

## SUMMARY OF ANALYSIS (SAMPLE ID: SA2020-25057)

<b>Testing Location:</b> OKC 3680 E. I-240 Service Rd. Oklahoma City, OK 73135 License: LAAA-4Y4X-Z72Z	<b>Customer ID:</b> 1648 Red Dirt Sungrown P.O. Box 1399 Guthrie, OK 73044 License: GAAA-41RN-M7KD	<b>Order ID:</b> OR2020-7833 <b>Lot Number:</b> MD032602 <b>Batch Number:</b> Not Entered	<b>Sample Type:</b> Primary <b>Matrix:</b> Flower <b>Mass:</b> 5g <b>Date Collected:</b> 04/01/2020 <b>Date Received:</b> 04/01/2020
<b>Cultivar (Strain) or Sample Description:</b> Mandarin Dreams			<b>Date Completed:</b> 04/06/2020

\*This page is simply a summary of the analysis performed. For analytical details, please consult the individual Certificate(s) of Analysis for each of the specific test(s) performed.

\*For Oklahoma, with the new OMMA rules to be effective April 1, 2020, limits on moisture are proposed at 15% and water activity at 0.65aw.

<b>Moisture Content (%)</b> 12.5	<b>PASS/FAIL</b> <b>PASS</b>	<b>Water Activity (aw)</b> 0.40 @ 22.6°C	<b>PASS/FAIL</b> <b>PASS</b>
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<u>Cannabinoids (Top 3)</u>	<u>(%)</u>	<u>mg/g</u>
THCa	19.3	193
CBGa	1.07	10.7
Δ9-THC	0.557	6
TOTAL CBD	0.145	1.45
TOTAL THC	17.5	175
TOTAL CANNABINOIDS	21.3	213

<u>Terpenes (Top 5)</u>	<u>(%)</u>	<u>µg/g</u>
β-Caryophyllene	0.291	2913
Eucalyptol	0.289	2885
β-Myrcene	0.247	2468
β-Ocimene	0.156	1562
α-Humulene	0.109	1090
TOTAL TERPENES	1.27	12688

<u>Contaminants</u>	<u>PASS/FAIL</u>
Heavy Metals:	<b>PASS</b>
Microbiology:	<b>PASS</b>
Mycotoxins:	<b>PASS</b>
Pesticides:	<b>PASS</b>
Visual Inspection:	<b>PASS</b>



Scan the QR code to verify results.

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*Kyle W. Felling*  
Kyle W. Felling, Ph.D.  
Laboratory Director



## CERTIFICATE OF ANALYSIS (SAMPLE ID: SA2020-25057)

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**Cultivar (Strain) or Sample Description:** Mandarin Dreams **Date Completed:** 04/06/2020

### CANNABINOID (POTENCY) PROFILE

**Analysis Date/Time:** 04/01/2020 1434 **Method:** HPLC/DAD **Moisture Content (%):** 12.5  
**Analyst:** WW **Instrument:** Agilent 1100 **Water Activity (aw):** 0.4012 @ 22.65Å°C

