

SUAS – “DRONES” – APPLICATIONS IN COUNTY PROGRAMMING

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Need for drones in County Programming

SUAS, Small Unmanned Aircraft Systems, commonly referred to as drones, are uncrewed aircraft guided by remote control or onboard computers. They can be used in county programming for photography, videography, agriculture and wildlife monitoring.

Recreational vs Part 107

The rule for operating unmanned aircraft systems (UAS) or drones under 55 pounds in the National Airspace System (NAS) is [14 CFR Part 107, referred to as the Small UAS Rule](#). However, if you want to fly a drone for purely recreational purposes, there is a limited statutory exception ("carve out") that provides a basic set of requirements.

PART 107 Requirements

To become a pilot, you must:

- Be at least 16 years old
- Be able to read, speak, write, and understand English
- Be in a physical and mental condition to safely fly a drone
- Pass the initial aeronautical knowledge exam: "Unmanned Aircraft General – Small (UAG)"

Requirements for Remote Pilot Certificate:

- Must be easily accessible by the remote pilot during all UAS operations
- Certificate holders must complete an [online recurrent training](#) every 24 calendar months to maintain aeronautical knowledge recency

My Drone Equipment



DJI Mavic 3 Multispectral



DJI RTK Base Station
 Gives the drone centimeter level accuracy

Wheat Fertility Issues



Ground view of wheat issues



Wheat fertility issues as seen with drone. The drone allowed the farmer to see the full extent of the issue in a timely manner.

Feral Hog Damage

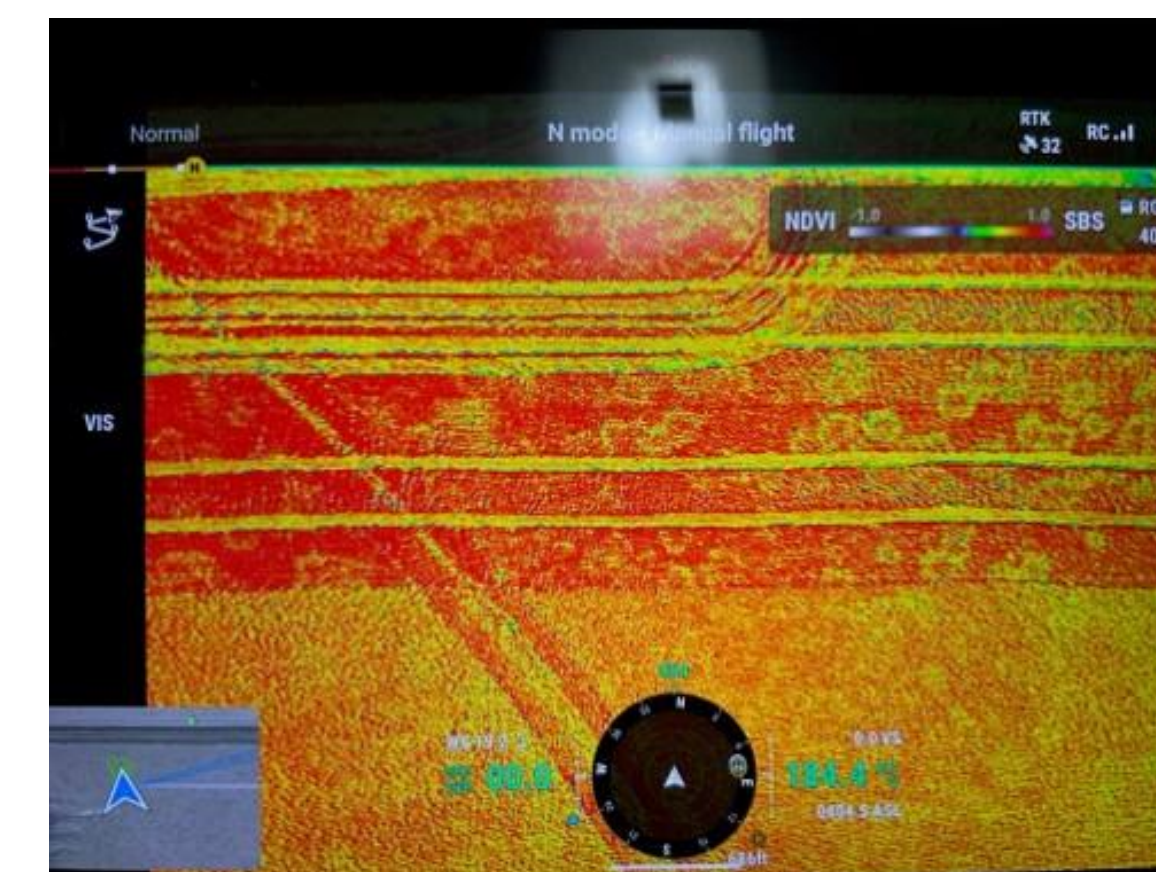


Feral hogs are a major problem in agriculture with some damage not being fully realized until harvest. In the above corn fields known feral hog damage was visible from the outside but the drone allowed the true extent of the damage to be known.

