

Nordetect's 'Lab-on-a-Chip' designed to improve agricultural practices



By **NICOLE SHELDON**

Nordetect, a chemical analytics company based out of Copenhagen, Denmark, is another optics/photonics startup in Luminate NY's third cohort.

Luminate is a six-month residency program at NextCorps. Companies in the Luminate cohort have access to mentorship, access to resources and \$100,000 in follow-on funding. Funding for the \$25 million program is provided through the Finger Lakes Forward Upstate Revitalization initiative. On Demo Day, which is usually held in June but has not yet been rescheduled due to the COVID-19 pandemic, the most promising of the 10 companies will compete for up to \$2 million in additional funding.

"Companies from all over the world apply to Luminate and come to Rochester to access the rich OPI talent and network we have built here," said Sujatha Ramanujan, Luminate's managing director. "The technologies from the companies participating represent a broad range of applications with promising uses in industries including agriculture, health care, energy, cybersecurity, augmented reality and defense, just to name a few."

The company's mission is to bring lab-grade testing to aid farm managers and agronomists by optimizing the use of additives like fertilizer to move toward a data-driven, adaptive farm practice. Nordetect's biochemical analysis instruments measure the levels of nitrogen, phosphorus and potassium in soil, groundwater, hydroponics and aquaponics samples. The company combines GPS-enabled soil sampling and "Lab-on-a-Chip" technology to provide a quick assessment of key nutrients in soil to give farmers fertilizer recommendations on an acre-by-acre basis.

Keenan Pinto, CEO of Nordetect, and his team make in-field chemical analysis fast and affordable with a simple system to improve agriculture safety. Nordetect's one-click device and test kits are easy to integrate into current farm management software, giving farmers a complete overview of fertility levels.

How did you and your team develop the concept for your product?

Keenan Pinto: My cofounder, Palak Sehgal, and I have backgrounds in plant genetics and molecular biology and have been working with-in diagnostic test development and microscopy and instrumentation. In 2016, we had the idea to develop a system that could provide rapid results for chemicals found in the agricultural sector. This stemmed from the issues with harmful algal blooms (HABs) that are caused by runoff from farms and wastewater plants and can be toxic to people, animals and ecosystems.

Since lab based testing is the gold-standard and the industry was increasingly going digital with farm management software, we saw an opportunity to bring a portable device to market that could provide a chemical analysis in-field enabling timely decision making.

In September 2017 we received our first round of funding and have been working on this product ever since.

Why does the world need this product?

KP: Agriculture uses a large amount of water, chemicals and biologicals and is a resource-heavy industry that's ripe for optimization. This has been on-going for decades through various initiatives aimed at moving toward sustainability. We found that the process of testing soil and plants through a lab was a bottleneck in making better decisions. Starting with NPK (nitrogen, phosphorus and potassium), our versatile "Lab-on-a-Chip" can cover any nutrient types and can be used on anything from soil to leaf to water samples. It helps farmers make better decisions about how fertilizer and other chemicals are being used. With near-real time analysis, ease-of-use and a cost-reduction of around 30 percent as compared to the lab, the barriers for continuous use of nutrient data in farm management are significantly reduced.

Who is the target audience for your product?

KP: Our target audience for the product is typically the agricultural and environment sectors. On the agricultural side, our solution helps

agronomists and extension service workers to quickly test the quality of soil and plant tissue in order to make a recommendation of the type and amount of fertilizer to be used. It also helps farmers track the fertility levels during the season and make adjustments if they can see something going wrong. Our product is also meant for greenhouses and hydroponic farmers who need to maintain the water quality of their operation and make changes in response to the crops' growing stages.

What made you look to Rochester to further your product?

KP: Through our advisors in Denmark, we came to know of Rochester's history in the optics and photonics industry. As a growing startup, access to knowledge and expertise can make a huge difference.

Tell us about your experience being in Luminate.

KP: We've had a great experience with Luminate from the first time we met with the team in November 2019. The combination of Luminate's people, program and resources have been very helpful in getting our company set up in the U.S. Even with the COVID-19 pandemic, the team has quickly adapted to virtual sessions with internal and external activities.

What are you hoping to achieve during your time in Luminate?

KP: We are hoping to build a commercial footprint in the U.S. by acquiring pilots or trial customers for our product. We are also looking to build a network that can support our future R&D and manufacturing needs.

If Nordetect wins, what do you plan to do with the \$1 million in follow-on funding?

KP: If we win, we plan to use the funding to recruit two technical and two commercial staff members to drive sales, marketing, technical support and engineering. We will also move forward with mass manufacturing of our product to meet customer demand generated through the pilots this year.

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Photo Provided
Keenan Pinto, CEO, and Palak Sehgal, co-founder