MOLEAER'S nanoBoost™ NANOBUBBLE GENERATOR INCREASES CROP YIELD BY 20-50%

New addition to Moleaer product line is ideal for clean water applications

Hort Americas recently conducted a test to validate the effectiveness and benefit claims of three aeration systems at their hydroponic facility in Dallas, Texas. One of the most difficult factors faced by hydroponic and greenhouse farmers is the ability to maintain proper dissolved oxygen (DO) levels during warmer seasons - the higher the temperature, the more challenging it is to maintain elevated dissolved oxygen. To further exacerbate this problem, root infections and stunted growth are also more likely to occur in warmer waters.

Naturally, oxygen plays a vital role in plant respiration - a process used to generate energy and growth. Maximizing the oxygen saturation in water helps improve (feeder) root structure and activate beneficial microbes in the rhizosphere. More feeder roots result in better nutrient uptake, increased growth and overall improvement in plant health.

Location: Hort Americas (Dallas, Texas)

Type: "Leafy Green" Floating Raft / Deepwater Hyrdroponic Greenhouse

Water Temp.: 87°- 90° F (30.5° - 32° C)

Unit Type: 50 gpm nanoBoost w/2 HP CF pump

Installed: July 2017

Left to right: nanoBoost, Venturi, Air Stone

To validate Moleaer's nanoBoost Generator, the unit was tested alongside two other commercially available aeration systems: a Venturi and an Air Stone. The test conditions were carefully controlled for all three systems:

- Water temp: 87°- 90° F (30.5° - 32° C)
- Light Source: Natural sunlight
- Nutrients: Standard NPK w/ micro-nutrient blend

The results were clear. The picture on the left shows the difference in root structure and head growth. The largest plant and most developed root system, shown on the far left, is the result of the nano-Boost Generator. Despite the warm water temperature, the nanobubbles from Moleaer's nanoBoost remained stable and suspended in the water, effectively delivering a steady flow of oxygen from the root to the head of the plant. Table 1 below illustrates the dissolved oxygen (DO) content:

Unit	DO content
Moleaer nanoBoost*	29 ppm
Venturi	7.5 ppm
Air Stone	2 ppm

*nanoBoost transferred only **0.25 SCFH** of pure oxygen

Molear's nanoBoost has been proven to increase production and root development even under the most challenging conditions. The unit is easy to install and includes no moving parts to ensure dura-bility and reliability. The nanoBoost can be retrofitted with existing pumps to maximize efficiency, or can be configured with an integrated pump.

Table 2 below shows the empirical data for various plants included in the test. The difference is clear.

Crop	Transplant to Harvest (Days)	Seed to Harvest (Days)	Avg. Daily Light Integral	Avg. Weight Diffuser	Avg. Weight Venturi	Avg. Weight nanoBoost	Yield Increase (nanoBoost over Venturi)
Arugula	31	49	6 - 9	0.39 oz	2.18 oz	3.4 oz	**56%**
Italian Basil	39	44	6 - 9	N/A	1.5 oz	2.25 oz	**50%**
Red Butterhead Lettuce	21	38	6 - 9	1.86 oz	3.31 oz	4.66 oz	**41%**
Red Rubin Basil	17	31	6 - 9	0.4 oz	0.5 oz	0.69 oz	**38%**
Italian Basil	17	31	6 - 9	0.76 oz	1.62 oz	1.98 oz	**22%**

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