



# How to Become a Certified UAV (Drone) Pesticide Applicator in Virginia

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## Overview

Uncrewed aerial vehicles (UAVs) are increasingly used for a wide range of agricultural purposes, including inspecting and pollinating crops, monitoring pests, and applying pesticides. This factsheet reviews basic information on pesticide application with drones; outlines the federal, state, and local requirements to operate legally; and provides contact information and links to help you get started. It also discusses the importance of staying up to date.

## What Is a UAV?

A UAV is any aircraft that can be operated remotely. Other names include drone, uncrewed aerial system (UAS), and uncrewed aircraft (UA). This factsheet uses the terms “UAV” and “drone” interchangeably.

## Benefits and Challenges of Using UAVs for Pesticide Application

Pesticide application with drones has many benefits over larger aircraft and some ground-based equipment. However, drones also have limitations. To use them effectively, it is important to know where they fit best.

### Benefits

- **Precision** – UAVs can apply the exact amount of product to a precise location.
- **Flexibility** – UAVs are able to reach hard-to-access locations.
- **Cost** – Most UAVs have lower start-up and operating costs than full-sized aircraft.
- **Safety** – UAVs pose fewer hazards to pilots and people on the ground when used correctly.

### Challenges

- **Payload** – Many UAVs have a limited payload capacity compared to full-size aircraft.
- **Range** – UAVs have a shorter treatment range due to limited battery life and visual contact rules.
- **Label restrictions** – At the time of this writing, pesticide labels do not offer UAV-specific label instructions.

## How to Become Certified

In Virginia, three types of certifications are required to apply pesticides with UAVs (fig. 1).

**Individuals** – To become a certified UAV pesticide applicator, you must meet both federal and state requirements. Federal requirements cover UAV and pilot certification; Virginia requirements cover pesticide applicator certification.

**Businesses** – To operate a UAV pesticide application business, you must also obtain the appropriate state and local business licenses and insurance.

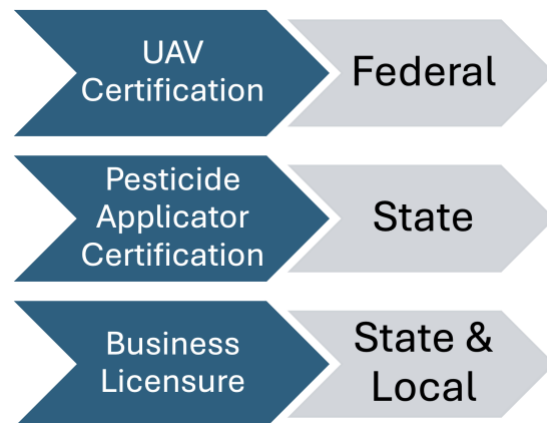


Figure 1. To legally apply pesticides with a UAV, you must meet federal, state, and local requirements.

# UAV Certification – Federal

Certification for UAV agricultural pilots is granted by the Federal Aviation Administration (FAA) and governed by Federal Aviation Regulations (FAR). To become a certified agricultural UAV pilot, follow these steps.

## Step 1: Register your UAV

All UAVs, including those equipped for pesticide application (fig. 2), must be registered with the FAA. Each UAV will receive a unique registration number, which must be displayed on the drone during flight. If your UAV weighs more than 55 pounds at takeoff, additional exemptions may be required (see Step 4). To register your UAV, visit: <https://faadronezone-access.faa.gov/#/>.



Figure 2. UAVs equipped for pesticide application. (Vijay Singh and Dana Beegle, Virginia Tech)

## Step 2: Obtain UAV pilot certification (FAR Part 107, with attention to Parts 61 and 91)

**FAR Part 107** – All UAV operators must obtain a Remote Pilot Certificate under Part 107. This license is required to fly a UAV of any size. To earn it, you must pass a knowledge test, complete a security screening, and pay a fee. Study guides and training materials are available online to help you prepare. For more information on obtaining a Part 107, visit: [www.faa.gov/uas/commercial\\_operators/become\\_a\\_drone\\_pilot](http://www.faa.gov/uas/commercial_operators/become_a_drone_pilot).

