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# What does it take to Fly and Apply with Spray Drones?





# WELCOME | TODAY'S AGENDA

- Introductions
- Why Spray with Drones
- How do I begin
- Details are important
- Chemical Application
- Major Considerations
- Q&A





# DRONE DIVISION

**Joseph Encinias**  
Drone Division Manager



**Doug Dodd**  
Drone Specialist &  
Carbon Lead



**Seth Myers**  
Drone Technician





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# WHY FLY?

- Timing – You are in Control
- Multiple Applications/Year
- Personal Strip Trials – Product testing
- Dry Seeder Capability
- Variable Terrain Accessibility
- Access to cutting edge technologies
- Access to challenging areas
- Operator safety



# LICENSING REQUIREMENTS



FAA PART 107 SUAS PILOT CERTIFICATE



Powered by **UAV Coach**

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# LICENSING REQUIREMENTS



FAA PART 107 SUAS PILOT CERTIFICATE



COMMERCIAL PESTICIDE APPLICATOR LICENSE



# LICENSING REQUIREMENTS



FAA PART 107 SUAS PILOT CERTIFICATE



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**\*\*CLASS 3 AIRMAN MEDICAL CERTIFICATE\*\***



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# LICENSING REQUIREMENTS



FAA PART 107 SUAS PILOT CERTIFICATE



COMMERCIAL PESTICIDE APPLICATOR LICENSE



**\*\*CLASS 3 AIRMAN MEDICAL CERTIFICATE\*\***



FAA 14 CFR PART 137, AGRICULTURAL AIRCRAFT OPERATIONS

HYLIO  
AGROSOL



SOFTWARE

MADE IN  
THE USA

- American Owned
- American Developed
- Data Security  
(NDAA Compliant)



Easily plan treatment areas and missions using intuitive drawing tools. You can also share area boundaries and data with virtually any 3rd party platform such as MyJohnDeere or Ag Leader. Cloud store and access maps and treatment data between multiple devices.

## AREAS



Define treatment parameters and assign tasks to one or multiple AgroDrones. Conveniently track application rates and store chemical product data for easy access.

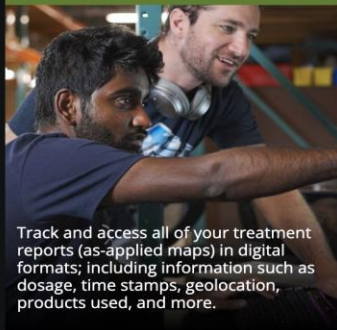
## APPLICATIONS

## OPERATIONS



Command up to four drones per ground station device. Access a full suite of both autonomous and manual control features such as arm, takeoff, RTL (Return To Land), pause, click-to-move, and more.

## REPORTS



Track and access all of your treatment reports (as-applied maps) in digital formats; including information such as dosage, time stamps, geolocation, products used, and more.

## MAINTENANCE

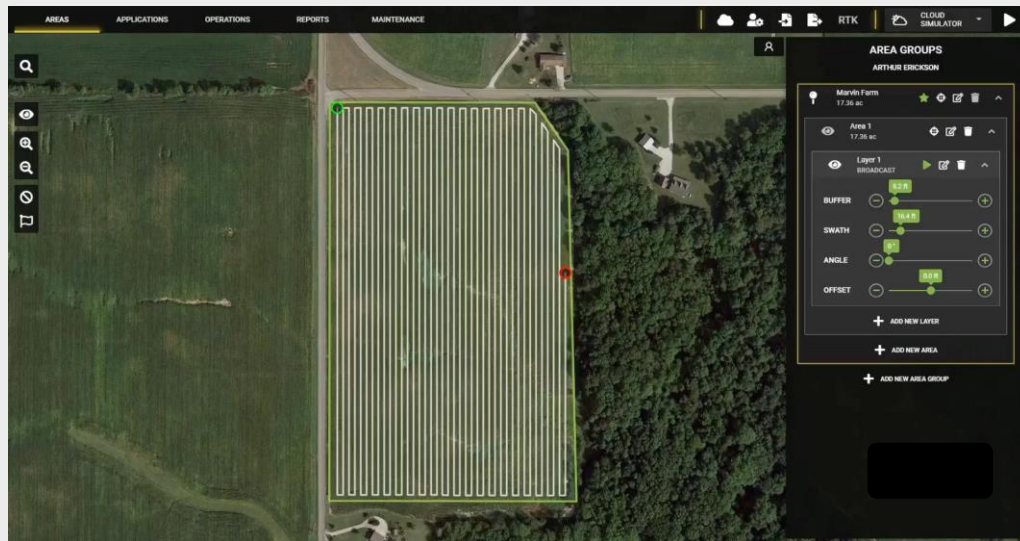


View AgroDrone usage data such as total acres sprayed, hours flown, etc. Access a suite of calibrations for the AgroDrones and associated equipment. Utilize useful calculators for dialing in application parameters.



