

CERTIFICATE OF ANALYSIS

Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blueberry
Sample Date: 02/12/2019

Lab ID: 2019001304
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

Analysis Date/Time: 02-14-2019 1929
Analyst: KWF

Method: HPLC/UV
Instrument: Agilent 1100

Moisture Content (%): 7.64
Water Activity (aw): 0.4697 at 25.01°C

<u>Cannabinoid</u>	<u>Result (%)</u>	<u>Result (mg/g)</u>	<u>Reporting Limit (mg/g)</u>	<u>Per Unit (mg)</u>
CBD	<RL	<RL	0.050	-
CBDa	0.0494	0.494	0.050	0.490
CBDv	<RL	<RL	0.050	-
Δ9-THC	0.341	3.41	0.050	3.41
Δ8-THC	0.0991	0.991	0.050	0.990
THCa	17.2	172	0.050	172
CBC	0.0203	0.203	0.050	0.200
CBG	0.100	1.00	0.050	1.00
CBGa	0.0757	0.757	0.050	0.760
CBN	<RL	<RL	0.050	-
TOTAL	17.9	179		179



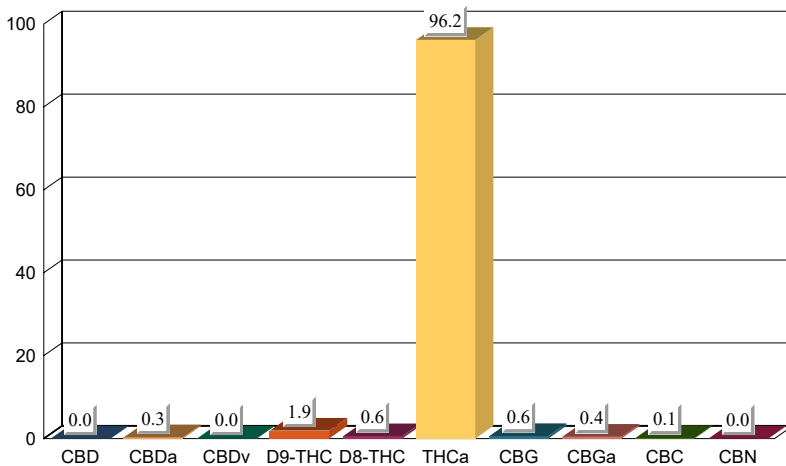
TOTAL THC 15.4 154
TOTAL CBD 0.0433 0.433

UNIT MASS (g): 1.00

Deviations from standard operating procedure: None

Cannabinoid Distribution

(% of Total Cannabinoids)



*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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REPORT OF LABORATORY ANALYSIS

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

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Sample Date: 02/12/2019

Lab ID: 2019001304
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

TERPENOID PROFILE

Analysis Date/Time: 02-20-2019 1828 **Method:** HS/GC/MS (Internal Method-002)
Analyst: KWF

Deviations from SOP:
None

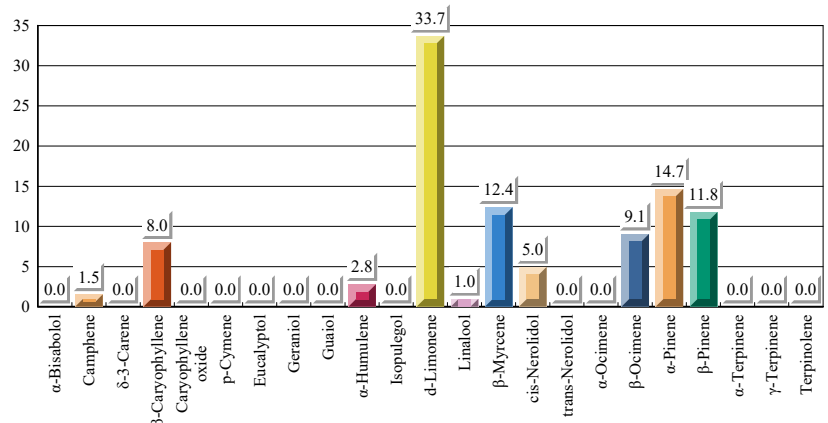
Instrument: Agilent 7890/5975

<u>Terpene</u>	<u>Result</u> ($\mu\text{g/g}$)	<u>Result</u> (%, total terpenes)
α -Bisabolol	-	-
Camphene	111	1.55
δ -3-Carene	-	-
β -Caryophyllene	576	8.03
Caryophyllene oxide	-	-
p-Cymene	-	-
Eucalyptol	-	-
Geraniol	-	-
Guaiol	-	-
α -Humulene	202	2.81
Isopulegol	-	-
d-Limonene	2421	33.7
Linalool	70.8	0.986
β -Myrcene	889	12.4
cis-Nerolidol	357	4.97
trans-Nerolidol	-	-
α -Ocimene	-	-
β -Ocimene	652	9.08
α -Pinene	1054	14.7
β -Pinene	846	11.8
α -Terpinene	-	-
γ -Terpinene	-	-
Terpinolene	-	-
TOTAL	7179	100



