

## HIGH INTENSITY FOOD PRODUCTION BENEFITS FROM INNOVATIVE ANALYSES

**Greenhouse horticulture enables high intensity food production and therefore offers a solution to the increasing demand for high quality, healthy food. For optimal growth management growers need detailed information on fertilisation, soil- and plant health and pesticide residues. Eurofins Agro is the world leading agricultural laboratory and provides this information.**

The current world population of 7.6 billion is expected to reach 8.6 billion in 2030, 9.8 billion in 2050 and 11.2 billion in 2100, according to the United Nations Department of Economic and Social Affairs (UN DESA). With roughly 83 million people being added to the world's population every year, the production of food has to increase by 60% in the coming years.

This means a tremendous challenge, especially as one realises that the environmental pressure of food production has to be minimised, the acreage of available arable land per capita is decreasing and the use of chemicals has to be reduced.

### Efficient production of food

High intensity (indoor) horticulture can offer a solution for an efficient and sustainable production of fruit and vegetables. Greenhouses and alike structures protect crops against excess heat and light, heavy rainfall, wind, insects and pathogens. Moreover, in greenhouses it is possible to optimize production by climate control, precision fertilization and integrated pest management. As a result, in greenhouses the yield can be considerably higher than in the open field. For example, the average yield of a tomato crop in the open field is 12.000 kg per ha whereas in a Dutch greenhouse this can be more than to 500.000 kg per ha.

However, producing fruit and vegetables under protected circumstances sets higher requirements on growth management. Closed systems are much more sensitive and mistakes can be disastrous. Therefore, growers need more detailed information. Eurofins Agro helps growers to collect the right data and provides insight into soil condition, fertilisation and crop health. By using these insights growers will be able to give the crop exactly what it needs.

### Essential information

Eurofins Agro is a world leading laboratory in agribusiness. The headquarters are located in Wageningen, The Netherlands. There are three independent business units of which the Business Unit Horticulture is one. In the Westland area Eurofins Agro has established the Horticultural Experience Center in the World Horti Center. Nearly 250 people work at Eurofins Agro and on an annual basis 500,000 samples are analysed. Some 150,000 of which originate from greenhouse horticulture.

Most of the horticultural samples originate from Dutch nurseries. However, also greenhouse growers from 69 countries, amongst others Canada, Mexico, Kenya, Germany, Belgium and Denmark send their samples to Eurofins Agro. The organisation is also active in arable farming and dairy farming and is part of the global group of Eurofins Scientific laboratories.

Growers can profit from the following analyses by Eurofins Agro (see figure 1):

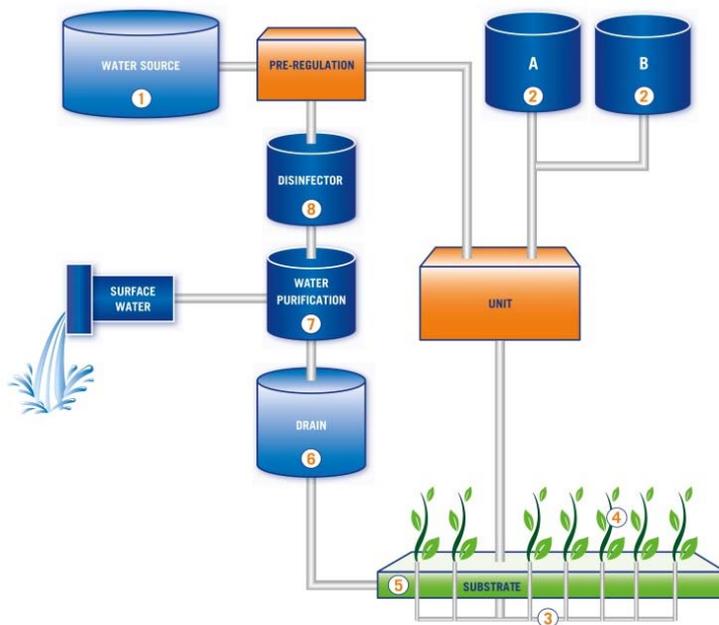
- Fertilisation analyses: greenhouse soil, potting soil, nutrition solutions, fresh plant material
- Crop health monitoring: DNA Multiscan, DNA Previscan, PlantDoctor, DisinfectoCheck
- Quality investigation: potting soil analyses, boiler water, water source quality, solid and fluid fertilisers, microbiological checks

After sampling and analyses Eurofins Agro delivers a complete report including a tailor-made advice.

### Future developments

Horticultural crop management is developing continuously and rapidly. Important future developments include innovations in continuous ion specific measurements, improving water availability, fertilization upon the actual needs of the plant, improving plant health by vaccination and increasing substrate resilience by microbiome. The horticultural experts of Eurofins Agro follow these developments closely and are constantly working on improving services.

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### Analysis and advice

- |                  |                |
|------------------|----------------|
| 1 Water source   | 5 Substrate    |
| 2 Fertilisers    | 6 Drain water  |
| 3 Dripp water    | 7 Pesticides   |
| 4 Plant material | 8 Microbiology |