Applying pesticides by drone in Canada

Check pesticide labels for aerial use

If using a RPAS for in-crop pesticide applications, Canadian product labels must allow aerial application. RPAS use is prohibited if:

- the label states ⚠ **"DO NOT apply by air,"**
- the label states ⚠ **"DO NOT apply by RPAS,"** or
- the label requires a closed cab for ground application that **cannot be met by the RPAS work setup.**

Transport Canada rules apply

Carry your RPAS **pilot certificate**

RPAS **registration**

Check **NAV RPAS airspace requirements.**

Provinces and territories may have additional training, certification, setbacks, or recordkeeping requirements. **Check what is needed in your province before flying.**

Dangerous Goods

When working with pesticides classified as dangerous goods, they must be used, handled, offered for transport, imported, and transported in compliance with the **Transportation of Dangerous Goods Regulations.**

Documentation

Keep flight logs, product details, location, weather, and any issues noted during the job.

Additional information:

Unmanned Aerial Pesticide Application System Task Force (UAPASTF)

UAPASTF BMP report

Sprayers101

RPAS Pesticide Application Guide

Before application

- ❑ Confirm that drone application is the appropriate method for the target pest and crop situation before flying.
- ❑ Confirm pilot and visual observer certifications, RPAS registration, and airspace authorization before takeoff.
- ❑ Use only products labeled for aerial application and open cab. Check the label for “DO NOT apply by air” “DO NOT apply by RPAS” or “closed cab required” which make RPAS use prohibited.
- ❑ If a label requires the use of a closed cab for ground application, the product must not be applied using an RPAS unless an equivalent “closed cab” protection, designed for RPAS, is available for the pilot. If such protection is not available, the pesticide cannot be applied using an RPAS.
- ❑ Read and follow the label for rate, water volume, timing, nozzle and droplet size requirements, personal protective equipment (PPE), buffers, and sensitive-area restrictions.
- ❑ The RPAS crew (operator/pilot, visual observer, maintenance, individuals working near the application area, and mixers/loaders) must follow all label PPE requirements. The required minimum PPE for all pesticide products applies to all activities and consists of a long-sleeved shirt, long pants, chemical-resistant gloves, socks and shoes unless otherwise specified on the label.
- ❑ If RPAS PPE is not specified on the label the drone pilot and visual observers must follow the PPE and safety measures of ground application on the label.
- ❑ The person mixing and loading must be different from the RPAS pilot, as required on conventional aerial labels. PPE requirements may change if the person moves into the treated area or changes roles.
- ❑ If mixing multiple products (provided the label allows mixing products), conduct a compatibility test prior to mixing as low water volume mixtures used in RPAS application may magnify any incompatibilities between products and could damage crops. Verify compatibility of all tank mix components and note any requirements for batching and mixing procedures, agitation systems, etc. If mixing in small quantities, make sure to use appropriate dosing equipment (measuring cylinder; syringe, etc.)
- ❑ Ensure that the drone tank is clean to avoid cross contamination.
- ❑ Inspect the drone, batteries, pumps, nozzles/atomizers, controller, job map and ensure equipment is properly calibrated.
- ❑ Survey the surrounding area for waterways, pollinators, adjacent sensitive crops, roads, power lines, and bystanders.
- ❑ Check weather conditions. Avoid high winds, temperature inversions, or conditions that may increase off target movement and implement any necessary mitigations.
- ❑ Use closed transfer systems when required.
- ❑ A visual observer may be used to monitor surroundings and ensure safety during flight. High visibility gear is suggested.

During application

- ❑ Ensure crew members remain outside the spray path and upwind of RPAS during application.
- ❑ Follow label and legal buffer zones; do not fly above people or spray toward sensitive areas.
- ❑ Measure the wind at point of release and avoid applying during wind gusts or during temperature inversions.
- ❑ Avoid zigzag passes and turn overlap, shut off spray on row turns, waterways, and partial swaths.
- ❑ Within labelled parameters, adjust droplet size, flight height, speed, and water volume to reduce drift and improve coverage.
- ❑ Maintain a stable flight height and consistent flight speed to ensure even pesticide distribution.
- ❑ Use GPS based flight planning for consistent swath coverage and accuracy.
- ❑ Pay attention to terrain changes and obstacles.
- ❑ When reloading the drone, be aware of potential pesticide residues on equipment and wear proper PPE for mixing/loading and handling. Make sure the rotor is inactive, check battery charge level, and change batteries if needed.

After application

- ❑ Complete flight and spray records before leaving the site, this may include flight logs, product details, location, weather and any issues noted during the job. Adhere to all federal, provincial and territorial requirements for record keeping.
- ❑ Wear required PPE when handling the drone, pesticide containers, and any contaminated equipment.
- ❑ Clean equipment thoroughly and dispose of rinsate according to label and regulatory requirements.
- ❑ Monitor treated areas for effectiveness and any signs of off target impact.