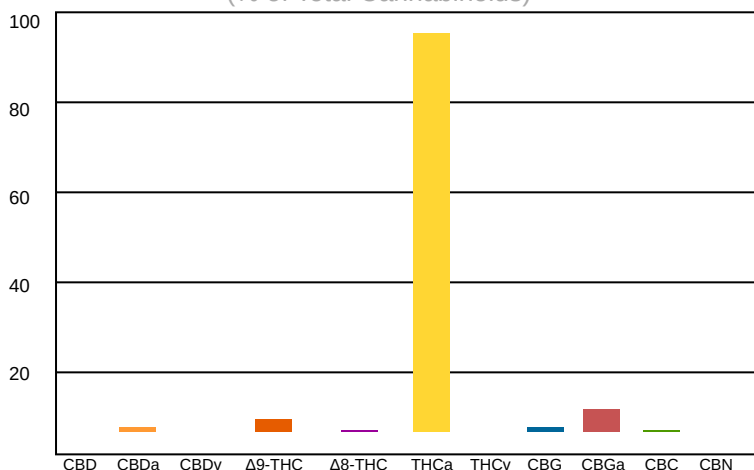
Cannabinoid	Result (%)	Result (mg/g)	Reporting Limit (mg/g)	Result (mg/mL)	Per Unit (mg)
CBD	-	-	0.0513	-	-
CBDa	0.166	1.66	0.0513	-	1.66
CBDv	-	-	0.0513	-	-
Δ9-THC	0.557	5.57	0.0513	-	6
Δ8-THC	0.0303	0.303	0.0513	-	0.303
THCa	19.3	193	0.0513	-	193
THCv	-	-	0.0513	-	-
CBC	0.0246	0.246	0.0513	-	0.246
CBG	0.169	1.69	0.0513	-	1.69
CBGa	1.07	10.7	0.0513	-	10.7
CBN	0.00624	0.0624	0.0513	-	0.0624
<b>TOTAL</b>	<b>21.3</b>	<b>213</b>	-	-	<b>213</b>
<b>TOTAL THC</b>	<b>17.5</b>	<b>175</b>	-	-	<b>175</b>
<b>TOTAL CBD</b>	<b>0.145</b>	<b>1.45</b>	-	-	<b>1.45</b>



**UNIT MASS (g): 1**

"-" Not detected above RL.

### Cannabinoid Distribution (% of Total Cannabinoids)



Deviations from standard operating procedure: None

Recoveries for all analyte standards: 90-110%  
Replicate Uncertainties: <5% RSD, <20% RPD  
Sample/Reagent Blanks: <RL for all analytes

Values for plant matter are adjusted for moisture content.

Total THC = (THCa x 0.877) + Δ9-THC  
Total CBD = (CBDa x 0.877) + CBD

Percentage results are reported by mass.  
mg/g results are reported as mass component per mass material.

Abbreviations: UV - Ultraviolet, HPLC - High Pressure Liquid Chromatography, RL - Reporting Limit, RPD - Relative Percent Difference, RSD - Relative Standard Deviation

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<b>Cultivar (Strain) or Sample Description:</b> Mandarin Dreams			<b>Date Completed:</b> 04/06/2020

**TERPENOID PROFILE**

**Analysis Date/Time:** 04/01/2020 1434      **Method:** HS/GC/FID (Internal Method-002)      **Deviations from SOP:**  
**Analyst:** DJ      **Instrument:** Agilent 6890      None

<u>Terpene</u>	<u>Result (µg/g)</u>	<u>Result (%)</u>	
α-Bisabolol	487	0.0487	■
Camphene	18	0.00183	■
δ-3-Carene	-	-	
β-Caryophyllene	2913	0.291	■
Caryophyllene oxide	179	0.0179	■
p-Cymene	-	-	
Eucalyptol	2885	0.289	■
Geraniol	-	-	
Guaiol	-	-	
α-Humulene	1090	0.109	■
Isopulegol	-	-	
d-Limonene	368	0.0368	■
Linalool	510	0.051	■
β-Myrcene	2468	0.247	■
cis-Nerolidol	-	-	
trans-Nerolidol	-	-	
α-Ocimene	50	0.00503	■
β-Ocimene	1562	0.156	■
α-Pinene	50	0.00499	■
β-Pinene	107	0.0107	■
α-Terpinene	-	-	
γ-Terpinene	-	-	
Terpinolene	-	-	
<b>TOTAL</b>	<b>12688</b>	<b>1.27</b>	



*Abbreviations:* HS - Headspace, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit

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"-" Not detected above RL.

