



USING DRONES IN AGRICULTURE

Unmanned aerial vehicles, known as “drones,” are increasingly popular for capturing aerial images. The United States Federal Aviation Administration eased their regulations for drone flights in June 2016, making drones more accessible for common use.

Drones may supplement pre-existing imaging technology (e.g. satellites, manned aircraft, etc.). One case study in Nebraska found a niche application for drones. The participating producer used manned aerial imagery to identify potential problem spots in his fields. Then he used GPS navigation to direct the drone to more closely inspect the identified potential problem spots. This way the drone is not tasked with scouting entire fields – an unrealistic and time-consuming option for a large farm, while providing valuable information about crop issues in certain areas.

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BENEFITS OF DRONE USE

- ▶ Site-specific images (plant-by-plant)
- ▶ Accurate stand counts and weed maps
- ▶ Sensors mounted to drones can obtain data for crop health (e.g. near infrared data and normalized difference vegetation index)

CHALLENGES OF DRONE USE

- ▶ High capital costs for drone equipment and labor costs for drone navigation and data management
- ▶ Strict regulations limit drones to only small areas in a single flight
- ▶ Battery power limitations

OTHER INFORMATION

High costs prohibit many service providers from offering affordable drone flight services. However, crop producers may choose to purchase drones they can use themselves. These crop producers can then partner with startup businesses that have “bring-your-own-drone” business models. In this model, crop producers upload images they captured themselves to a company’s portal. The company then quickly returns processed data and maps to the producer. This model allows producers to capture and use their own images without the added responsibility of interpreting the image data themselves.