**FAR Parts 61 and 91** – If your UAV weighs more than 55 pounds at takeoff, you may also need to follow additional rules under Parts 61 and 91. These regulations cover the operation of larger aircraft, including heavy UAVs.

**Medical certificate** – As part of your pilot certification, you might be required to get a medical certificate. This confirms that you are physically and mentally fit to operate a drone safely. For information on medical certificates, visit: [www.faa.gov/pilots/medical\\_certification/get](http://www.faa.gov/pilots/medical_certification/get).

## Step 3: Obtain agricultural aircraft certification (FAR Part 137)

All UAV operators wishing to apply pesticides must also obtain certification under FAR Part 137. This allows you to operate an aircraft (including a UAV of any size) for agricultural purposes, including applying pesticides. For more information on obtaining a Part 137, visit: [www.faa.gov/uas/advanced\\_operations/dispensing\\_chemicals](http://www.faa.gov/uas/advanced_operations/dispensing_chemicals).

## Step 4: Apply for exemptions (Section 448067)

All UAV pilots who want to apply pesticides must get FAA exemptions under Section 44807. Exemptions are necessary because many FAA rules in Parts 61, 91, 107, and 137 do not fit UAV pesticide operations. For example, Parts 61, 91, and 137 set pilot and flight rules meant for crewed aircraft. Part 107 limits specific pesticide applications.

To operate legally, UAV pilots must request exemptions from these rules. Some exemptions cover how the UAV is flown, aircraft requirements, or pilot requirements. Others are necessary to apply pesticides from a UAV legally.

Each UAV pesticide operation is different, so the exemptions needed will vary. **IMPORTANTLY:** Exemptions are not automatic or guaranteed — they are approved on a case-by-case basis and must be granted **BEFORE** operating a UAV outside standard FAA regulations. Without them, you are breaking the law and subject to substantial fines.

*NOTE: New, more streamlined FAA rules for UAVs are in progress. Guidance will be released soon.*

# Pesticide Applicator Certification – State

Certification for Virginia pesticide applicators is granted by the Virginia Department of Agriculture and Consumer Services (VDACS). To become a certified aerial pesticide applicator in Virginia, follow these steps.

## Step 1: Determine the type of pesticide certification you need

To apply pesticides with a UAV in Virginia, you will need to be certified as either a commercial aerial applicator (Category 11), registered technician, or private applicator (Categories 90 & 91). The type of certification needed will depend on your job duties and where and for whom you work.

### Commercial aerial applicator (Category 11)

To apply any pesticide (general use or restricted use) from a UAV for hire, you must be certified as a commercial aerial applicator. Commercial applicators also include those who are not-for-hire or government employees. Examples of commercial aerial applicators include

- A drone operator who works for an aviation business hired to apply pesticides on a commercial farm.
- An employee of a municipality who wants to use a UAV to spot spray pesticides on a state-managed natural area.

### Registered technician

Ground crew members who assist commercial applicators with specific job duties also require pesticide certification. These individuals include

- **Pesticide handlers** who mix/load pesticides, service pesticide-contaminated equipment, and dispose of pesticides and pesticide containers.
- **Visual observers (VOs)** who help pilots see/avoid other air traffic or objects in the air or on the ground during a pesticide operation.

*NOTE: This certification type is required only for commercial ground crew members.*

### Private applicator (Categories 90 & 91)

To apply restricted-use pesticides (RUP) from a UAV on agricultural property you own or farmland where you work, you will need to be certified as a private applicator. Examples of private applicators include

- A farmer who wants to apply an RUP with a drone to their own crops.
- A farm employee who wants to apply an RUP with a drone to their employer's cropland.

