



AG DRONE SCHOOL

Drone School for Farmers & Agronomists

FLY SAFELY

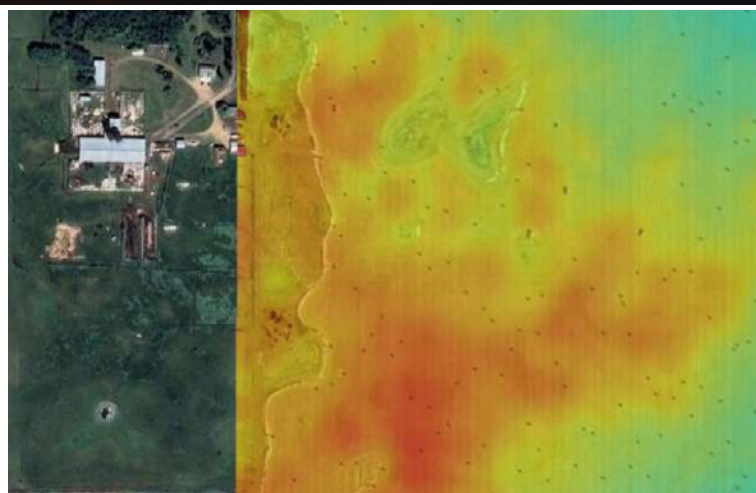
- Flight training suitable for complete beginners
- From first takeoff to autonomous field mapping
- DJI Tello included, to keep practicing at home

FLY LEGALLY

- Basic ground school: air law, drone systems, theory of flight, human factors, meteorology, navigation, flight operations
- Take the Transport Canada online test for your Basic Pilot's Certificate

SAVE TIME & MAKE MONEY

- 101 uses for farm drones: practical examples
- Demystifying the remote-sensing jargon: NDVI, VARI, multispectral, thermal, DEM's
- Hands-on:
 - Flying mapping missions
 - Creating orthomosaics & 3D models
 - Software workflows for agronomy



Kindersley Campus
514 Main Street Kindersley, SK

March 15-16, 2022, 8:30-4:30

\$590 registration - includes Tello drone
for practice at home

SEE YOUR FARM IN A NEW LIGHT

**FOR MORE INFORMATION
OR TO REGISTER:**

(306) 463-6431

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DAY ONE: MORNING

TUESDAY, MARCH 15

8:30 a.m. Welcome & Introductions

9:00 a.m. Introduction to RPAS

Remotely Piloted Aircraft Systems: history of development, purposes and applications; airframes and propulsion systems, and the theory of flight.

10:00 a.m. On-Farm Uses of Drones

Once students are familiar with the basic flight technology and its capabilities, we will go through many different uses for drones on the farm. This presentation will start with a brief discussion of the different types of sensors that have applicability to agriculture (RGB, NIR, thermal, lidar) and we will then give many examples of how those are being actively used on farms today.

11:00 a.m. Certification Process & Intro to Air Law

Introduction to the legislation around RPAS operations, the Canadian Aviation Regulations, and the process for acquiring a Pilot's Certificate. Participants will examine the airspace restrictions in their area to determine which level of certification will be required.

DAY ONE: AFTERNOON

12:00-1:00 LUNCH

1:00 p.m. Human Factors, Site Survey & Pre-Flight Planning

Continuation of RPAS ground school, including review of the human factors in aviation. This session will also include discussion of many factors to be considered for safe flight operations, including meteorology, field hazard assessment, navigation, radiotelephony and flight operations.

2:00 p.m. Manual Flight Manoeuvres

Participants will learn to fly through a series of practice flights, under the direct supervision of an experienced operator and instructor. Typically, this will be conducted indoors, space permitting. We will use DJI Mavic Mini aircraft, beginning with first takeoff and ending with a manual "point of interest" flight. You will be comfortable flying in tight indoor space before the day is out.

[Note that if we have a larger class, we will add instructors and break into groups for the afternoon]

3:30 p.m. Best Practices: Emergency Management, Maintenance, Storage & Travel

Prudent operation of an unmanned aircraft requires preparation for various emergency scenarios. We will discuss various real-life scenarios and how to prepare for them. Topics also include the human factors in aviation and flight operations. Practical advice to ensure that your aircraft and its ground support elements are always in good repair, to ensure safe flight. Considerable focus will be put on battery management using DJI systems as examples.

4:00 p.m. Semi-Autonomous Mapping Workflows

We will present the theory behind the generation of maps and 3D models from semi-autonomous RPAS flights. Discussion of the most common vegetative indexes and the opportunities for multispectral imaging. Several examples of complete workflows will be presented, including the three stages of flight planning, flight execution and map processing.

4:30 p.m. School concludes for the day

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DAY TWO: MORNING

WEDNESDAY, MARCH 16

8:30 a.m. **Map Data Processing**

Software workflows from drone to final maps will be demonstrated for RGB (MapsMadeEasy), and multispectral datasets (Micasense sensor, Pix4Dfields software). Sample crop imagery and its agronomic interpretation will be discussed.

9:45 a.m. **Livestock & other Farm RPAS Uses**

There are many other uses for drones on the farm, both simple and complex, and those will be discussed during this session. We will also go through the applications for drones with focus on cattle – examples of thermal and zoomable cameras that can be used for finding, monitoring, or counting livestock.

10:15 a.m. **Spraying by Drone**

LandView received funding for three years of research on spraying workflows, from mapping of Canada Thistle to spraying it by drone. We will present the things we've learned in our first field season, including both spraying Lontrel and seeding of cover crops. We'll present our view of the future of product application by drone, including information on the newly announced Agras T10 & T30.

11:30 a.m. **The Business of Drones**

Business models for agricultural applications, from on-farm RPAS to imagery service providers. Discussion about business pain points, costing, and insurance. We will also present the details of the LandView Pilot Network and a brief presentation on LandView's farm-ready packages.

DAY TWO: AFTERNOON "FLY DAY"

12:00-1:00 LUNCH

1:00 p.m. **Test Preparation**

Review of ground school concepts and the relevant sections of the Canadian Aviation Regulations (we will hand out a study guide at the end of Day 1 for overnight study and then review as a group)

1:30 p.m. **Online Transport Canada test (optional, \$10 fee payable to Transport Canada)**

We encourage you to bring a laptop or tablet to take Transport Canada's Small Basic Operations test at the end of class. We are not able to assist you during the test, but it may be best to just take the test while the material is fresh.

3:00 p.m. **Fly Day:**

Participants will have the opportunity to operate several RPAS models outdoors, from the Mavic 2 to Matrice 300. Various scenarios will allow participants to gain experience and to understand both site survey and emergency procedures, while taking turns as pilots and visual observers. There will be a selection of "missions" to complete in small groups, with all participants getting "stick time". You will learn to do by doing. If you own a drone, please do bring it along so that we can ensure the mapping software works correctly for you, or provide technical support.

[Note: Dependent on weather allowing flight within manufacturer's specifications]

4:30 p.m. **School concludes – thank you for attending!**

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