



# Drone Exploring: Career Spotlights

Agriculture — Post

**Overview:** This session takes a serious look at precision agriculture as a career: the role of drone operators in crop health monitoring, irrigation analysis, and pesticide and fertilizer application, the certifications required (FAA Part 107 plus Part 137 for agricultural aircraft operations), and realistic pay ranges. Explorers build a mock crop health report using NDVI concepts and plan a compliant spray mission.

## OBJECTIVES

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- Understand the role of a drone operator in precision agriculture and the data they collect.
- Learn what FAA Part 107 and Part 137 certifications require, and why both matter for agricultural spraying.
- Identify realistic pay ranges from entry-level scouting roles to specialized agricultural drone positions.
- Practice building a mock crop health report and a compliant spray mission plan.

## SUPPLIES

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- Laptop and projector to show sample NDVI (crop health) imagery
- Printed handouts: Career Pathway — Agricultural Drone Operator and Field Report Worksheet
- Whiteboard or flip chart and markers
- Optional: printed or digital copy of FAA's free Part 107 study guide ([faa.gov/uas](http://faa.gov/uas))

## ADVISOR NOTES

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- This session is career focused. Use real certification requirements, real pay ranges, and real agronomy concepts rather than a hobbyist framing.
- Clarify the difference between Part 107 (required for all commercial drone flying) and Part 137 (additional certification required specifically for agricultural aircraft operations like spraying).
- Encourage Explorers who are 16 or older and interested to look at the FAA Part 107 study guide as a concrete next step after this session.
- Consider inviting a guest speaker who works in precision agriculture, agronomy, or agricultural drone operations to share their career path. See Optional Extensions.
- If no guest speaker is available, Advisors can run the entire session using this outline, the Career Pathway handout, and the resource links below.

## SESSION OUTLINE

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- **Welcome and Icebreaker** (10 min)
  - “What do you think is harder to get right: growing a crop, or knowing exactly when and where it needs help?”
- **Safety and Regulatory Moment: Part 107 and Part 137** (10–15 min)
  - Review the FAA Part 107 Remote Pilot Certificate: minimum age 16, required knowledge test.
  - Explain Part 137: the additional FAA certification required for agricultural aircraft operations, such as spraying pesticides or fertilizer.
  - Discuss why chemical drift, weather conditions, and precise flight paths matter for spray operations.
- **Mini-Lesson: The Business of Precision Agriculture** (15–20 min)
  - Roles: agricultural drone pilot, crop scouting and data analyst, agronomist working with drone data.
  - Introduce NDVI (Normalized Difference Vegetation Index): a way of using drone imagery to measure plant health based on how they reflect light.
  - Typical pay: entry-level scouting and support roles around \$17-\$27/hour; specialized agricultural drone pilot roles range \$81,000-\$185,000/year.
- **Activity: Build a Crop Health Report** (20 min)

- Using sample NDVI-style imagery or a diagram, small groups identify healthy vs. stressed zones in a mock field and summarize findings in a short report.
- **Activity: Plan a Compliant Spray Mission (15–20 min)**
  - Using the Field Report Worksheet, groups plan a mock spray mission: target zones, weather check, buffer zones near water or homes, and required certifications.
- **Wrap-Up Discussion (10 min)**
  - Groups present their crop health reports and spray plans.
  - Discuss the concrete steps (certification, agronomy knowledge, equipment) needed to pursue this as a career.

## REFLECTION SECTION

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*Advisor Note: Some sample questions are below. They are designed to help the participants apply what they have learned to their own interests. You are welcome to use these questions or develop your own.*

### Focusing Questions

- What surprised you about how much regulation goes into agricultural drone spraying?
- What part of precision agriculture (scouting, data analysis, spraying) sounds most interesting to you?

### Analysis Questions

- Why does spraying require a separate certification from basic commercial drone flying?
- How could catching a crop problem early save a farmer money and resources?

### Generalization Questions

- How is precision agriculture like using data to make better decisions in other fields?
- What other careers combine science knowledge with technical piloting skills, like this one does?

**Challenge: This week, research one company or university program offering agricultural drone training and identify what certifications they recommend.**

## OPTIONAL EXTENSIONS

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**Guest Speaker:** Invite someone who works in precision agriculture, agronomy, or agricultural drone operations to share their career path and take questions, in person or by video call.

**Advisor-Led Option:** If no guest speaker is available, Advisors can run the full session using this outline, the Career Pathway handout, and the resource links below — no outside expert is required.

**Resource Links:** FAA Part 107 overview ([faa.gov/uas/commercial\\_operators](https://www.faa.gov/uas/commercial_operators)); FAA Part 137 agricultural aircraft operations information; university or extension program resources on precision agriculture.

**Extension Project:** Explorers who are 16 or older can begin studying for the actual Part 107 knowledge test using the FAA's free study guide.

# Handout: Career Pathway — Agricultural Drone Operator

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*A typical path into this career looks like this:*

## **1. Interest and Hobby Flying**

Learn basic drone operation and become comfortable with mapping and flight-planning apps.

## **2. FAA Part 107 Certification (Age 16+)**

Pass the FAA knowledge test to legally fly for pay; typical study time is 2-4 weeks, with a \$175 test fee.

## **3. Agronomy Knowledge and Data Skills**

Learn to interpret NDVI and other crop-health imagery, often through agronomy coursework or on-the-job training.

## **4. Part 137 Certification (for Spraying)**

Earn the additional FAA certification required to legally apply pesticides or fertilizer by drone.

## **5. Specialized Roles**

Entry-level scouting and support roles pay roughly \$17-\$27/hour; specialized agricultural drone pilots can earn \$81,000-\$185,000/year.

# Handout: Field Report Worksheet

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*Use this worksheet to document your mock crop health report and spray plan.*

| Planning Item                      | Your Findings and Plan | Notes and Risks |
|------------------------------------|------------------------|-----------------|
| Zones with healthy plants          |                        |                 |
| Zones with stressed plants         |                        |                 |
| Weather go or no-go for spraying   |                        |                 |
| Buffer zones (water, homes, roads) |                        |                 |
| Required certifications            |                        |                 |