Easily plan treatment areas and missions using intuitive drawing tools. You can also share area boundaries and data with virtually any 3rd party platform such as MyJohnDeere or Ag Leader. Cloud store and access maps and treatment data between multiple devices.

## AREAS



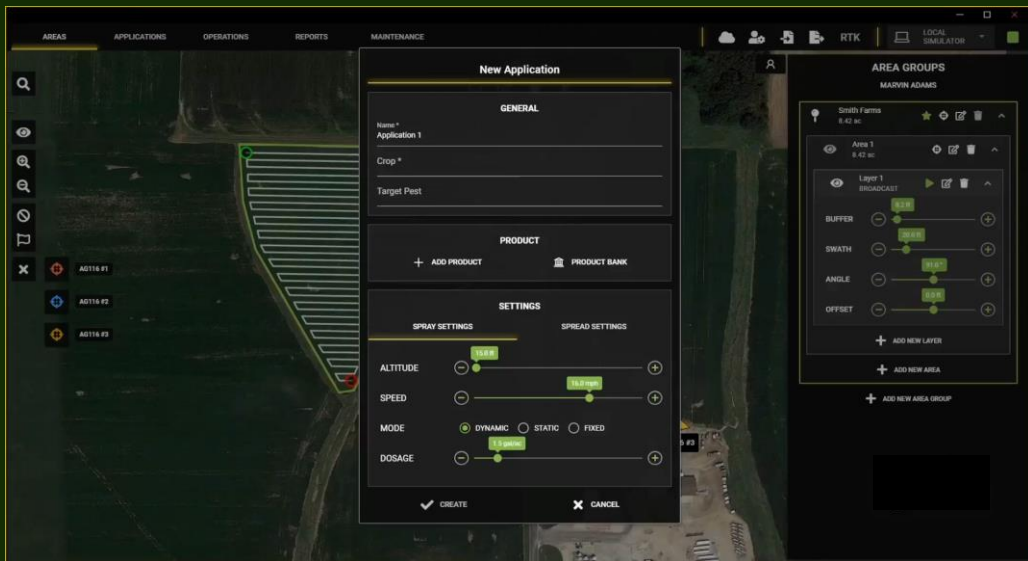
Plan your work boundaries. Draw or Import. Easily edit them on the fly.



Define your treatment parameters. (Dosage, speed, altitude, etc.).



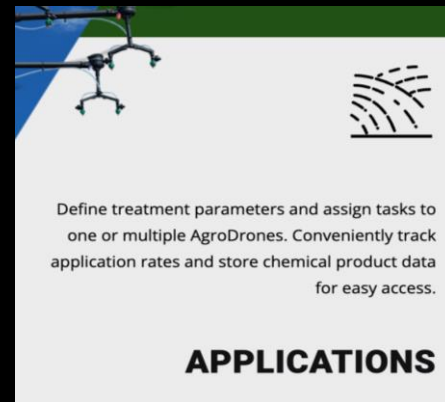
Cloud import/export to collaborate across devices and team members.



Never forgets  
EPA #  
Reentry Period  
Active Ingredients  
Restricted Use

Define and store your  
chemical information.

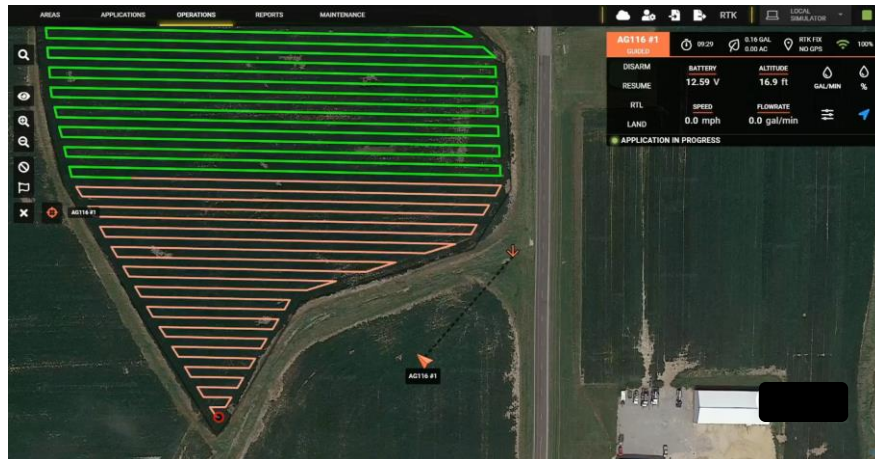
Assign applications to  
drones in different  
combinations.



