



JHW UNMANNED
S O L U T I O N S

UAS/Drones in Agriculture

FAA REGULATIONS FOR AGRICULTURAL OPERATIONS

Milestones in Civilian Drones

This is a VERY New Industry



Congress mandated
FAA create rules for the
operation of drones

2012

FAA provided authorization for
film and TV production
companies for
Tom Cruise to star in
Top Gun 2 alongside drones

2014

FAA began
requiring small
drones to be
registered

2015

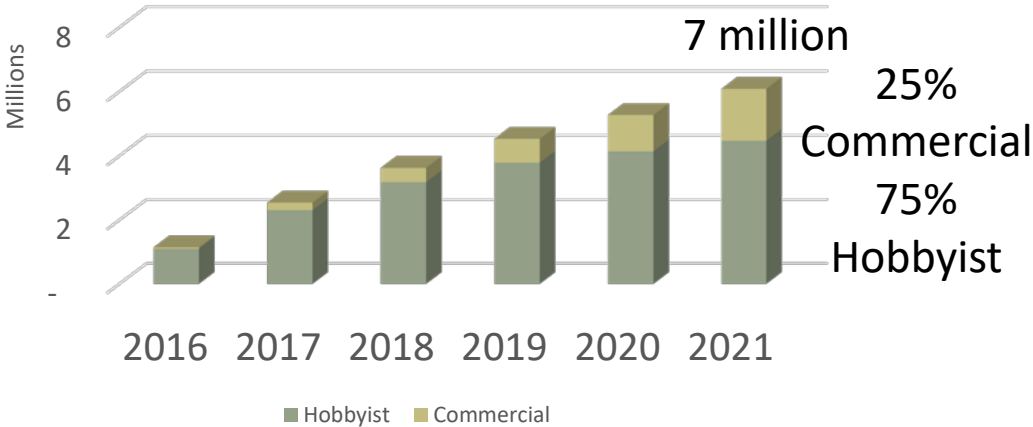
FAA rules regarding
hobbyists versus
commercial drone
operators went into
effect (Part 107)

2016

Today more than 1 million
drones are registered in the
U.S. Forecasts are for 7 million
by 2021

Compare to 250,000
manned aircraft in 100+
years of flight

sUAS Fleet in USA





What Rules Apply to Agricultural Uses?

Hobbyist

“Flying for enjoyment, recreation, outside of work and not for work, business purposes, or for compensation or hire.”

Considered a model aircraft

Does not require a drone pilot license

EXAMPLE:

Farmer using recreational drone to view farm from the air



CYMODEL Spitfire

Commercial

“Flying for work, business, non-recreational reasons, or commercial gain.”

This typically includes flying a drone for hire, compensation, to provide a service, or for economic benefit of an entity or person. Intended use, not compensation, is the determining factor.

Considered FAA regulated aircraft operations under Part 107 and requires a licensed drone pilot

EXAMPLES:

Farmer uses drone weekly to capture multispectral images of crops to support watering and pesticide application

Agronomist uses drone to survey farms in support of advising farmers on health of crops

Commercial Ops & Registration



FAA Part 107 Rule

If a drone is being flown as hobbyist, no licensing is required.

If a drone is being flown commercially, under the FAA UAS Part 107 rule, the pilot must obtain a "Remote Pilot Airman Certificate" As of the end of 2017, there were 70,000 licensed, commercial drone pilots.

- **FAA Remote Pilot Knowledge Test:** 60 question multiple-choice exam administered at FAA-approved knowledge testing centers; costs \$150
- **Other requirements:** Pilot must be 16 years of age and must pass TSA security vetting. There is no practical testing of a pilot's operating skills.

Penalty for not complying with rules is \$1,100 per violation for the pilot and \$11,000 for the organization

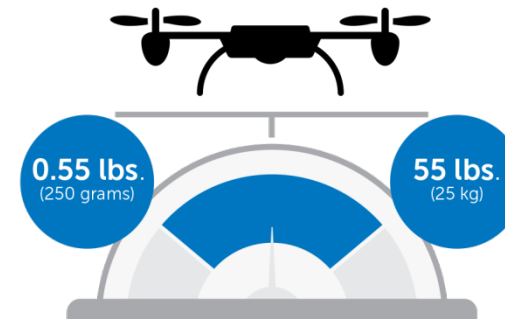
Registration with FAA

Federal law requires that ALL small unmanned aircraft (drones) weighing more than .55 pounds and less than 55 pounds be registered with the FAA

Registration is required for both recreational and commercial use

- Registration for hobbyist has been controversial, but Congress passed a law Dec 2017 requiring all drones to be registered under the National Defense Authorization Act

Drones must be marked with the registration number



Government vs. Civil Operators (AC 00-1.1A)



“public aircraft” means any of the following:

