Spray Drones: Lesson Learned in 2022

Al Orgeron





Lesson 1: Compliance Less Than 55 Pounds

- Registration of Drone with FAA
- Operated under Part 107 Small Unmanned Aircraft Systems (less than 55 pounds)
- Part 137 Dispensing Chemicals and Agricultural Products
- Petition for an Exemption
 - §107.36 Carriage of hazardous material
 - several part 137 regulations
- Aerial Applicators License with LDAF (Commercial)



UNITED STATES OF AMERICA XI DEPARTMENT OF TRANSPORTATION • FEDERAL AVIATION ADMINISTRATION NAME ALBERT JOSEPH ORGERON	0	CERTIFIED, LICENSED OR REGISTERED AS CATEGORY 1-Agricultural Pest Control 10-Demonstration & Research	RECERTIFY BY 11/5/2022 11/5/2022
ADDRESS 2584 HIGHWAY 1 THIBODAUX LA 70301-5843	U	11-Aerial Applicator GS-General Standards WPS Trainer - Commercial Applic	5/5/2024 11/5/2022 11/5/2022
AATIONALITY USA a D.O.B. 17 AUG 1977 HAS BEEN FOUND PROPERLY QUALIFIED TO EXERCISE THE PRIVILEGES OF II REMOTE PILOT III CERTIFICATE NUMBER 4535049	EYES	876490C0	
X DATE OF ISSUE 2 JUL 2021 XIV Store Differ VIII ADMINISTRATOR	S	LDAF EMERGENCY HOTLINE 855-452-5323 LA POISON CONTROL CENTER 800-222-1222	1

Lesson 1: Compliance **55 Pounds or Greater**

- Registration of Drone with FAA
- Operated under Part 91 General Operating and Flight Rules
- Part 137 Dispensing Chemicals and Agricultural Products
- Petition for an Exemption
 - Section 44807 Weight Exemption: Special Authority for Certain Unmanned Aircraft Systems
 - Several part 61, 91, & 137 regulations
- Aerial Applicators License with LDAF (Commercial)



Part 107 Exam is No Joke



Louisville Airport is an uncontrolled airport surrounded by a magenta-shaded circle in the sectional charts. What does this magenta circle indicate?

TAF

KMEM 121720Z 1218/1324 20012KT 5SM HZ BKN030 PROB40 2022 1SM TSRA OVC008CB FM2200 33015G20KT P6SM BKN015 OVC025 PROB40 2202 3SM SHRA FM0200 35012KT OVC008 PROB40 0205 2SM-RASN BECMG 0608 02008KT BKN012 BECMG 1310/1312 00000KT 3SM BR SKC TEMPO 1212/1214 1/2SM FG FM131600 VRB06KT P6SM SKC=

KOKC 051130Z 0512/0618 14008KT 5SM BR BKN030 TEMPO 0513/0516 1 1/2SM BR FM051600 18010KT P6SM SKC BECMG 0522/0524 20013G20KT 4SM SHRA OVC020 PROB40 0600/0606 2SM TSRA OVC008CB BECMG 0606/0608 21015KT P6SM SCT040=

FIGURE 15.—Terminal Aerodrome Forecasts (TAF).

What is the wind speed and direction indicated in the TAF for Memphis International Airport (KMEM) reported at 1720Z? **B4UFLY**







LONG: -91.134779

Controlled AirspaceAirspace authorization*승규required. See details~~~~below.****



LAT: 30.967420 LONG: -93.110846

Q





TFR and NOTAMS

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TFR List	💴 TFR Map	Map Airports	>> TFR Help	NOTAM SEARCH	N SUA
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Issue Date :	November 26,	2022 at 1833 UTC		The stand of the	The second
Location :	PALM BEACH (PBI)	l, Florida near PALM BEACH	I VORTAC	A Manual Manual A	PERSON IN THE
Beginning Date and Time	: November 26,	2022 at 1730 UTC	SA .	A A A A A A A A A A A A A A A A A A A	
Ending Date and Time :	May 31, 2023	at 0959 UTC	40	New Ball	
Reason for NOTAM :	Temporary flig Reasons	ht restrictions for Special Se	ecurity	PBIPB	Jan
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Jump To	o: Affected Area Operating Re Other Informa	as strictions and Requiremer ation	nts		CONT PALM ME
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Cent	On the PALM B ter: at 2.6 nautical r 80°02'16"W)	EACH VORTAC (PBI) 097 d niles. (Latitude: 26º40'37"N,	legree radial Longitude:	NOTAM Text	
D	up 1 noutical miles				