## OPERATIONS



Command up to four drones per ground station device. Access a full suite of both autonomous and manual control features such as arm, takeoff, RTL (Return To Land), pause, click-to-move, and more.

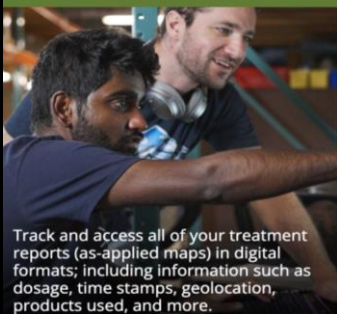


Intuitively command up to 4 AgroDrones from one ground station. Arm, take off, RTL, pause, etc.

Monitor real-time drone vitals and spray information: battery voltage, payload level, amount sprayed, etc.

Advanced flight toggles: GPS & Non-GPS flight modes, terrain follow on/off, granular spreader mode, and more.

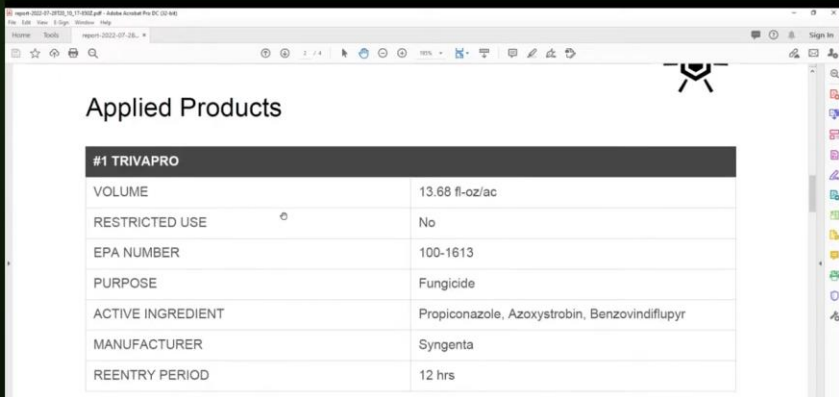
## REPORTS



Digitally search, sort, and view all past applications.

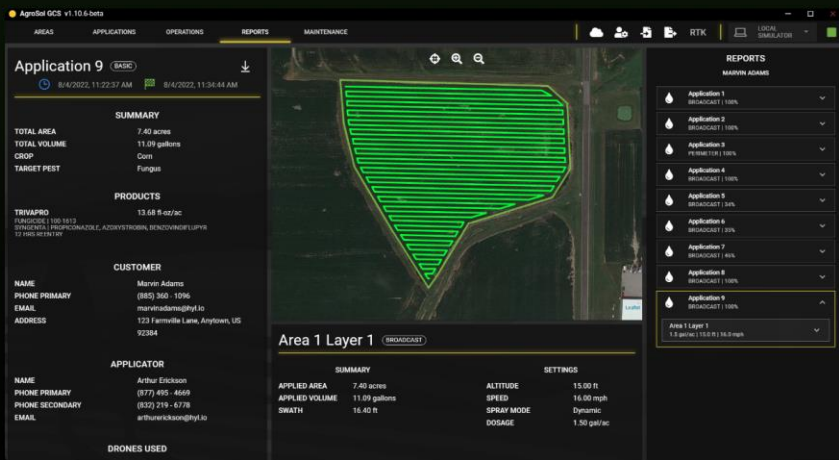
Formatted to streamline invoicing, work tracking, and EPA/FAA compliance.

One-click export as applied reports.



#1 TRIVAPRO	
VOLUME	13.68 fl.-oz/ac
RESTRICTED USE	No
EPA NUMBER	100-1613
PURPOSE	Fungicide
ACTIVE INGREDIENT	Propiconazole, Azoxystrobin, Benzovindiflupyr
MANUFACTURER	Syngenta
REENTRY PERIOD	12 hrs

PDF export



**Application 9** (BASE) [Download]

8/4/2022, 11:22:37 AM [8/4/2022, 11:36:44 AM]

**SUMMARY**

- TOTAL AREA: 7.40 Acres
- TOTAL VOLUME: 11.09 gallons
- CROP: Corn
- TARGET PEST: Fungus

