

# Diagnostics of plant diseases

Healthy crops for a safe and sustainable agriculture



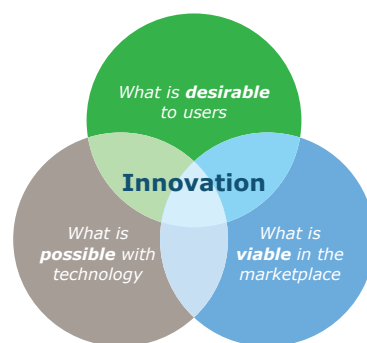
**WAGENINGEN UR**  
For quality of life

## Healthy plants to feed the world

- Healthy crops are essential for safe, healthy, and sustainable farming. They contribute to the quality of food and life
- Reliable diagnostics for the timely detection of plant pests and diseases provide the basis for healthy crop production
- This is how diagnostics helps controlling risks and provides security during crop production

## Diagnostics of plant diseases at Wageningen UR

- Our scientists are experts in the field of phytopathology and the application of new technologies. This combination of expertise gives us a head start in the search for solutions to practical problems
- The collaboration between primary diagnostics and diagnostics development in Wageningen UR provides a direct link with the wishes and ideas of our customers
- Any conceivable field situation can be mimicked and tested in our laboratories and greenhouse facilities
- Developed detection methods are rapidly made available to our clients through the services and sale of end products by *Prime Diagnostics*
- The detection methods we develop are meeting the needs of our clients. They range from simple field tests through to very advanced detection systems for *high-throughput* laboratories



**The reliable tests and diagnostics of Wageningen UR provide our clients with security and restrict risks in critical processes in plant health.**

Please visit our website for more information about our various projects and publications:

[www.wageningenur.nl/healthyplantstofeedtheworld](http://www.wageningenur.nl/healthyplantstofeedtheworld)

Under "Diagnostics Plant Diseases" you also find our services in the field of Primary Diagnostics and Electron Microscopy.

On [www.primediagnosics.com](http://www.primediagnosics.com) you find the catalogue of Prime Diagnostics. This catalogue contains the end products, and the methods we develop, produce and market worldwide.



### Contact

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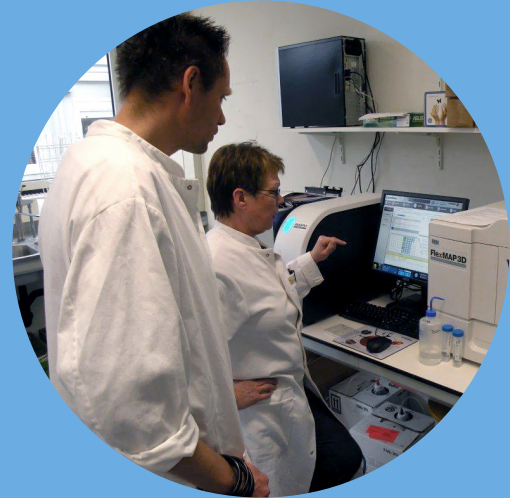
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# LUMINEX

## Multiplex detection

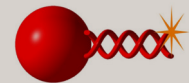


***Luminex*** is using paramagnetic microspheres with a unique color. A specific antibody or DNA fragment is bound to these microspheres which will then bind to a pathogen. This bond is visualized with fluorescence. The unique color of the beads and the resulting fluorescence are independently measured in a flow-cytometer. This allows simultaneous detection of dozens of pathogens in one sample.

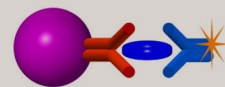
### Advantages

- **Multiplex:** 2 to 50 pathogens can be detected simultaneously in one plant sample
- **Rapid:** the multiplex nature means that the *Luminex* technology requires less labor than most standard methods for the detection of several diseases in one crop
- **Flexibility:** technology for antibodies (*xMAP*) or DNA/RNA (*xTAG*)
- **Sensitivity:** up to 10x more sensitive than standard methods such as *DAS-ELISA* and *PCR*
- **Reliable:** the use of para-magnetic microspheres means that interfering factors by plant material can simply be removed

### Applications for *LUMINEX*



DNA - RNA



Protein - Antibody

### Approach and procedure

*Luminex* has an impressive track record in human diagnostics. In agro-food related diagnostics *Luminex* is still a relatively new technology. The development of *Luminex xMAP* and *xTAG* detection kits is progressing rapidly and is driven by concrete demands from the industry. At this moment *Luminex*-based multiplex tests are used in practice for the detection of 2 to 50 pathogens.

If you are interested in this technology, you can during implementation count on extensive support by our *Luminex* team.

The available 'ready-to-use' kits for various pathogens can be obtained via *Prime Diagnostics*. See our website for more information  
[www.primediagnostics.com](http://www.primediagnostics.com).



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