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Purdue plant science startup receives NSF funding to advance in-home greenhouse technologies

WEST LAFAYETTE, Ind. – A [Purdue University](#)-affiliated startup that designs, distributes and supports direct-to-consumer, in-home greenhouses has won a National Science Foundation Small Business Innovation Research grant.

The SBIR grant, worth \$256,000, is in addition to \$50,000 in matching funding from Elevate Ventures to conduct research and development work on multispectral photomorphogenesis in rotary aeroponic cultivation chambers.

[Heliponix LLC](#), founded by [Purdue Polytechnic Institute](#) graduates [Ivan Ball](#) and [Scott Massey](#), sells the GroPod Smart Garden Appliance. It is a small in-home greenhouse to grow daily servings of Pure Produce from subscription Seed Pods. The dishwasher-sized device fits under a kitchen counter and grows produce year-round, providing consumers with lettuce and other greens that are fresh and pesticide-free.



Heliponix, a Purdue-affiliated startup that designs, distributes and supports direct-to-consumer, in-home greenhouses, has won a National Science Foundation Small Business Innovation Research grant. (Image provided)

[Heliponix LLC](#), founded by [Purdue Polytechnic Institute](#) graduates [Ivan Ball](#) and [Scott Massey](#), sells the GroPod Smart Garden Appliance. It is a small in-home greenhouse to grow daily servings of Pure Produce from subscription Seed Pods. The dishwasher-sized device fits under a kitchen counter and grows produce year-round, providing consumers with lettuce and other greens that are fresh and pesticide-free.

As a leader in tunable horticultural research lighting systems, the Lighting Enabled Systems and Applications (LESA) Center of Rensselaer Polytechnic Institute is working with Heliponix to provide research-grade, multi-spectral, tunable LED modules and associated programmable control systems compatible with Heliponix's rotary chamber.

These modules are based on the LESA Center's TIGER horticulture research lighting modules and will provide the research flexibility needed in Phase I to optimize the LED illumination impact on plant growth variables in leafy greens including biomass, crop yield, nutritional content and energy efficiency.

"NSF is proud to support the technology of the future by thinking beyond incremental developments and funding the most creative, impactful ideas across all markets and areas of science and engineering," said Andrea Belz, division director of the Division of Industrial Innovation and Partnerships at NSF. "With the support of our research funds, any deep technology startup or small business can guide basic science into meaningful solutions that address tremendous needs."

Massey said, "In the wake of the ongoing coronavirus pandemic's disruptive force on produce cultivation and recurring food safety recalls, there's an urgent need to democratize cultivation to establish food sovereignty. We are incredibly thankful for the backing of the National Science Foundation, Purdue University, Elevate Ventures and the countless Hoosiers who have supported our pursuit to grow to become the world's largest farm through our connected, smart garden appliances known as GroPods without owning a single acre of land."

Once a small business gains a Phase I SBIR/STTR grant (up to \$256,000), it becomes eligible to apply for a Phase II grant (up to \$1 million). Small businesses with Phase II grants are eligible to receive up to \$500,000 in additional matching funds with qualifying third-party investment or sales.

Startups or entrepreneurs who submit a three-page project pitch will know within three weeks if they meet the program's objectives to support innovative technologies that show promise of commercial and/or societal impact and involve a level of technical risk. Small businesses with innovative science and technology solutions and commercial potential are encouraged to apply. All proposals submitted to the NSF SBIR/STTR program, also known as America's Seed Fund powered by NSF, undergo a rigorous merit-based review process. Learn more about [America's Seed Fund powered by NSF](#).

About the Lighting Enabled Systems & Applications (LESA) Center

The LESA Center is a graduated National Science Foundation engineering research center, with matching fund support from the New York State Empire Development Corporation and corporate membership. LESA is an interdisciplinary, multi-university center developing "Systems that Think." It is dedicated to developing autonomous intelligent systems to address modern challenges in the

connected environment and is housed at Rensselaer Polytechnic Institute. To learn more, visit <https://lesa.rpi.edu>.

About Rensselaer Polytechnic Institute

Founded in 1824, Rensselaer Polytechnic Institute is America's first technological research university. Rensselaer encompasses five schools, 32 research centers, more than 145 academic programs and a dynamic community made up of more than 7,600 students and over 100,000 living alumni. Rensselaer faculty and alumni include more than 145 National Academy members, six members of the National Inventors Hall of Fame, six National Medal of Technology winners, five National Medal of Science winners, and a Nobel Prize winner in physics. With nearly 200 years of experience advancing scientific and technological knowledge, Rensselaer remains focused on addressing global challenges with a spirit of ingenuity and collaboration. To learn more, visit www.rpi.edu.

About the National Science Foundation's Small Business Programs

America's Seed Fund powered by NSF awards \$200 million annually to startups and small businesses, transforming scientific discovery into products and services with commercial and societal impact. Startups working across almost all areas of science and technology can receive up to \$1.75 million to support research and development, helping de-risk technology for commercial success. America's Seed Fund is congressionally mandated through the Small Business Innovation Research (SBIR) program. The NSF is an independent federal agency with a budget of about \$8.1 billion that supports fundamental research and education across all fields of science and engineering.

About Purdue University

Purdue University is a top public research institution developing practical solutions to today's toughest challenges. Ranked the No. 5 Most Innovative University in the United States by U.S. News & World Report, Purdue delivers world-changing research and out-of-this-world discovery. Committed to hands-on and online, real-world learning, Purdue offers a transformative education to all. Committed to affordability and accessibility, Purdue has frozen tuition and most fees at 2012-13 levels, enabling more students than ever to graduate debt-free. See how Purdue never stops in the persistent pursuit of the next giant leap at purdue.edu.

Writer: Chris Adam, cladam@prf.org

Source: Scott Massey, scott@GroPod.io

Photo Caption: Heliponix, a Purdue-affiliated startup that designs, distributes and supports direct-to-consumer, in-home greenhouses, has won a National Science Foundation Small Business Innovation Research grant. (Image provided) <https://www.purdue.edu/uns/images/2021/NSF-heliponixLO.jpg>