

## Better Root Hairs and Cleaner Water with Agrona Nanobubble Technology

### LOCATION

The Netherlands

### CROP

Anthurium young plants (cuttings)

### UNIT TYPE

OxyBull Aeration System 60 m<sup>3</sup>/h



### RESULTS

- ✓ Dissolved oxygen in return water increased from **5.5 to 12.5 ppm**
- ✓ Fungal presence eliminated (from **17 species to 0**)
- ✓ Improved root hair density and nutrient absorption
- ✓ **Clearer water** and doubled UV disinfection capacity
- ✓ Healthier, more resilient anthurium cuttings with uniform growth

*XL Bloom Youngplants, one of Europe's leading producers of anthurium cuttings, implemented the Agrona OxyBull Aeration System to enhance irrigation water quality and promote healthier root growth. Before installation, the grower faced fungal contamination in return water, low dissolved oxygen levels, and limited UV disinfection efficiency. By integrating the OxyBull system, XL Bloom achieved a structural improvement in both oxygen levels and water clarity. Dissolved oxygen increased from 5.5 ppm to 12.5 ppm, fungal presence dropped to zero, and UV disinfection efficiency doubled from 3 to 6 m<sup>3</sup>/h. These changes led to visibly stronger root hairs, better nutrient uptake, and more uniform, resilient young plants.*

The case demonstrates how Agrona's aeration technology delivers sustainable, long-term crop vitality and water quality optimization, essential for XL Bloom's commitment to 100% organic driven production.

XL Bloom Youngplants, based in De Lier, The Netherlands, produces over 11 million anthurium cuttings annually in 4 European laboratories each year and exports them to 53 countries worldwide. With a strong commitment to organic cultivation and biostimulant integration, the company continuously innovates to maintain plant health and quality.

Prior to adopting Agrona's OxyBull Aeration System, XL Bloom struggled with low oxygen content in return water, fungal growth, and inefficient UV disinfection factors that limited root performance and water clarity.



## Challenges:

- Low DO levels in return water (5.5 ppm baseline)
- Fungal presence (17 species detected pre-installation)
- Cloudy water reducing UV disinfection capacity
- Weak root development and reduced nutrient uptake
- Need for a sustainable, non-chemical solution



## Solution

XL Bloom installed the Agrona OxyBull Aeration System, designed to inject microbubbles and maximize oxygen diffusion in water. The system uses a high capacity 60 m<sup>3</sup>/h pump, agitating the water from the silo bottom and ensuring uniform oxygen distribution throughout the irrigation cycle.

## Product Description

The Agrona Nanobubble Generator is a plug and play solution that super saturates water with oxygen. These ultra fine nanobubbles deliver long lasting oxygenation, improve microbial balance, and enhance water quality, key factors for root health and crop vigor.

## Operational Integration

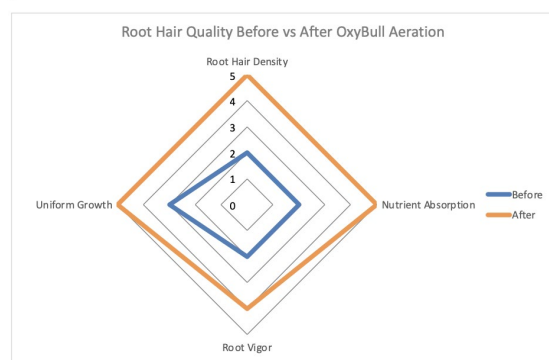
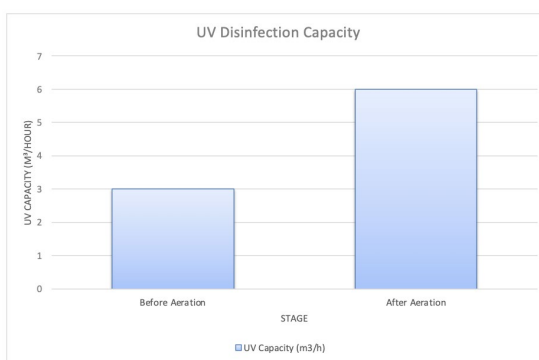
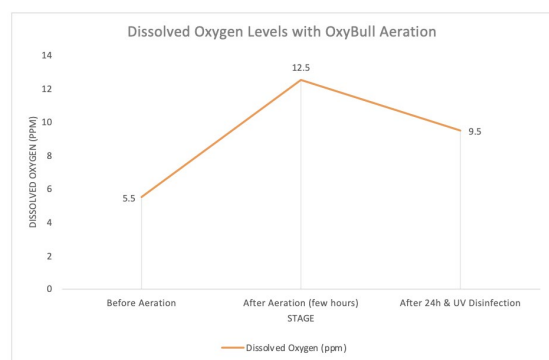
Integrated directly into return water silos, the OxyBull system increased DO from 5.5 ppm to 12.5 ppm within hours of operation. After passing through UV disinfection and overnight storage, the DO level remained at 9.5 ppm, showing long lasting oxygen retention. Continuous aeration prevents oxygen loss and supports stable irrigation conditions throughout the day.

