Healthy crops for a safe and sustainable agriculture

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

Please visit our website for more information about our various projects and publications: www.wageningenur.nl/healthyplantstofeedtheworld
Under “Diagnostics Plant Diseases” you also find our services in the field of Primary Diagnostics and Electron Microscopy.
On www.primediagnostics.com you find the catalogue of Prime Diagnostics. This catalogue contains the end products, and the methods we develop, produce and market worldwide.

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**Luminex**

Multiplex detection

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*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

**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.prime diagnostics.com.