

# ANALYSIS-PACKAGE Blgg laboratories

## SterilizationCheck

An irrigation system free from plant pathogens is one of the first demands of a grower. Many plant diseases (bacteria, fungi, nematodes and viruses) can spread easily via the recirculation of the irrigation water.

To avoid the risk of infestation of the plants growing in recirculation systems, growers install a sterilization unit. The method of sterilization can vary from heating to UV or by means of oxidation (Ozone or Hydrogen Peroxide). These systems require a regular check, for this Blgg offers Sterilization Check.



### SterilizationCheck

Sterilization units, except the Sand Filter can be checked out with our tests.

#### SterilizationCheck

UV-sterilizer	YES
Heater	YES
Biological Sand Filter	NO

#### How does it work?

In our laboratory we determine the **Aerobe germination count** (total of all bacteria and fungi) as well as the **Total number of fungi**. By correctly working sterilization units these values should be low.

In a Biological Sand Filter, much microbiological activity is found. This implicated that the germination count after the filter could be higher than before the filter. That's why the SterilizationCheck can not be used for Sand Filters.

### RISCover® analyses after the Sterilization Unit

In a UV-sterilization unit DNA material breaks down due to the radiation of the UV-lamp. RISCover® measures DNA levels of plant pathogens, so the sample can be taken after the unit.

A heater damages the cell structure, but it does not affect the DNA material. Thus the RISCover® samples can not be taken, as the DNA is measurable but the organisms are dead.

After a Sand Filter a RISCover® sample can be taken normally.

#### RISCover® after SterilizationCheck

UV-sterilizer	YES
Heater	NO
Biological Sand Filter	YES

## The different methods of Sterilization

### UV-sterilizer

About 30% of the Dutch growers is using a sterilizing unit, chooses UV. This method gains popularity. UV-light breaks down chelates in the water, so availability of micro nutrients is at stake. Water does not require additional acidification.

A complete disinfection (bacteria, fungi, nematodes and viruses) requires 250 mJ/cm<sup>2</sup>

A selective disinfection (bacteria, fungi and nematodes) needs 100 mJ/cm<sup>2</sup>

### Heater

About 30% of the Dutch growers is using a heater. Energy prices affect the popularity. Most users are vegetable growers. Acids should be used to avoid precipitation (pH 4 – 4,5). These acids affect the chelates if pH < 4.

A complete disinfection (bacteria, fungi, nematodes and viruses) requires 30 seconds at 95°C or 2 minutes at 90°C or 3 minutes at 85°C. A selective disinfection (bacteria, fungi and nematodes) would need 2 minutes at 60°C.

### Biological Sand Filter

About 30% of the Dutch growers is using Biological Sand Filter, predominantly in the ornamental crops.

It does not affect the fertilizers and the water does not require additional acidification.

It is important to realise that a Sand Filter is not a method for disinfection. It only reduces the number of pathogens. The micro organisms that are present between the sand layers kill the spores of Pythium and Phytophthora.

Fusarium, nematodes and viruses can pass through the filter. The sand filters are effective, only 2-3 weeks after installation.

#### **Avoid any risk of infection via SterilizationCheck at:**

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