## Maintenance and Operation

The OxyBull Aeration System operates automatically and requires minimal maintenance. Continuous oxygen monitoring through an inline oxygen module and integrated DO sensor ensures stable and consistent performance. The strong aeration flow prevents stagnation, sediment buildup, and algae formation, keeping the silos and pipes clean and oxygen rich. With only occasional filter cleaning and visual inspections, OxyBull delivers reliable, low-maintenance operation and consistently balanced water conditions for optimal crop health.

## Methodology and Data

Data were collected using standard DO meters and microbial analysis under identical operating conditions before and after installation. Results confirmed substantial oxygen increase, fungal elimination, and improved UV performance.



*All readings were taken using standard DO meters during comparable temperature and growth stages.*

## RESULTS

- ✓ **Dissolved oxygen increased from 5.5 ppm to 12.5 ppm**  
*After 24 hours and UV disinfection, oxygen levels remained high at 9.5 ppm, demonstrating long-lasting oxygen stability in the return water.*
- ✓ **Stronger, healthier root hairs**  
*Before: Weak and sparse hair roots with limited nutrient absorption*  
*After: Dense, vigorous root hairs enabling stronger growth and higher nutrient uptake*
- ✓ **Elimination of fungal contamination**  
*Before: 17 fungal species detected in return water*  
*After: No fungal presence detected after installation and continuous aeration*
- ✓ **Cleaner irrigation water and improved UV disinfection**  
*Before: Unclear return water reducing UV capacity to 3 m<sup>3</sup>/h*  
*After: Clearer water allowing UV efficiency to double to 6 m<sup>3</sup>/h*
- ✓ **Consistent oxygen-rich circulation**  
*Before: Stagnant zones and oxygen loss between cycles*  
*After: Continuous movement maintaining stable DO levels and preventing anaerobic conditions*
- ✓ **Improved overall plant quality and resilience**  
*Before: Variable growth and susceptibility to root stress*  
*After: Uniform, healthier young plants with stronger vitality and root development*

### Qualified Results

OxyBull created measurable, long-term improvements in both water quality and plant health. The higher oxygen content improved microbial balance and substrate performance, resulting in cleaner systems, stronger roots, and superior crop resilience.



#### Grower's Perspective:

**"We believe in a lot of movement in the water. The OxyBull system really makes the silos churn, and the results are clear – cleaner water, better root hairs, and stronger plants. Since installation, our water quality has improved, and UV disinfection efficiency has doubled."**

*Michel van Rijn, CEO, XL Bloom Youngplants,  
De Lier, The Netherlands*



## Best Practices

- Maintain continuous aeration to stabilize oxygen levels
- Measure DO before and after installation for accurate benchmarking
- Position OxyBull before UV disinfection for optimal clarity
- Conduct regular microbial and root health assessments
- Adjust irrigation scheduling based on improved root vigor

XL Bloom Youngplants demonstrates how Agrona's OxyBull Aeration System provides a structural, sustainable, long-term solution for oxygen-deficient water. The system enhances root health, microbial stability, and crop quality by maintaining consistently stable water and root conditions through effective aeration.



## Ready to experience the Agrona difference?

Contact us today for a trial installation or join our Nanobubble Rental Program to see real results before purchase.

### Experience measurable improvement within the first growth cycle with no operational downtime.

- ✓ Free on-site water analysis and consultation
- ✓ Trial systems for short-term validation
- ✓ Flexible Rental Program for seasonal or pilot use

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