Terpenoid Distribution

(% of Total Terpenes)



Reporting Limit ($\mu\text{g/g}$) 11

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

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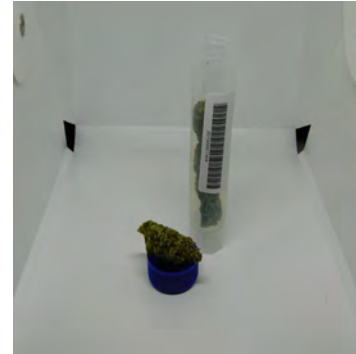
Remarks:

HEAVY METAL PROFILE

Analysis Date/Time: 02-20-2019 1605 **Method:** ICP-OES (EPA 200.7)
Analyst: KWF **Instrument:** Agilent 720-ES

Deviations from SOP:
None

<u>Heavy Metal</u>	<u>Result</u> (µg/kg)	<u>Action Level</u> (µg/kg)
Arsenic (As)	-	200
Cadmium (Cd)	-	200
Lead (Pb)	-	100
Mercury (Hg)	-	500



Abbreviations: ICP - Inductively-Coupled Plasma, OES - Optical Emission 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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Sample Date: 02/12/2019

Lab ID: 2019001304
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 02-22-2019 1700 **Method:** Hardy Diagnostics CompactDry
Analyst: KWF **Instrument:** Plate/Incubation (35°C)

Deviations from SOP:
None

<u>Bacteria/Microbe</u>	<u>Result (CFU/mL)</u>	<u>Action Level (CFU/mL)</u>
Coliforms, Total	Absent	100
Escherichia Coli (E. Coli)	Absent	1
Yeast	Absent	1000
Mold	Absent	1000
Salmonella spp.	Absent	1



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/mL)

1

"Absent" not detected above reporting limit

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Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blueberry
Sample Date: 02/12/2019

Lab ID: 2019001304
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

PESTICIDE PROFILE

Analysis Date/Time: 02-21-2019 1412 **Method:** LC/MS/MS and GC/MS
Analyst: KWF

Deviations from SOP:
Instrument: Waters TQD and Agilent 7890/5975 None

<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)	<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)
Abamectin (71751-41-2)	-	0.5	Imazalil (35554-44-0)	-	0.2
Acephate (30560-19-1)	-	0.4	Imidacloprid (138261-41-3)	-	0.4
Acequinocyl (57960-19-7)	-	2	Kresoxim-methyl* (143390-89-0)	-	0.4
Acetamiprid (135410-20-7)	-	0.2	Malathion (121-75-5)	-	0.2
Aldicarb (116-06-3)	-	0.4	Metalaxyl* (57837-19-1)	-	0.2
Azoxystrobin (131860-33-8)	-	0.2	Methiocarb (2032-65-7)	-	0.2
Bifenazate* (149877-41-8)	-	0.2	Methomyl (16752-77-5)	-	0.4
Bifenthrin* (82657-04-3)	-	0.2	Methyl parathion* (298-0-0)	-	0.2
Boscalid* (188425-85-6)	-	0.4	MGK 264* (113-48-4)	-	0.2
Carbaryl (63-25-2)	-	0.2	Myclobutanil (88671-89-0)	-	0.2
Carbofuran (1563-66-2)	-	0.2	Naled (300-76-5)	-	0.5
Chlorantraniliprole (800008-45-7)	-	0.2	Oxamyl (23135-22-0)	-	1
Chlorfenapyr* (122453-73-0)	-	1	Paclobutrazol* (76738-62-0)	-	0.4
Chlorpyrifos* (2921-88-2)	-	0.2	Permethrins* (52645-53-1)	-	0.2
Clofentezine (74115-24-5)	-	0.2	Phosmet* (732-11-6)	-	0.2
Cyfluthrin* (68359-37-5)	-	1	Piperonyl butoxide* (51-03-6)	-	2
Cypermethrin* (52315-07-8)	-	1	Prallethrin* (2331-36-9)	-	0.2
Daminozide (1596-84-5)	-	1	Propiconazole (60207-90-1)	-	0.4
DDVP (62-73-7)	-	0.1	Propoxur* (114-26-1)	-	0.2
Diazinon* (333-41-5)	-	0.2	Pyrethrins* (8003-34-7)	-	1
Dimethoate (60-51-5)	-	0.2	Pyridaben* (96489-71-3)	-	0.2
Ethoprophos* (13194-48-4)	-	0.2	Spinosad A (168316-95-8)	-	0.2
Etofenprox (80844-07-1)	-	0.4	Spinosad D (168316-95-8)	-	0.2
Etoxazole (153233-91-1)	-	0.2	Spiromesifen (283594-90-1)	-	0.2
Fenoxycarb (72490-01-8)	-	0.2	Spirotetramat (203313-25-1)	-	0.2
(E)-Fenpyroximate (134098-61-6)	-	0.4	Spiroxamine (118134-30-8)	-	0.4
Fipronil* (120068-37-3)	-	0.4	Tebuconazole (80443-41-0)	-	0.4
Fonicamid (158062-67-0)	-	1	Thiacloprid (111988-49-9)	-	0.2
Fludioxinil (131341-86-1)	-	0.4	Thiamethoxam (153719-23-4)	-	0.2
Hexythiazox (78587-05-0)	-	1	Trifloxystrobin* (141517-21-7)	-	0.2



Color Key



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

Pyrethrin measured as the cumulative residue of pyrethrin I, cinerin I, and jasmolin I.

