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Research and Extension

## Extension Agronomy

# eUpdate

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These e-Updates are a regular weekly item from K-State Extension Agronomy and Steve Watson, Agronomy e-Update Editor. All of the Research and Extension faculty in Agronomy will be involved as sources from time to time. If you have any questions or suggestions for topics you'd like to have us address in this weekly update, contact Steve Watson, 785-532-7105 [swatson@ksu.edu](mailto:swatson@ksu.edu), or Curtis Thompson, Extension Agronomy State Leader and Weed Management Specialist 785-532-3444 [cthompso@ksu.edu](mailto:cthompso@ksu.edu).

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## 1. New FAA regulations facilitate sUAS integration into precision agriculture

On June 21, the Department of Transportation's Federal Aviation Administration released its finalized regulations governing commercial sUAS (small unmanned aerial systems), also known as drones. These new regulations will greatly expedite the integration of sUAS into the national airspace, while lessening the previous stringent qualifications for sUAS operations. This expedited integration will lead to more people being able to operate sUAS, creating new jobs and increasing technological advancements in agriculture.



Figure 1. K-State's Rich Brown, sUAS Technologist and Pilot, with sUAS. Photo courtesy of Rich Brown, K-State Research and Extension.

The new regulations are known as part 107 of the Federal Aviation Regulations. They will govern any sUAS under 55 pounds and take effect in late August. Part 107 regulates operational requirements, pilot and aircraft certifications.

### **Operational requirements:**

Flight operations are only allowed during twilight and daylight hours. This is defined as the time between 30 minutes before sunrise to 30 minutes after sunset. Flights during twilight hours are only allowed if the aircraft has operational anti-collision lights. Flights must be conducted below 400 feet above ground level and the aircraft cannot reach speed in excess of 100 mph. The aircraft must be in

line of sight at all times, without aid of binoculars or similar devices, and must yield to other aircraft. The aircraft is also not allowed to operate directly over people not involved in the operation. If operating above people not involved in the operation, those people must be in a covered structure or in a covered vehicle. The aircraft can be flown in class G airspace without contacting ATC (air traffic control); however, if the aircraft is going to be operated in B, C, D, or E airspace, prior permission must be received by ATC. The aircraft can only be operated from a moving vehicle in a sparsely populated area.

### **Pilot certification:**

To operate an sUAS the pilot must have a remote pilot in command certificate or be under the supervision of someone that has a remote pilot's certificate. To receive a remote pilot's certificate, you must be at least 16 years old and have passed an initial aeronautical knowledge test at an FAA-approved knowledge testing center. However, if you currently hold a part 61 pilot's license and have a current biannual flight review you will only need to take a short online sUAS specific training and test.

### **sUAS certification:**

Part 107 requires all sUAS to be registered with the FAA. Like conventional manned aircraft, the FAA requires that sUAS be in a suitable condition to maintain safe flight. However, unlike conventional manned aircraft, the FAA does not require that sUAS comply with federal airworthiness standards. Instead the remote pilot in command is the sole person responsible for assuring that the sUAS is operational condition. The remote pilot in command is also responsible for reporting any accidents that result in damages more than \$500 to any property other than the sUAS within 10 days of the accident.

This article is not intended to fully cover all sUAS regulations. Instead, it's a brief overview of part 107. To read more about part 107 sUAS regulations visit:

[http://www.faa.gov/uas/media/RIN\\_2120-AJ60\\_Clean\\_Signed.pdf](http://www.faa.gov/uas/media/RIN_2120-AJ60_Clean_Signed.pdf)

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Richard Brown has been hired as sUAS Technologist and Pilot in the Department of Agronomy, working with Geoffrey Morris, assistant professor of crop genetics and genomics, and Jesse Poland, assistant professor of Plant Pathology, wheat genetics and germplasm improvement.

Prior to joining the Department of Agronomy, Brown had been the UAS Technologist and External Pilot at Kansas State University Polytechnic since 2010, responsible for building, operating, and maintaining K-State's fleet of unmanned aircraft.

Brown is a lifelong aviation enthusiast who started building and flying radio controlled planes as a teenager. He holds a Bachelor of Science in aviation management from Ohio University and an Associate of Applied Science in aviation maintenance from Columbus State Community College in Columbus, Ohio. He is an FAA certified Private Pilot as well as a certified Airframe and Powerplant Technician.

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