**PRODUCTS**

- TRIVAPRO: 13.68 fl.-oz/ac
- SYNGENTA, PROPICONAZOLE, AZOXYSTROBIN, BENZOVINDIFLUPYR 33 160-0138170

**CUSTOMER**

- NAME: Marvin Adams
- PHONE PRIMARY: (885) 360-1096
- EMAIL: marvinadams@tjtlc.com
- ADDRESS: 123 Farmville Lane, Anytown, US 92384

**APPLICATOR**

- NAME: Arthur Erickson
- PHONE PRIMARY: (877) 495-4669
- PHONE SECONDARY: (832) 219-6778
- EMAIL: arthurerickson@tjtlc.com

**DRONES USED**

**Area 1 Layer 1** (BROADCAST)

SUMMARY	SETTINGS
APPLIED AREA: 7.40 acres	ALTITUDE: 15.00 ft
APPLIED VOLUME: 11.09 gallons	SPEED: 16.00 mph
SWATH: 16.40 ft	SPRAY MODE: Dynamic
	DOSAGE: 1.50 gal/ac

**REPORTS**

- Application 1 BROADCAST | 100%
- Application 2 BROADCAST | 100%
- Application 3 FERTILIZER | 100%
- Application 4 BROADCAST | 100%
- Application 5 BROADCAST | 100%
- Application 6 BROADCAST | 100%
- Application 7 BROADCAST | 100%
- Application 8 BROADCAST | 100%
- Application 9 BROADCAST | 100%
- Area 1 Layer 1 7.40 acres | 15.00 ft | 16.00 mph

# MAINTENANCE



View AgroDrone usage data such as total acres sprayed, hours flown, etc. Access a suite of calibrations for the AgroDrones and associated equipment. Utilize useful calculators for dialing in application parameters.

AgroSol GCS v2.21.2

AREAS APPLICATIONS OPERATIONS REPORTS MAINTENANCE

RADIO TELEMETRY

### AVOIDANCE RADARS

0.9 ft, 27.3 ft, 14.5 ft, 11.0 ft, 27.6 ft, 11.1 ft, 21.1 ft, 12.9 ft

### AG272 #1

SERIAL ID: 070231  
RADIO ID: 1  
FLIGHT TIME: 39.9 hrs  
TOTAL AREA: 1586.91 ac  
TOTAL VOLUME: 3696.06 gal  
SYSTEM UPDATE

### RC CHANNELS

ROLL: 1515  
PITCH: 1515  
THROTTLE: 1515  
YAW: 1515  
MODE: 1155  
SPRAYER: 1000  
ATOMIZER: 875

### DRONE STATUS

- READY TO FLY
- GPS
- REMOTE
- ALTIMETER
- AVOIDANCE
- COMPASS

### ADVANCED SETTINGS

- RTL DENIED
- PILOT ALTITUDE ADJUST
- SPREADER
- PUMP AUTO-ARM
- TERRAIN DENIED
- LOOKAHEAD YAW
- SPOT ROTATE
- GPS DENIED
- CAMERA TRIGGER
- OBSTACLE AUTO ROUTE

### CALIBRATIONS

- FLOWMETER
- COMPASS
- VOLTAGE
- ACCEL
- LEVEL
- BAROMETER
- MOTOR

### LOGS

- DOWNLOAD
- UPLOAD
- FLIGHT LOGS
- TELEM LOGS
- CLEAR

### MAINTENANCE

- Drones: AG272 #1 (Good Connection)
- Calculators
- Manuals: AG230

Easily access necessary calibrations, updated, and advanced drone toggles whenever you want.



Track drone historical data: flight hours, acreage covered, etc.

Useful calculators for applications dosages and speeds.






# WHY US?

- Access to all Chemical AI

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# WHY US?

- Access to all Chemical AI
- Industry Experts

Titan<sup>pro</sup> |  |  | 



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- Adjuvant Rates and Usage

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- Mix order and nozzle selection

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# WHY US?

- Access to all Chemical AI
- Industry Experts
- Adjuvant Rates and Usage
- Mix order and nozzle selection
- Government regulation changes
- Farmer Focused Results Oriented

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# Major Considerations?

- Wind Speed/Direction
- Dangerous Environments
- Sensitive Areas vs. Target Species
- Carrier Volume **ALWAYS FOLLOW THE LABEL**
- Nozzle/Adjuvant Selection
- Technology adaptation
- Labor quality and supply
- Flight Speed/Altitude

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# Questions?

- Licensing
- Exemptions
- Certifications
- Application
- Spreading
- Recertification
- Field Preparedness

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# THANK YOU

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