- Aircraft used only for the United States Government
- An aircraft owned (or leased for at least 90 days) and operated by the government of a State, the District of Columbia, or a territory, or a local government
- An aircraft chartered to provide transportation or other commercial air service to the armed forces

“public aircraft operation” means:

- Aircraft operated in accordance with Title 10 (Military rules);
- Aircraft operated in the performance of a governmental function or
- Aircraft chartered to provide transportation or other commercial air service to the armed forces



Image Smithsonian

“civil aircraft” are any aircraft that are not “public aircraft”

Public Aircraft become civil aircraft if they are operated for transportation of persons or property for compensation or hire



Image UAS Magazine

Part 137 Agricultural Aircraft Operations



This regulation prescribes rules governing Agricultural aircraft operations within the United States; and the issue of commercial and private agricultural aircraft operator certificates”

Private operator— must hold a current U.S. private, commercial, or airline transport pilot certificate

Commercial operator— must have available at least one person who holds a current U.S. commercial or airline transport pilot certificate

Aircraft -- must have at least one certificated and airworthy aircraft, equipped for agricultural operation.

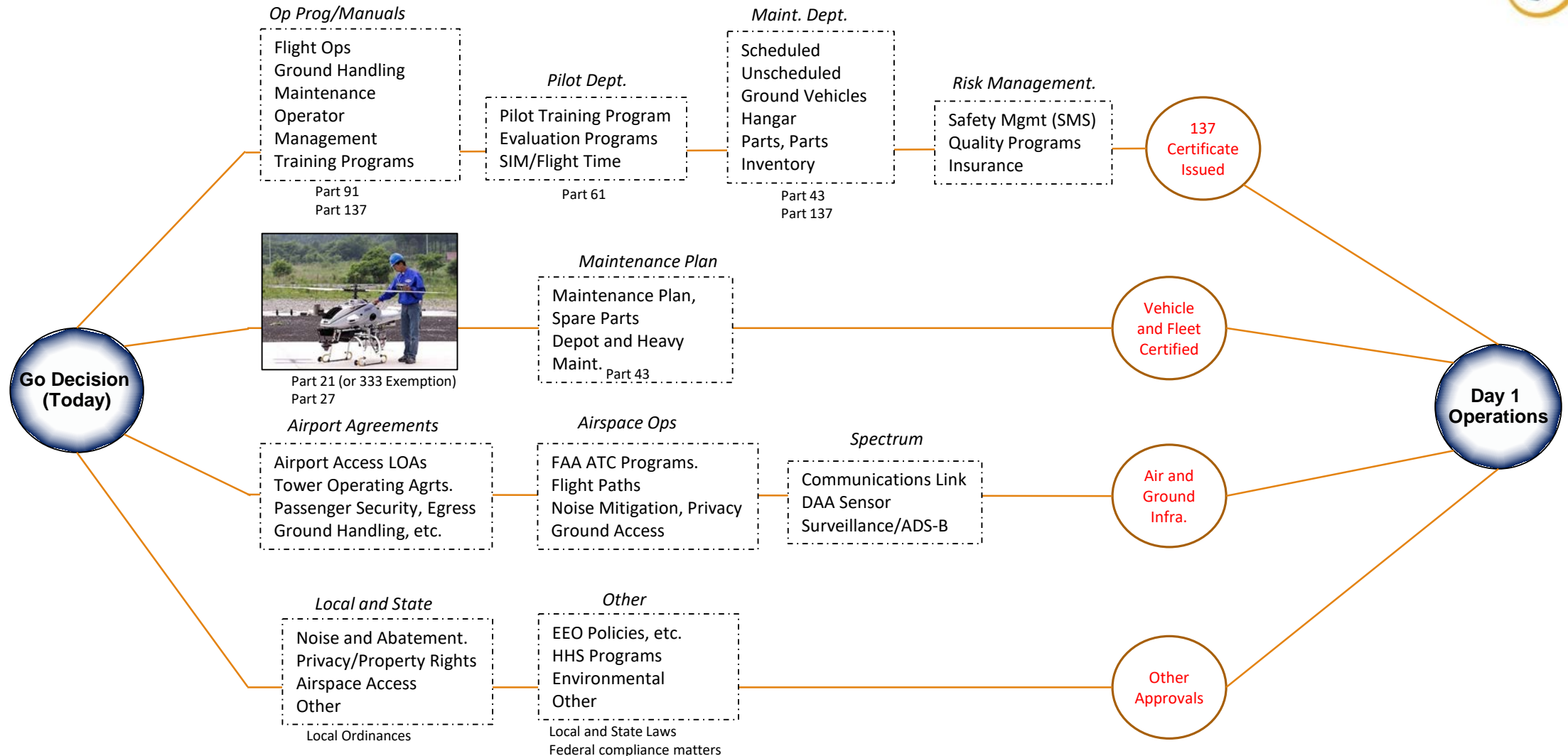
Knowledge and skill tests -- The chief supervisor of agricultural aircraft operations must show satisfactory knowledge and skill regarding agricultural aircraft operations (includes EPA Rules on chemical handling)



Yamaha Fazer – photo Yamaha

“No person may conduct agricultural aircraft operations without, or in violation of, an agricultural aircraft operator certificate issued under this part.”

