

# FARMLIFE

THE PHOTOGRAPHIC CHRONICLES





"Agriculture is our wisest pursuit, because it will in the end contribute most to real wealth, good morals & happiness." - Thomas Jefferson





# Necropsy demonstration with Prof Dr Cheryl McCrindle





## Building a boma for new game arriving at Windy Brow Game Reserve





# Agricultural drone demonstration held by Johan van Biljon and his team from the ARC.





# DRONES

## DJI Matrice 600 Pro



### SPECIFICATIONS

Max Takeoff Weight: 15.5 kg  
 Max Service Ceiling Above Sea Level: 4500 m  
 Max Speed: 65 kph  
 Max Flight Time: No payload: 38 min,  
 5.5 kg payload: 18 min

### REMOTE CONTROLLER

Max Transmission Distance: 5 km

## DJI Agras T20 spray drone

### SPECIFICATIONS

Max Takeoff Weight:  
 47.5 kg  
 Max Speed: 36 kph  
 Max Flight Time:  
 No Payload: 15 min,  
 42.6 kg Payload: 10 min



### SPRAYING SYSTEM

Spray Tank Volume: Rated: 15.1 Litre, Full: 20 Litre  
 Operating Payload: Rated: 15.1 kg, Full: 20 kg

### SPRAYING SYSTEM - NOZZLES (8)

Max Spray Rate: SX11001VS: 3.6 l/min  
 SX110015VS: 4.8L/min XR11002VS: 6 l/min  
 Droplet Size: SX11001VS: 130-250 µm  
 SX110015VS: 170-265 µm XR11002VS: 190-300 µm  
 Spray Width: 4-7 m at a Height of 1.5 - 3 m above crops)

### SPRAYING SYSTEM - FLOW METER

Measurement Range: 0.25-20 l/min

## DJI Phantom 4 Multispectral

### SPECIFICATIONS

Max Takeoff Weight: 1.48 kg  
 Max Service Ceiling Above Sea Level: 6000 m  
 Max Speed: 58 kph  
 Max Flight Time: 27 min

### REMOTE CONTROLLER

Max Transmission Distance: 7 km



## EasyUAV Javelin X6

### SPECIFICATIONS

Max Takeoff Weight: 12 kg  
 Max Speed: 50 kph  
 Max Flight Time: 25 min

### REMOTE CONTROLLER

Max Transmission  
 Distance: 3 km





# EQUIPMENT

## Micasense RedEdge-MX+DLS2 DJI Matrice 600 Pro

### SPECIFICATIONS

GSD (Ground Sample Distance): 8cm/pixel @ 120m AGL

Sensor Resolution: 1.2 MP/EO band

Spectral Bands (nm/bandwidth):

- Blue (475/20); Green (560/20); Red (668/10); Red Edge (717/10); Near-IR (840/40)

Field of View: 47.2° HFOV



## Micasense Altum EasyUAV Javelin X6

### SPECIFICATIONS

GSD (Ground Sample Distance):

- 5.28cm/pixel @ 120m AGL (Multispec);
- 81cm/pixel @ 120m AGL (Thermal)

Sensor Resolution:

- 3.2 MP/EO Band (Multispec);
- 160x120 (Thermal)

Spectral Bands (nm/bandwidth):

- Blue (475/32); Green (560/27); Red (668/14); Red Edge (717/12); Near-IR (842/57);
- LWIR Thermal Infrared 8-14µm.

Radiometrically Calibrated

Field of View:

- 50.2° HFOV (Multispec);
- 57° HFOV (Thermal)



## Phantom 4 Multispectral DJI Phantom 4

### SPECIFICATIONS

GSD (Ground Sample Distance): 5.28cm/pixel @ 120m AGL

Sensor Resolution: 2.08 MP/EO Band

Spectral Bands (nm/bandwidth):

- Blue (450/16); Green (560/16); Red (650/16);
- Red Edge (730/16); Near-IR (840/26);
- LWIR Thermal Infrared 8-14µm.

