Simplot Collaborates with Universities for High Tech Ag Projects

Projects Focusing on Sensors for Unmanned Aircraft Systems and Data Analytics Receive IGEM Grants from Idaho Department of Commerce

From left, Shane Slack, Coordinator/Instructor ISU College of Technology Robotics and Communications Systems Engineering Technology, Donna Delparte, ISU assistant professor of geosciences, and Scott Rasmussen, dean of the ISU College of Technology with UAS. (Photo by Bethany Baker, ISU Photographic Services.)

The Idaho Department of Commerce recently awarded more than $500,000 to two technology projects at Boise State (BSU) and Idaho State (ISU) universities, which are part of a partnership with the J.R. Simplot Company.

Idaho Global Entrepreneurial Mission (IGEM) grants are awarded to universities who have partnered with industry leaders on projects geared toward commercialization.

The two projects look at the development of new sensor technology for unmanned aircraft systems (UAS) and harnessing the power of data analytics to increase crop yields.

Boise State University received $338,110 for research and development in data analytics for agronomic decision making. Idaho State University received $179,755 for the development of algorithms of field crop data using unmanned aircraft systems (UAS).

While the Federal Aviation Administration (FAA) currently limits who is allowed to fly UAS for precision agriculture, ISU has been allowed to use UAS for research purposes.

According to Allan Fetters, director of technology for Simplot, agriculture is expected to be the largest growth sector for unmanned aircraft systems.

Simplot will partner with ISU in the development of an effective sensory program that effectively captures plant health information and allows for more effective identification and prevention of plant diseases and nutrient deficiencies.

Hyperspectral sensors mounted on UAS will capture crop data at the individual plant level. This data will be used for water management, crop nutrition, and other agronomic efficiencies.

"This collaboration positions ISU and Simplot to be at the forefront in the effort to commercialize this technology," Fetters said.

ISU – with Simplot providing soil analysis, crop expertise and serving as a liaison with participating growers – will soon commence imaging of more than a half dozen potato and sugar beet fields from American Falls to Idaho Falls. The project has already received Federal Aviation Administration authorization.

"There is potential for Simplot, working with the university, to take the methods and procedures we're learning and to be able to commercialize them," said Donna Delparte, an assistant professor of geosciences at ISU. "That would have a direct benefit to the state.

Effectively using data obtained from UAS and other sources such as satellite imagery and ground level sensors will be the goal of the BSU grant.

The project between Simplot and BSU presents an opportunity for the development of software and systems needed for precision agriculture.

Greg Hanmer, Simplot IT director for business and analytics said there is no shortage of data in agriculture, but there isn't an effective way to effectively store, organize and provide robust analysis of that data.

"Effectively identifying 'actionable data' fills in a gap in the industry that is well recognized by many companies," Hanmer said, adding that the first company to develop a successful data analysis solution will be best positioned to capture a leadership position in precision agriculture which is projected to be a $4.5 billion market by 2020.

Hanmer says the goal of working with BSU will be to develop a robust data management system that allows for effective data analysis. The system could be marketed in either a software package or web-based service that can further Simplot's precision agriculture efforts.

Idaho Commerce Director Jeffrey Sayer said these types of projects are an opportunity to position Idaho, its universities and its industry as leaders in the precision agriculture space.

"There will be constant demand to develop more efficient methods to feed the world's population, and Idaho is uniquely positioned to take a leadership role with experience in both agricultural excellence and technological innovations," Sayer said.

To learn more about IGEM, visit **http://commerce.idaho.gov/igem**