Rice Diseases

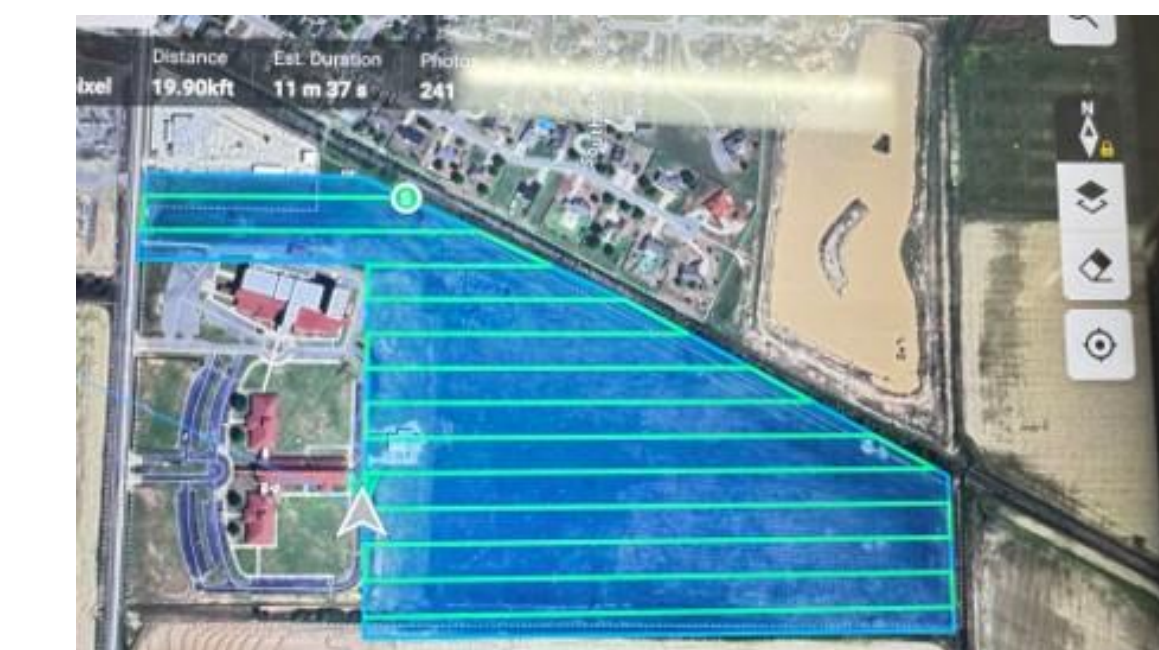


Drone image with RGB camera of a rice field partially harvested – Combine is to the left of the photo. Field had Sheath Blight disease but following IPM procedures allowed the field to mature without the need for a fungicide spray.



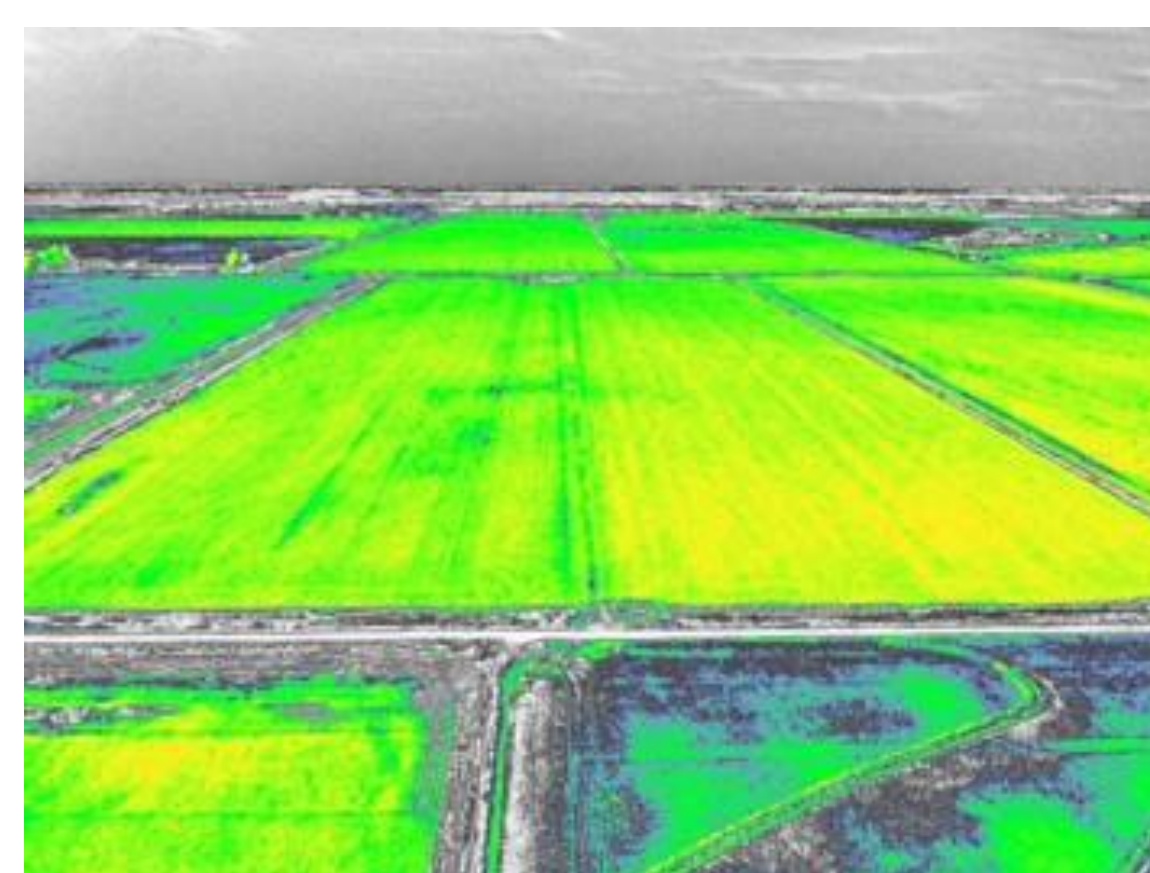
Multispectral Image from same position as the RGB photo. Sheath Blight is easily more visible with the multispectral image.

