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SciBrite[®]
by Percival Scientific

Maui Greens Relies on SciBrite[®]
Plant Growth Chambers
for Indoor Farming R&D

CASE STUDY

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The indoor farming industry has expanded rapidly, and there doesn't seem to be a slowdown in sight. According to Grand View Research, the global indoor farming market size was valued at \$39.5 billion in 2021 and is expected to expand at a compound annual growth rate of 13.5% through the year 2030.*

Neil Yorio, vice president of plant science for Maui Greens, has been riding the wave of increasing demand for indoor-grown produce for several years. He's helped transition the leafy greens farming operation in Kula, Hawaii, from primarily outdoor farming to include indoor production with the addition of a 46,000-square-foot indoor vertical farming facility in Hudsonville, Michigan.

A Pioneer in LED Lighting for Plant Growth

Yorio knows a thing or two about how to grow plants in controlled environments. As a former NASA scientist for over 20 years, he helped evaluate one of the first LED lighting systems used for indoor plant growth. This innovative lighting was integral to the success of a plant-based life support system NASA designed to maintain the health of astronauts on long-term space missions.

Years later, he used what he learned at NASA to start an agricultural LED lighting company and become a consultant for horticultural lighting technology and its integration with controlled environments. He's worked with many farming operations and lighting manufacturers to help producers optimize crop quality and increase yields.

The Best Colored LED System for Indoor Ag R&D

Yorio believes investing in accurate R&D is crucial to getting the best possible results from indoor crops. That's why Maui Greens created the Plant Science R&D Lab inside the new Hudsonville facility, equipped with six Percival Scientific SciBrite® plant growth chambers.

"I was familiar with Percival chambers after working with a couple of different models while I was at NASA and had a very positive experience with them," he says.

While Yorio has enjoyed using climate-controlled chambers from many companies during his career, he chose Percival chambers for one main reason: SciBrite LED lighting.

"They had a flexible, programmable LED system that could meet our research goals right out of the gate," he says. "The seven-color multi-channel LED array allows us to create spectral treatments for many different experiments we want to run."

Developing the Right Environmental Recipe Before Scaling Up

Percival also customized the six chambers with a specialized airflow system that Maui Greens' R&D experiments required. In addition to airflow, Yorio says the chambers are ideal for testing other growth conditions, including air temperature, light intensity, humidity and CO₂ levels.



"The role of these Percival chambers is environmental recipe development in our product development cycle," he says. The plant scientists at Maui Greens can then take the recipe for a chosen crop variety to the engineering team and help them match the lighting spectrum and other environmental conditions needed when they scale up for large production. "We basically make a much larger chamber with all the same features."

Why Growers Can't Compete Without Reliable R&D

Yorio says that with the fast pace of technology development in the indoor ag industry, it's more important than ever for Maui Greens to invest in reliable R&D. "It doesn't make sense to just stick with a legacy protocol and assume one can simply compete with that. Instead, you want to be able to test new conditions and varieties that can then be scaled up and validated for production to ensure success. Without that, a grower doesn't know the unit economic potential improvement for their product."

The Percival Personal Touch

After purchasing the Percival SciBrite chambers, Yorio learned how dedicated the company is to ensuring their equipment works precisely. When the airflow in the units needed some adjusting, two Percival technicians traveled from Iowa to Michigan and worked two eight-hour days to make sure the airflow met Maui Greens' requirements. "They brought measuring equipment and took it seriously and personally," he says. "And they made sure everything ran perfectly when they left. I appreciate how collaboratively Percival worked with us."

For more information, please visit www.percival-scientific.com, call 1.800.695.2743 or email info@percival-scientific.com.

* <https://www.grandviewresearch.com/industry-analysis/indoor-farming-market>

Cover Photo: Henry Imberti, Senior VP of Engineering, Percival Scientific and Neil Yorio, VP of Plant Science, Maui Greens

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