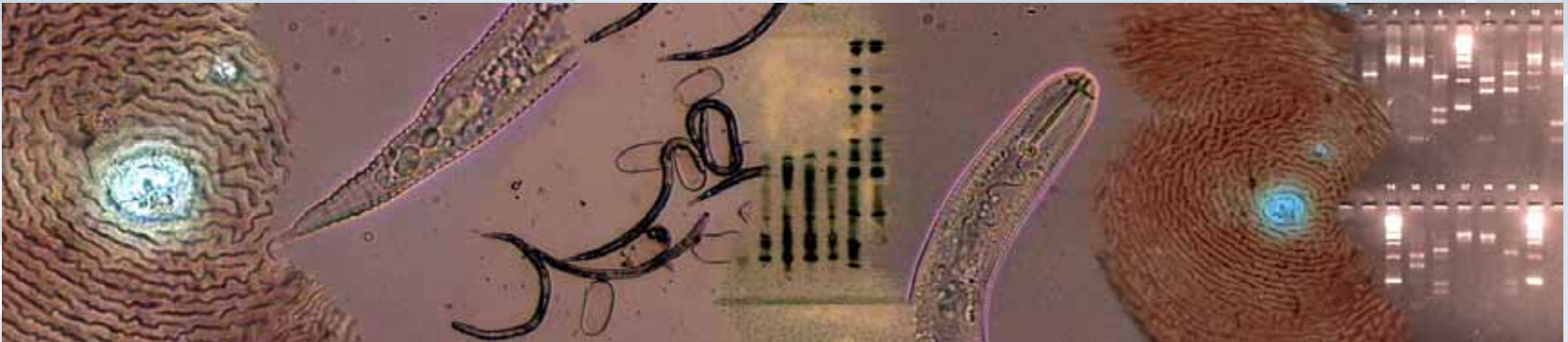
Slovene diagnostic specialists are an important link in today's Plant Protection Service and participate in survey and monitoring of quarantine and also other harmful organisms.

The surveillance of harmful organisms is based on the Act on Plant Health, International Agreement on Sanitary and Phytosanitary measures (WTO) and International Plant Protection Convention (IPPC).

This work is based on expert examinations, monitoring, systematic research and other methods and is based on three main segments:

- **diagnosis,**
- **support to** Phytosanitary Administration, where our specialists participate in the pest risk analysis, prepare expert opinions, reports and publications and monitor the appearance and spreading of quarantine organisms in Slovenia,
- **forecasting and warning service for pests and diseases.**

CONCLUSIONS



- The quality and organisation of the Slovene diagnostic laboratories are on the high professional level.
- Our labs are generally well equipped and use classical and also modern, more sophisticated diagnostic methods for fungi, viruses, viroids, bacteria, phytoplasmas, nematodes and insects.
- The experts in our labs gained experience in detection and identification of (Q) organisms through intensive diagnostic work and collaboration with numerous top EU diagnostic experts.
- Slovene diagnostic labs are able to take prompt action very professionally.