*NOTE: In the future, a new certification category, Category 94: Private Aerial Application, will be required for private applicators who use aircraft (including UAVs) to apply pesticides. This category is not yet required, but it will be necessary for future private aerial applicators.*

For help determining the type of certification you need, visit: [www.vdacs.virginia.gov/pesticide-applicator-certification.shtml](http://www.vdacs.virginia.gov/pesticide-applicator-certification.shtml).

## Step 2: Apply to take the required exam(s)

To become a certified applicator or registered technician, you must pass the required competency exam(s). Table 1 shows the certification categories and exams needed for each applicator type.

Please note that only qualified applicants are eligible to test. Requirements include

- **Commercial aerial applicator** – Work as a registered technician for at least one year OR provide proof of formal education, training, or equivalent experience.
- **Registered technician** – Complete an approved training program and 20 hours of on-the-job training under the direct supervision of a certified commercial applicator.
- **Private applicator** – Complete an approved training program that requires, at a minimum, the study of the appropriate training manuals.

Once you know your applicator type and have met the minimum requirements to test, apply for approval to take the exam(s) by visiting: <https://online.vdacs.virginia.gov/>.

Table 1. Required certifications, exams, and corresponding training manuals for aerial applicators and registered technicians in Virginia.

Applicator Types	Required Certification Categories	Required Exams	Training Manuals
<b>Commercial Aerial Applicator</b>  <i>A minimum of 3 certifications &amp; 3 exams</i>	99	Commercial Applicator Exam	Virginia Core
	11	Aerial Pesticide Application Exam	Aerial Pesticide Application
	<i>Earn at least one certification relevant to your work, such as:</i> 1A (Ag. Plant) 2 (Forest) 5A (Aquatic) 6 (Right-of-Way) 8 (Public Health)	Associated commercial category exam(s) <i>(1 exam per category)</i>	Associated commercial category manual(s) <i>(1 manual per category)</i>
<b>Registered Technician</b>  <i>1 certification &amp; 1 exam</i>	60	Registered Technician Exam	Virginia Core
<b>Private Aerial Applicator</b>  <i>2 certifications &amp; 1 exam</i>	90 & 91 (Ag. Commodity and Ornamental Production)	Private Applicator Exam	Virginia Core
	94*	Aerial Pesticide* Application Exam	Aerial Pesticide Application

\*Category 94 is not yet available or required but will be necessary for private aerial applicators in the future.

### Step 3: Study the manual(s) and take the required exam(s)

The best way to prepare for your pesticide certification exam(s) and become a competent pesticide applicator is to read and study the appropriate training manual(s). Table 1 lists the manual corresponding to each exam. All manuals include study tips, review questions, and guidance for exam day. To order pesticide training manuals, visit: <https://vtpg.org>.

Virginia's *Aerial Pesticide Application* manual is important for any aerial applicator. It includes a chapter dedicated to the use of UAVs, covering best management practices, drift mitigation, and safety protocols specific to UAV operations. It also provides pre- and post-flight checklists to ensure each operation is safe, effective, and complies with all regulations.

## Business Licensure – State and Local

To legally operate a pesticide application business in Virginia you must get at least two types of business licenses:

1. **Pesticide business license** – These are granted by VDACS. Businesses must show proof of liability insurance and have a commercial aerial applicator on staff. To apply for a Virginia Pesticide Business License, visit: [www.vdacs.virginia.gov/pesticide-business-license.shtml](http://www.vdacs.virginia.gov/pesticide-business-license.shtml).
2. **Local business license** – These are granted by the town/county in which you are registered to do business. Requirements vary, but often include an annual fee, income records, and proof of insurance. In most cases, you are required to get a business license in EACH town/county you do business in.

## Staying Up to Date

Federal UAV and Virginia certifications and licenses have set expiration dates. Keep track of each date and renew them on time to avoid lapses and penalty fees. Some certifications and licenses require you to attend continuing education courses or retake exam(s). This not only keeps your credentials valid but also ensures you stay informed on the latest UAV and pesticide application practices.

## Disclaimer

This factsheet is for general information only. It is your responsibility to stay up to date on the most current laws and regulations to ensure you are operating legally and safely.



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