

Gröv Technologies and AWS Collaborate to Create the Industry's First Vertical Farming Data Platform to Grow High-Density Nutrient (HDN) Animal Feed

- Enhanced Sawyer operating system for Gröv Olympus Tower Farm optimizes performance and output through the usage of micro-sensors and big data analytics-

VINEYARD, UTAH – Dec. 15, 2020 – Gröv Technologies today announced it has collaborated with Amazon Web Services (AWS) to bring cloud-based machine learning capabilities to Gröv's Sawyer operating system. These enhancements to Gröv's OS enable its Olympus Tower Farm to provide real-time data that ensures better quality of its high-density nutrient (HDN) animal feed, which has been tested and shown to improve dairy and beef cattle production.

Working with Gröv's technology team, AWS helped to identify three primary types of data to be collected that will maximize output and quality of the feed: environmental, operational and plant growth characteristics. These data points are analyzed and streamed to AWS IoT Core via AWS IoT Greengrass, using AWS IoT Rules to route ingested data to store on AWS. This comprehensive data set will leverage a suite of AWS analytics capabilities, including Amazon QuickSight, Amazon Kinesis, Amazon Glue, and Amazon Redshift to build a machine learning pipeline that will fine tune the growing protocols in near real-time using Amazon SageMaker.

"With a growing population, climate change, and economic uncertainty, farmers are being asked to do more with less and find innovative ways to overcome these challenges," said Steve Lindsley, president of Gröv Technologies. "Our collaboration with AWS has helped us develop a data-driven vertical farming platform that's economically viable and environmentally sustainable for large dairy and beef operations as well as smaller family farms."

In order to collect data throughout the entire growing process, the Gröv team, supported by AWS, developed sensor stations and plant growth monitoring cameras that are strategically placed throughout Olympus tower farm to collect data during the entire growing process. This provides a continuous feedback loop between the tower and the dairy/beef operator, and enables the company to constantly improve the nutritional value of each harvest. The Gröv Sawyer OS enables the towers to be monitored from a central master control across multiple installations and accelerates machine learnings that will continually improve performance and output.

"AWS is excited to support Gröv in its mission to help farmers and ranchers sustainably feed the world," said Shez Partovi, MD, Worldwide Lead for Healthcare, Life Sciences, Genomics, and Agriculture at Amazon Web Services. "AWS machine learning and computer vision is helping Gröv improve operational effectiveness of its tower farms by converting sensor data to meaningful insights. AWS and Gröv will

continue to collaborate on innovative ways to improve the nutrition and yield of every harvest to meet the demands of global food security.”

“Building AWS technology into the Sowyer OS combined with our science-based growing protocols gives us predictive insights into each harvest,” said Paul Whitlock, vice-president of operations at Grōv. “It allows us to provide farmers and ranchers with highly reliable, consistent, nutritious feed year-round.”

Today, controlled environment agriculture is emerging as one of the most impactful technologies to help address global issues surrounding climate change, sustainability for food and feed production.

Grōv will showcase these significant advancements in CEA technology at the annual AWS re:Invent 2020 conference on Dec. 16, 2020. The presentation will be broadcast online at www.reinvent.aws.events.com

For more information about Grōv Technologies and its Olympus Tower Farm, please visit www.grovtech.com.

About Grōv Technologies

Grōv Technologies is pioneering the next generation of agricultural technology and proprietary science to help meet the demands of global food security. The company is developing enterprise-scale, automated controlled environment agriculture (CEA) systems to grow high-density nutrient animal feed, fresh produce and other crops using significantly less water and resources than traditional farming. These systems utilize patented low-heat LED technology, robotic seed-to-harvest systems and scientifically proven indoor growing protocols. Grōv is a wholly owned subsidiary of Rhyz, a dynamic family of companies bound by a collective desire to explore and share new areas of growth and opportunity.

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