

## WATER

# WATER QUALITY

Growers should always start with good quality fresh water

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Good quality fresh water is an important starting point for every grower. While sodium is often the main contaminant, other problems such as algae and biofouling also have to be taken into account. The availability of good quality fresh water makes recirculation easier and minimises the discharge of waste water containing nitrogen, phosphorous and plant protection products into surface water or groundwater.



Stricter regulations require growers to minimise the emission of nutrients and plant protection products to surface water and groundwater. Reasons for discharge include;

- » excessive levels of sodium in the circulation water
- » the presence of growth inhibitors such as root exudates or micro-organisms
- » concerns about problems at the start of the cropping season
- » an accumulation of plant protection products
- » an unbalanced composition of the nutrient solution
- » technical failures.

Larger rainwater storage capacity (up to 3000 m<sup>3</sup>/ha) minimises the main problem of sodium accumulation. In Mediterranean countries that experience limited amounts and periods of rainfall, rainwater collection can also be useful.

### Algae

Open rainwater basins are easily contaminated by sodium (via rain in coastal areas), plant protection products (via atmospheric deposition and condensation water) and bird faeces (nitrogen and phosphorous). This creates the right basic conditions (light, water, nitrogen) for algae growth, which not only results in a green soup, but also clogs the irrigation system (pumps, pipelines and drippers). In addition, decaying algae may result in insufficient oxygen levels.

LG Sound is a company that supplies equipment to eliminate algae via ultrasonic sound at wavelengths of 20kHz to 2 MHz. Especially the most frequently occurring algae (single cell and filamentous) are eliminated within two weeks of installation, after which the rainwater basin remains clean and free of algae with minimal maintenance. Fish, mosquitoes, daphnias and other organisms are not sensitive to ultrasonic sound, and humans cannot even hear it.

### Clean water

Minimising the discharge of recirculated nutrient solution starts with the storage of good quality rainwater. Stored water must remain clean and ultrasonic sound waves help to keep the water free from algae.

Partners in this seminar: LG Sound,  
Wageningen UR Greenhouse Horticulture