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Clover Connection

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This week I wanted to share an article that recently got posted to our AgriLife newsfeed. Robotics and drones are currently very popular topics. We have a 4-H robotics project, which I've written about previously and I wouldn't be surprised if we introduce a new project utilizing drones sometime in the near future.

Unmanned aircraft systems, known as drones or UAS, could be an important tool in boosting agricultural production to accommodate a roughly 30 percent global population increase to 9 billion people by 2050.

That was the message delivered by Bob Avant at the 2017 Texas UAS Summit May 10 at the Kay Bailey Hutchison Convention Center in Dallas. Avant is director of corporate relations for Texas A&M AgriLife Research at College Station and responsible for overseeing a major UAS research project involving more than 20 scientists in College Station.

"We're going to have to have smart agriculture in the future," he said. "We're going to need to work very hard to get as much yield per acre as we can. That means precision agriculture, and UAS would be one tool in the tool box."
The annual summit is a discussion hosted by the Texas A&M University System on the current state and advancement of UAS. This year's event took place as part of the AUVSI XPONENTIAL, which organizers said drew more than 7,000 visitors and global leaders in drones, intelligent robotics and unmanned systems to the convention center.

Avant led a panel discussion on the role of UAS in agricultural data gathering. UAS experts from Texas A&M Dr. Dale Cope, associate professor in the department of mechanical engineering in College Station; Dr. Jinha Jung, AgriLife Research scientist at Corpus Christi; and Dr. Sanaz Shafian, postdoctoral research associate in the department of soil and crop sciences in College Station, rounded out the panel.

The group reviewed their collaborations in data collection, which Cope said are part of an ongoing initiative toward advances in crop production using UAS to quantify characteristics for about 250 acres of experimental farmland weekly.

Researchers are working to improve technologies that now allow them to observe characteristics like crop height, canopy cover and bloom patterns, they said. Disease identification, water stress, pests and weed threat data collection are also emerging capabilities of the technology.

Information compiled via UAS technologies is fast becoming "accurate to the point the data can be plugged into computer models" for a range of reliable assessments and predictions on crop trends, Jung said.

Meanwhile, strides in UAS agricultural development overall show much promise, Avant said.

"We found it can really be beneficial to plant breeders, not only on ornamental crops but also production crops like corn or grain sorghum or wheat," he said.

But many challenges still exist for a technology which, the panelists agreed, is still in its infancy. In agriculture, the challenges discussed at the summit include issues with maneuverability beyond sight lines and overcoming the slow transfer of large image and data files now produced by current systems.

Farmers are also uninterested in piloting drones or "managing terabytes worth of data," Avant said, but they still need access to those information resources for crop management. It will be the responsibility of the research community to provide it.

"We're going to have to develop very sophisticated algorithms that can manage lots of data quickly, and get that data into the hands of farmers," he said. "We're developing systems now that can do that. They're in the evolutionary phase but we will get there."

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