Getting a Crop Spraying Service Going



Waiver or Exemption?



PART 107 RULES THAT CAN BE WAIVED

- (a) Operation from a moving vehicle or aircraft. (not for package delivery)
- (b) Daylight operation.
- (c) Visual line of sight aircraft operation. (not for package delivery)
- (d) Visual observer.
- (e) Operation of multiple drones per pilot
- (f) Yielding the right of way to manned aircraft
- (g) Operation over people.
- (h) Operation in controlled airspace.
- (i) Speed, altitude, and visibility limitations

Waiver process for operations in controlled airspace:
Low Altitude Authorization and Notification Capability
(LAANC – pronounced “lance”)



Snap Drone – Approved for flight over people



EXEMPTIONS

Any FAA regulation can be exempted if not required by law

Examples:

UAS over 55lbs. Operated per Part 107 (Yamaha Fazer)





Questions?

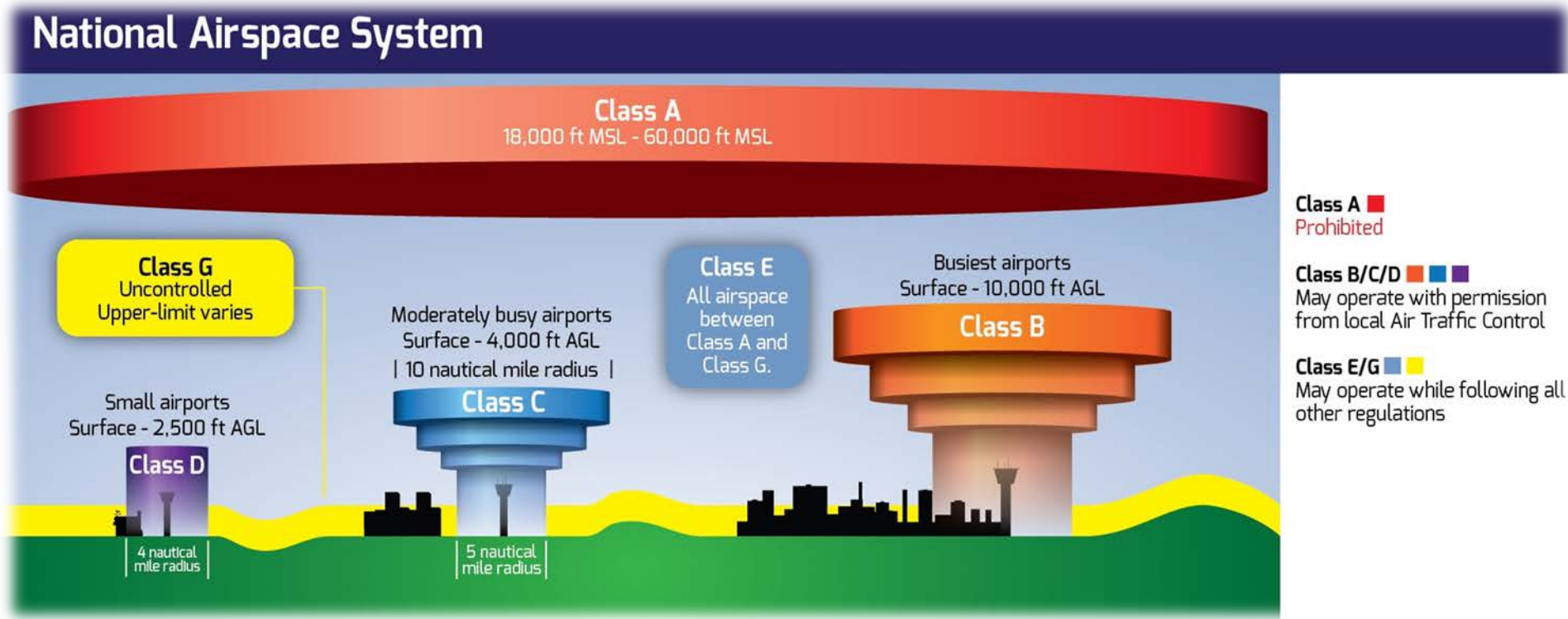


Airspace Categories - Regulatory and Non-regulatory

The two categories of airspace are: Regulatory and Non-Regulatory.

Within these two categories there are four types:

- Controlled, Uncontrolled, Special use, and other airspace.



Current Civil UAS Airspace Environment