Radiometrically Calibrated

Field of View: 62.7° HFOV



## Zenmuse XT DJI Matrice 600 Pro

### SPECIFICATIONS

Sensor Resolution: 640x512

MP/EO Band

Spectral Bands:

- LWIR Thermal Infrared 7.5 - 13.5µm.

Radiometrically Calibrated





# APPLICATIONS & ADVANTAGES

## Applications of drones in the agricultural sector

- ◆ Agricultural Surveys
- ◆ Crop Mapping and Yield Estimates
- ◆ Crop Biophysical Modelling
- ◆ Crop Damage Assessment
- ◆ Environmental Assessment and Management
  - Mapping Indigenous Species
  - Mapping Invasive Species
- ◆ Water Resource Management
  - Water Quality Assessment
  - Water Body Mapping
- ◆ Wetland Inventory
- ◆ Natural Disaster Assessment
- ◆ Soil Degradation
- ◆ Geomorphology
- ◆ Surface Geological Exploration
- ◆ Phenotyping
- ◆ Crop Health Mapping
- ◆ Water Management
- ◆ Leak Scouting
- ◆ Fertilizer Management
- ◆ Disease Identification
- ◆ Plant Classification
- ◆ Species Differentiation
- ◆ Plant Counting
- ◆ Weed Detection

## Advantages of using spray drones over traditional spraying methods

1. **Efficiency.** *Spray drones are much more efficient than manual spraying.*
2. **Better spraying accuracy.** *The rotors of spray drones produce huge downward rotation force, which promotes the droplets to penetrate the crop from top to bottom. This is conducive to the chemical droplets being evenly scattered on all parts of the plant, so that the spraying is more accurate.*
3. **Spraying is more even.** *In the process of pesticide spraying, the drone adopts new technology of automatic obstacle avoidance and automatic cruise alarm. When the pesticide is exhausted, the drone automatically cruises back to its initial position. After refilling the drone returns to the previous programmed position to continue spraying, thus avoiding overlapped or skipped areas.*
4. **Lower chemical and labour costs.**
5. **Operational safety.** *Eliminates the possibility of pesticide poisoning by spraying workers.*
6. **Spray drones are not affected by terrain and crop height.** *They can be used in flat, hilly and sloping fields. ARC staff are experienced and skilled in applying chemicals using spray drones.*



# USEFUL PUBLICATIONS

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## FARMER'S INSIDE TRACK

The Farmer's Inside Track podcast is proudly presented by Food for Mzansi. It is aimed at South Africa's up-and-coming farmers and new entrants into farming and agri-businesses who need information and inspiration to help them start up and get up to sprinting speed as commercial producers and / or agri-processors.



[Play Podcast](#)



## DALRRD RESOURCE CENTRE

The Department of Agriculture, Land Reform & Rural Development has a resource centre with acts, policies, brochures, production booklets and much more to help emerging farmers gain valuable information.



[dalrrd.gov.za](http://dalrrd.gov.za)

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## LEARN. GROW. PROSPER.

Below are activities / events you might find informative and useful. Remember you can log these in your logbook for extra hours.



### AFRICAN WILDLIFE AUCTIONS

- Livestock & Asset Auction.
- Modimolle Holiday Resort.
- 26 October 2022.
- 11AM.



[awla.co.za](http://awla.co.za)



### ORGANIC & NATURAL PRODUCTS EXPO AFRICA

- Imperial Wanderers Stadium, Sandton.
- 21 - 23 October 2022
- R100 - R150.

Designed as a hybrid event that caters to trade buyers, while at the same time allowing retail sales directly to consumers, the expo is set to showcase local and international manufacturers, suppliers, importers and exporters.



[organicandnaturalportal.com](http://organicandnaturalportal.com)



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### VEGGIE FARMER

- Cullinan.
- 29 October 2022.
- Includes a light packed lunch.
- Includes Home Garden Seed Pack.
- Learn the ins and outs of small scale farming.



[agriskills.net](http://agriskills.net)



### PIG PRODUCTION

- Basic Pig Husbandry Skills.
- Groenkloof, Pretoria
- 19 - 21 October 2022.
- Includes a light lunch.
- Accommodation not included.



[agriskills.net](http://agriskills.net)

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# AGRI SKILLS ON SHOW



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