**Reporting Limit (µg/g): 2.05**

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**Cultivar (Strain) or Sample Description:** Mandarin Dreams **Date Completed:** 04/06/2020

**PESTICIDES PROFILE**

**Analysis Date/Time:** 04/01/2020 1434  
**Analyst:** DJ

**Method:** LC/MS/MS  
**Instrument:** Waters Acquity/TQD

**Deviations from SOP:**  
None

<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)
Abamectin (71751-41-2)	-	0.5
Azoxystrobin (131860-33-8)	-	0.5
Bifenazate* (149877-41-8)	-	0.5
Etoazazole (153233-91-1)	-	0.5
Imazalil (35554-44-0)	-	0.5
Imidacloprid (138261-41-3)	-	0.5
Malathion (121-75-5)	-	0.5
Myclobutanil (88671-89-0)	-	0.5
Permethrins* (52645-53-1)	-	0.5
Spinosad A (168316-95-8)	-	0.5
Spinosad D (168316-95-8)	-	0.5
Spiromesifen (283594-90-1)	-	0.5
Spirotetramat (203313-25-1)	-	0.5
Tebuconazole (80443-41-0)	-	0.5

Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (µg/g)**  
1/2 of AL

"-" not detected above reporting limit

"\*" analyzed by GC/MS (all others analyzed by LC/MS/MS)

Permethrins measured as the cumulative residue of the *cis*- and *trans*-permethrin isomers.



**Abbreviations:** LC - Liquid Chromatography, GC - Gas Chromatography, MS - Mass Spectrometry, RL - Reporting Limit, AL - Action Level, CAS - Chemical Abstract Services

<u>Pesticide</u>	<u>Synonym(s)</u>	<u>Pesticide</u>	<u>Synonym(s)</u>	<u>Pesticide</u>	<u>Synonym(s)</u>
Cyfluthrin	Baythroid	Myclobutanil	Sythane	Propiconazole	Tilt
DDVP	Dichlorvos	Naled	Dibrom	Propoxur	Baygon
Ethoprophos	Prophos	Phosmet	Imidan		

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**MYCOTOXIN PROFILE**

**Analysis Date/Time:** 04/01/2020 1434  
**Analyst:** DJ

**Method:** LC/MS/MS  
**Instrument:** Waters Acquity/TQD

**Deviations from SOP:**  
None

<u>Mycotoxin</u>	<u>Result (µg/kg)</u>	<u>Action Level (µg/kg)</u>
Aflatoxin B1	-	20
Aflatoxin B2	-	20
Aflatoxin G1	-	20
Aflatoxin G2	-	20
Ochratoxin A	-	20



*Abbreviations:* EC - Escherichia Coli, CFU - Colony-Forming Unit, RL - Reporting Limit, AL - Action Level

**Color Key**

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (CFU/g)**  
1

"-" not detected above reporting limit

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### HEAVY METAL PROFILE

**Analysis Date/Time:** 04/01/2020 1434      **Method:** ICP/MS      **Deviations from SOP:**  
**Analyst:** CC      **Instrument:** PerkinElmer Elan 9000      None

<u>Heavy Metal</u>	<u>Result (µg/kg)</u>	<u>Action Level (µg/kg)</u>
Arsenic (As)	-	400
Cadmium (Cd)	-	440
Lead (Pb)	-	1000
Mercury (Hg)	-	200



*Abbreviations:* ICP - Inductively-Coupled Plasma, OES - Optical Emission Spectroscopy, MS - Mass Spectroscopy, RL - Reporting Limit, AL - Action Level

#### Color Key

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (µg/kg)**  
50

"-" not detected above reporting limit

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**MICROBIOLOGICAL PROFILE**

**Analysis Date/Time:** 04/01/2020 1434      **Method:** Hardy Diagnostics CompactDry      **Deviations from SOP:**  
**Analyst:** KB      **Instrument:** Thermo Incubator      None

<u>Bacteria/Microbe</u>	<u>Result (CFU/g)</u>	<u>Action Level (CFU/g)</u>
Aerobic Plate Count, Total	90	-
Escherichia Coli (E. Coli)	Absent	1
Mold	Absent	10000
Yeast	Absent	10000
Salmonella spp.	Absent	1



*Abbreviations:* EC - Escherichia Coli, CFU - Colony-Forming Unit, RL - Reporting Limit, AL - Action Level, NT - Not Tested

**Color Key**

RESULT < 1/2 AL
1/2 AL < RESULT < AL
RESULT > AL

**Reporting Limit (CFU/g)**  
1

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