



Lettuce: Modernizing Hydroponic Farming with Nanobubble Technology at Lone Star Lettuce Growers

Lone Star Lettuce Growers

Kyle Massey, a former corporate finance professional with a decade-long stint in the industry, always harbored a profound interest in biology. In 2019, he ventured into the farming industry by experimenting with aquaponics in his backyard. This initial foray sparked his passion for sustainable agriculture. Through extensive market research, Massey identified a burgeoning demand for locally grown organic produce in central Texas and founded Lone Star Lettuce Growers.

Growing Style: Hydroponics	Location: Texas, USA	Benefits: <ul style="list-style-type: none"> • Dissolved oxygen concentrations consistently at 13 ppm • Reduced algae in ponds • Increased crop yield, uniformity and quality
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Problem

By mid-2020, Massey expanded Lone Star’s operations, constructing a 12,500 sq. ft. greenhouse to scale up aquaponics production. However, he encountered consistency issues in maintaining optimal conditions for both fish and vegetable cultivation. Raising fish at a large scale proved to be exceptionally challenging, prompting Massey to seek alternative approaches.

Solution - Embracing Nanobubbles

In late 2022, Massey made the pivotal decision to transition Lone Star Lettuce Growers from aquaponics to organic hydroponics, achieving USDA organic certification. This shift not only increased operational capacity but also necessitated a focus on optimizing dissolved oxygen (DO) levels in the hydroponic system. Recognizing the importance of DO in hydroponic farming, Massey installed airstones, however they didn’t deliver the oxygen his system needed due to inadequate oxygen transfer. He explored innovative solutions and came across Moleaer nanobubble systems, renowned for their ability to infuse water with consistent, stable nanobubble oxygenation, achieving over 85% oxygen transfer efficiency. Massey integrated a Moleaer nanobubble generator, specifically the Neo 50 with onboard oxygen, into his hydroponic setup. This system efficiently added oxygen to the 45,000 gallons of water circulating in his greenhouse, ensuring consistently high DO levels crucial for plant health and productivity. **The nanobubbles generated by Moleaer’s technology remained in the water for extended periods, even during system shutdowns, providing a robust DO buffer and reducing algae growth significantly.**

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Outcome - Success and Consistency

The adoption of Moleaer's nanobubble technology proved transformative for Massey's hydroponic farming operation. Over the 15 months since its implementation, Massey noted remarkable improvements in crop quality and yield. **The consistent DO level of 13 PPM facilitated optimal plant growth, eliminating the occurrence of oxygen-deprived pockets that previously hindered crop development.**

Massey also observed a substantial reduction in algae growth, attributed to the enhanced oxygenation and stability achieved through Moleaer's nanobubble system. Moreover, his experience with the Moleaer team was overwhelmingly positive, with minimal operational issues and responsive support ensuring uninterrupted system functionality.

"Discovering Moleaer's nanobubble technology was a game-changer for our farm. With consistent DO levels at 13 PPM and reduced algae growth, our crops have thrived like never before. It's not just about farming; it's about sustainability and innovation working hand in hand," states Massey.

In conclusion, Massey's journey into the farming industry, coupled with his adoption of innovative technologies like Moleaer's nanobubble systems, exemplifies the transformative potential of integrating cutting-edge solutions to address challenges and drive success in sustainable agriculture.



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