

AGRICULTURE'S EYE IN THE SKY

Flight Basics for Drones

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Drones in Agriculture and Extension

Drones are becoming increasingly popular for use in the agricultural industry. Drone pictures and video can be an asset to any presentation, publication, or considered as a piece of art. Drone flight operations are easily learned with no prior flight knowledge or drone experience.

FAA Regulations

All drones must be registered with the Federal Aviation Administration (FAA). Part 107 governs all rules and regulations associated with drones weighing between 0.55 lbs to 55 lbs. Approved flight operations include:

- Crop monitoring/inspection
- Research and development
- Educational/academic uses
- Power-line/pipeline inspection in hilly or mountainous terrain
- Antenna inspections
- Aiding certain rescue operations
- Bridge inspections
- Aerial photography
- Wildlife nesting area evaluations

Licensing

All drone pilots are required to have a license if they are using their drones for any kind of paid reimbursement or for non-recreational use off of their own property. Routes for obtaining an Unmanned Aircraft Systems (UAS) license include:

- Private pilot license
- UAS pilot license

A drone pilot does not necessarily have to be the person flying the drone, but they should observe all flight operations. This is called **Pilot in Control (PIC)**.

Important Flight Rules

- Maximum altitude is 400 feet
- Range is only as far as the pilot can see unaided
- Drones should be flown within the specifications in the operator's manual
- Drones cannot be legally modified to carry additional items
- Drones should not be flown over crowds or populated areas
- The PIC needs to consider weather conditions and any obstructions for flight safety before takeoff
- Flights are legal 30 minutes before sunrise until 30 minutes after twilight



DJI Phantom 3 Advanced

This drone features the option of a built-in flight simulator for additional practice before it is actually flown.

- Built-in camera records video in 2.7k quality and takes 12 megapixel photos
- Camera is stabilized with a 3-axis stabilization gimbal
- Utilizes a live HD view on the controller
- GPS guidance
- Weather requires wind speeds of less than 15 mph



The drone used to create the video and images shown on this poster was a DJI Phantom 3 Advanced. Left is a video taken with this drone model.

Below and below right are arial images of crop production at Beam Farm in Clinton County, Ohio, taken using the same DJI Phantom during the day and at night.

