Students launch agricultural drone startup to help reduce farming costs

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Aerial Agriculture LLC, a tech startup founded by undergraduate students in Purdue's College of Engineering, developed and piloted agricultural drones that can capture specialized images of entire crop fields. The drones captured images can be stitched together into maps, which are direct representations of the crops' health. The technology ultimately reduces input costs and increases farmers' yields. Credit: Aerial Agriculture image

Aerial Agriculture LLC, a startup company launched by Purdue

University students, aims to revolutionize the agricultural industry by building drones in-house to capture multispectral images of entire crop fields. This technology could allow farmers to reduce excess fertilizer and input costs while simultaneously increasing yields.

Aerial Agriculture uses specialized cameras to convert images into valuable vegetation indices that represent crop health and allow agronomists to determine the amount of nitrogen and fertilizer that needs to be applied in specific locations throughout the field.

"Our technology can pinpoint crop areas that need more attention, which allows farmers to then apply more inputs and address potential crop issues immediately, as opposed to after the fact," said Austin Deardorff, Aerial Agriculture co-founder and a student in Purdue's College of Engineering. "We expect our clients to get a full return on their investment, if not make money from using our service."

Other members of the startup include Justin Kinney, Tyler Landers, Justin Sutcliff, Taylor Wetli, Angelo DeFlora, Suzanne Bagnoli and Paul Pratt, all undergraduate students in the College of Engineering.

"Justin brought up the topic of drones being used in agriculture and how expensive this process can be," Deardorff said. "Tyler mentioned that he has been building drones since eighth grade and can make them much cheaper, get them to fly longer, and can equip them to take better images. From there, we began product development, and here we are now."

Deardorff and his team have recently upgraded their camera and can now collect four different spectral bands with extremely precise data.

"Our drones make it so we are able to stitch images together in maps to show the crops' health in a precise and easy-to-read manner. Our

products and services also increase environmental sustainability because we are implementing autonomous technology and use less harmful inputs," Deardorff said. "We want to become the only agriculture drone service company in Indiana and begin expanding to multiple states with longer growing seasons."

Aerial Agriculture has received funding through various sources at the Purdue Foundry, an entrepreneurship and commercialization accelerator located in the Burton D. Morgan Center for Entrepreneurship in Purdue's Discovery Park. The team took first place and $5,000 at Purdue's Boiler Mini-Accelerator Competition earlier this year.

The company recently received $20,000 in the latest round of funding from Elevate Purdue Foundry Fund First-Tier Black Awards.

"Purdue Foundry has been an excellent help in getting our startup off the ground," Deardorff said. "They have provided us with serious resources, as well as massive networking opportunities that you just cannot obtain otherwise."

Provided by Purdue University