Altitude: From the surface up to and including 1000 feet AGL

Federal Aviation Administration

Effective Date(s):

From November 26, 2022 at 1730 UTC (November 26, 2022 at 1330 AST) To May 31, 2023 at 0959 UTC (May 31, 2023 at 0559 AST)

Operating Restrictions and Requirements

No UAS operations are authorized in the areas covered by this NOTAM (except as described).

EXC AS SPECIFIED BLW:

A. UAS OPS MAY BE AUTH WI THE DEFINED SSI AIRSPACE IF IN COMPLIANCE WITH THE RQMNTS LISTED BLW: 1) UAS OPS IN DCT SUPPORT OF AN ACT NTL DEFENSE, HOMELAND SECURITY, LAW ENFORCEMENT, FIREFIGHTING, SAR, OR DISASTER RESPONSE MISSION; 2) UAS OPS IN SUPPORT OF EVENT OPS; 3) COMMERCIAL UAS OPS WITH A VALID STATEMENT OF WORK; 4) MUST BE IN POSSESSION OF AN APPROVED SPECIAL GOVERNMENTAL INTEREST(SGI) AIRSPACE WAIVER; 5) AND COMPLY WITH ALL OTHER APPLICABLE FEDERAL AVIATION REGULATIONS.

B. UAS OPR IDENTIFIED IN A.1, A.2 OR A.3 ABV MUST APPLY FOR A SGI WAIVER VIA EMAIL AT 9-ATOR-HQ-SOSC@FAA.GOV.

Тор

Lesson 2: Spray Pattern of Aircraft



Nozzle Selection





Disk Selection







Spray Height Affects Spray Width



DJI Agras T10

Height Above Target Spray Width 5 feet-----9 feet 10 feet-----12 feet There is a Potential for Spray Drift



Lesson 3: Aircraft Operation

- Manual vs autonomous operation
- Pay attention to aircraft settings
- Use obstacle avoidance
- Battery Life
- Refilling Aircraft
- Battery Charging
- Settings

Manual vs Autonomous Operation









Field Obstacles



Field Obstacles

Battery Life/Flight Time 10-12 minutes



Refilling Aircraft



Battery Charging







Acreage Sprayed Per Hour

- Length of Spray Run
- Spray Width
- GPA
- Aircraft Flight Speed
- Aircraft
 - T10 ---8 to 10 acres/hour (12 ft swath)
 - T30---20 to 22 acres/hour (18 ft swath)



Pay Close Attention to Settings



Lesson 4: An Effective Tool

- Chemical Weed
 Control
 - No agitation
 - WDG
 - WP
- Ripener







Ho 12-615

Treatment	Rate/A	Tons/A	TRS	Sugar/A
Pmax3	3.4 oz	41.7	224 a	9092 a
PMax3	5 oz	39.2	232 a	9094 a
PMax3	6.5 oz	37.8	242 a	9135 a
PMax3 + Moddus	2.5 oz + 11 oz	35.6	229 a	8131 a
Moddus	19 oz	40.1	208 a	8274 a
Check		42.6	162 b	6911 b
P-value		0.3787	0.0011	0.0124

Harvested September 19, 2022, 35 days after treatment

L 01-299

Treatment	Rate/A	Tons/A	TRS	Sugar/A
Pmax3	3.4 oz	40.3	219 ab	8841 a
PMax3	5 oz	36.7	225 a	8277 a
PMax3	6.5 oz	38.6	236 a	9087 a
PMax3 + Moddus	2.5 oz + 11 oz	35.8	238 a	8513 a
Moddus	19 oz	38.4	205 b	7840 a
Check		40.7	158 c	6418 b
P-value		0.2160	0.0001	0.0031

Harvested September 19, 2022, 35 days after treatment

Lesson 5: Service Matters





Questions?



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THANKS!



Making Life Sweeter. Naturally





Dr. Randy Price

Mr. Damian Glaser