Community Development



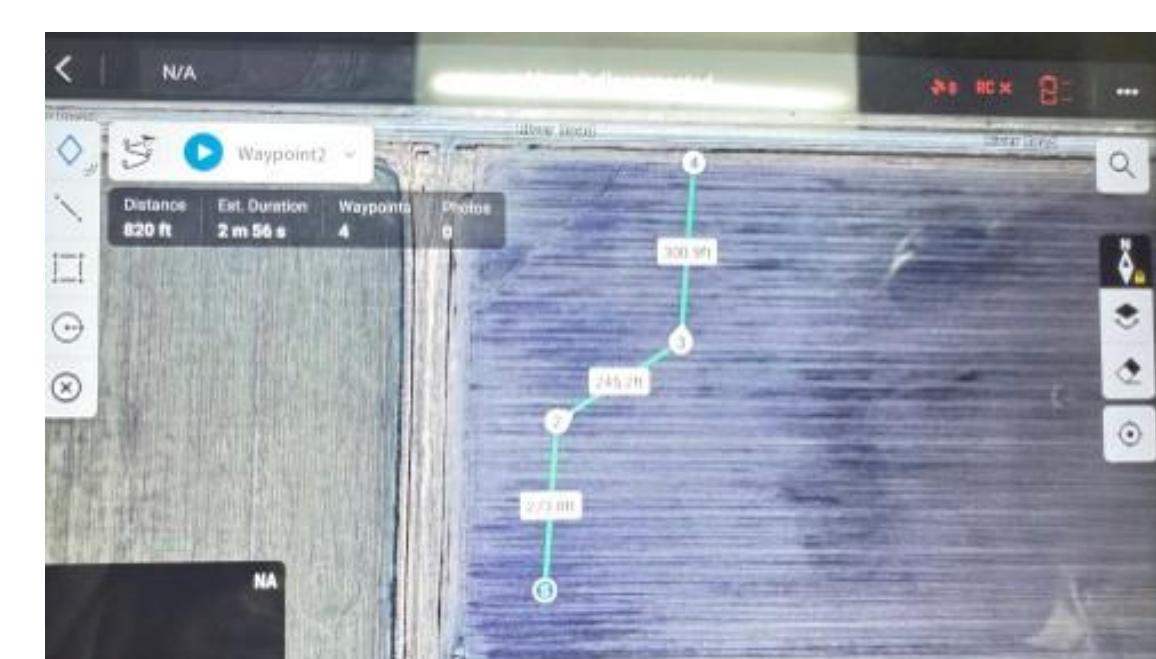
Stuttgart High School has a Cross County Team and was going to utilize land behind the local community college for a course. The drone was utilized to document the land, above left shows drone flight path. GIS software was utilized to make a final map for the school with the exact distances determined thanks to the drone imagery and GIS software.

Multispectral Imagery



Soybean Fungicide Multispectral Image
 A multispectral image is an image that captures information from multiple bands (or wavelengths) of the electromagnetic spectrum, going beyond the visible spectrum that humans see

Row Crop Irrigation Design



Drone use with RTK allows us to collect elevation data which is used for more efficient furrow irrigation project designs. Above image is a high point where the pipe will need to be laid.

Conclusion

Integrating drone technology into county Extension programming empowers educators to deliver more efficient, engaging, and data-driven services. From enhancing agricultural practices to expanding outreach through dynamic visual content, sUAS offer transformative potential for meeting the evolving needs of our communities. By embracing this innovation, Extension can continue to lead with relevance, responsiveness, and impact

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