

BUX-MONT HYDROPONICS BENEFITS FROM NANOBUBBLE TECHNOLOGY

The story of Bux-Mont begins in 1979 with a family who utilized greenhouses to grow flowers in Telford, PA. In 2005, Tim Gehman, a budding farmer and greenhouse enthusiast, began experimenting with growing lettuce in the corner of his family's flower greenhouse. After experimenting and learning about the lettuce-growing process, the family built their own greenhouse dedicated to lettuce in 2009. Since then, they have been rapidly expanding their lettuce operation, including the purchase of Bux-Mont Hydroponics in 2011. Tim took down the purchased greenhouse and reassembled it on his family farm. Currently, their greenhouses cover just over half an acre.

Bux-Mont is dedicated to growing safe and nutritious local food and takes pride in having a sustainable operation. They collect rainwater off the greenhouse roofs, heat the greenhouse using a huge wood burner that burns scrap wood from the local building industry, compost the crop waste on the property, and reuse their nutrient water. The lettuce grows in a small peat cube, which floats on a huge pond of water. The roots hang freely into the water, absorbing oxygen and nutrients. Lettuce is planted at one end of the greenhouse and harvested at the other. The rafts float along as on a conveyor belt, pushed down the greenhouse as the lettuce grows.

Client:

Bux-Mont Hydroponics

Type:

Deep Water Culture

Unit Type:

50 XTB

Installed:

June 2018

Benefits:

25% Crop Turn Reduction
Root Disease Elimination



Bux-Mont's crop of lettuce ready for harvest more quickly thanks to Moleaer nanobubbles.



Moleaer's nanobubble generator is easy to install and provides an immediate impact to Bux-Mont's greenhouse.

Bux-Mont is constantly investigating new techniques to improve their greenhouse operation. When learning about the unique benefits of Moleaer nanobubbles, they decided to install a 50 gallon-per-minute system to take their lettuce production to the next level. First, Moleaer nanobubbles are neutrally buoyant, which means they do not float. Rather, they stay suspended in solution, constantly diffusing more oxygen into the water as it is consumed by the plant roots. Second, the nanobubbles are extremely small, about the size of a red blood cell. The Moleaer system is able to produce approximately 500 million nanobubbles per mL of water. With this volume of very small bubbles, the interfacial surface, or boundary where the oxygen touches the water, is very high. This high interfacial surface means that oxygen is transferred very efficiently, more than 85%.

"The old methods of oxygenating nutrient solution are not really that effective. Most of the air just bubbles up through and doesn't really assimilate in the solution when you use air stones or air tubing," said Tim Gehman, owner of Bux-Mont Hydroponics. "We wanted to speed up growth with more crop turns per year and having oxygen saturated water is key, which is why we chose the Moleaer nanobubble system."

Bux-Mont experienced an immediate impact from the Moleaer system, reducing their crop turn from four weeks to three weeks, a 25% decrease. The plant roots were whiter than they had ever experienced with no signs of root disease, indicating that the lettuce is healthy and strong. Additionally, before implementation of the Moleaer nanobubble system, the dissolved oxygen (DO) content of their water was in the danger zone for maintaining healthy plants. After the nanobubble system, the DO level in the water is so high that it exceeds the capability of their current meter, demonstrating the power of Moleaer nanobubbles to elevate DO levels.

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