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Skytree's CO2 Capturing Technology

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You may recall the name [Skytree](#) from GreenTech in Amsterdam as it just won the 2023 Concept Award for most promising new idea. It won for its potentially groundbreaking carbon dioxide capture and reuse technology.



I've been in touch with the company over the course of the last month, and recently sat down for a Zoom chat with Mark Henderson, who was just named global Chief Commercial Officer and President of North America for Skytree. I asked him to give me the backstory on the technology.

"The founders of our company worked for ESA, the European Space Agency. The core of this, and the idea of this technology has actually been around for a while," he said, explaining it was developed to scrub carbon dioxide from the International Space Station to prevent CO2 buildup (if you've read any accounts by U.S. astronaut Scott Kelly, you know how vexing the CO2 situation can be on the ISS). "They were working on continuing to advance the technology inside the space station with the European Space Agency. And then, through an incubator program that the European Space Agency had, they did a spinoff to take that technology and apply it to places where it had intelligent use cases here on Earth."

It turns out, there are a lot of uses for the tech, but first, how it works and applies to CEA. Let's take a vertical farm. The unit sits inside the farm and captures the ambient air, pulling it into a filter inside the unit that captures the carbon dioxide, while releasing the rest of the air back into the atmosphere. Mark said via a temperature swing process, the carbon dioxide stream is removed from the filter, pressurized and stored in a tank, available as supplementation for the grower.

Skytree is due to conduct a second pilot test of the system this summer with a European vertical farm on a smaller scale (with more pilot projects scheduled), but by the end of the year expects to have a unit producing 5kg of CO2 per day available for vertical farms. The much larger system capable of producing 200kg of CO2 per day, which is more ideal for larger greenhouses, is expected to be available next summer. These will be available to both the European and North American markets.

The units are stackable, too, so a grower isn't just limited to what one unit can produce, and Mark said they are easy to integrate into an already existing system used for CO2 enhancement.

And though the units won't be available until later this year, they're getting the word out now, buoyed by both

the Concept Award at GreenTech and an infusion of \$6 million in funding led by a couple of horticulture-minded investors. You can meet the Skytree team at booth 21 at the Indoor AgTech Innovation Summit in New York City and in booth 712 at Cultivate'23 in Columbus.

But the company isn't solely focused on CEA, or even horticulture in general. They are open to wherever the technology is applicable, and it turns out, that's a lot of different industries. "The most common are farming, of course, but there's also beverages—the beer industry and soda industry use an enormous amount of carbon dioxide in a very compressed and pure form," Mark said. "There is also a lot of emerging technology around things like cement."

He added when you pull CO₂ from the atmosphere and bond it with rock through a process called mineralization you can permanently remove it from the atmosphere. I mean, think of the potential there! He said they are looking at applications for concrete manufacturing, too.

While at GreenTech, he said the team there was approached by other systems providers in horticulture, too, who were interested in looking at how the technology could be integrated into other systems like irrigation and heating.

I'd say it seems like the sky's the limit, but considering it came from space technology, I don't think that's true! I'll keep you updated on the advancement of this cool new technology.