<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		

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

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 Kyle W. Felling, Ph.D.
 Laboratory Director

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Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Cookie
Sample Date: 02/12/2019

Lab ID: 2019001305
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

Analysis Date/Time: 02-14-2019 1940
Analyst: KWF

Method: HPLC/UV
Instrument: Agilent 1100

Moisture Content (%): 8.32
Water Activity (aw): 0.5374 at 25.10°C

<u>Cannabinoid</u>	<u>Result</u> (%)	<u>Result</u> (mg/g)	<u>Reporting Limit</u> (mg/g)	<u>Per Unit</u> (mg)
CBD	<RL	<RL	0.050	-
CBDa	0.0682	0.682	0.050	0.680
CBDv	0.0947	0.947	0.050	0.950
Δ9-THC	0.853	8.53	0.050	8.53
Δ8-THC	0.0848	0.848	0.050	0.850
THCa	23.4	234	0.050	234
CBC	0.0258	0.258	0.050	0.260
CBG	0.0583	0.583	0.050	0.580
CBGa	0.631	6.31	0.050	6.31
CBN	<RL	<RL	0.050	-
TOTAL	25.2	252		252



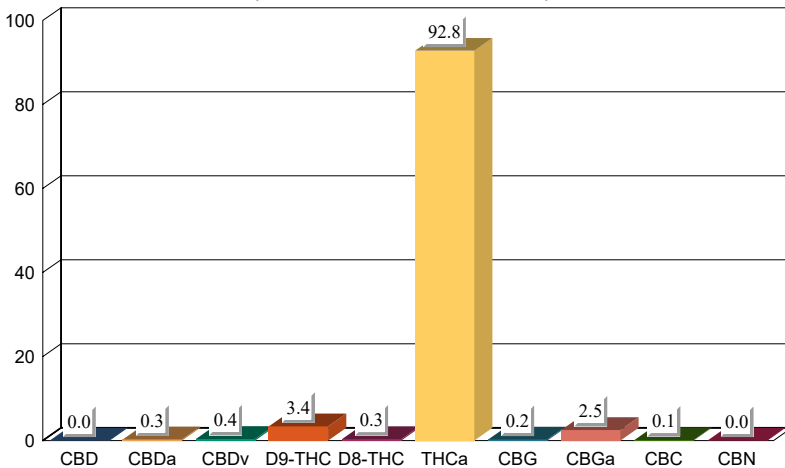
TOTAL THC 21.4 214 214
TOTAL CBD 0.0598 0.598 0.600

UNIT MASS (g): 1.00

Deviations from standard operating procedure: None

Cannabinoid Distribution

(% of Total Cannabinoids)



*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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Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Cookie
Sample Date: 02/12/2019

Lab ID: 2019001305
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

TERPENOID PROFILE

Analysis Date/Time: 02-20-2019 1853 **Method:** HS/GC/MS (Internal Method-002)
Analyst: KWF

Deviations from SOP:
None

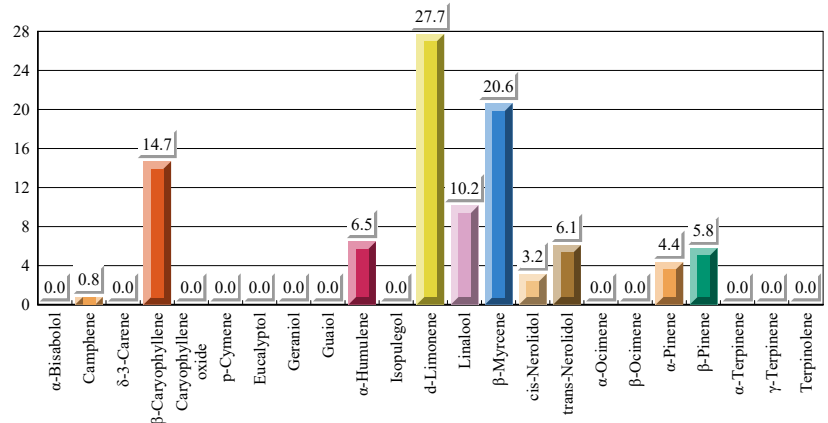
Instrument: Agilent 7890/5975

<u>Terpene</u>	<u>Result</u> (<u>µg/g</u>)	<u>Result</u> (<u>% total terpenes</u>)
α-Bisabolol	-	-
Camphene	99.2	0.791
δ-3-Carene	-	-
β-Caryophyllene	1843	14.7
Caryophyllene oxide	-	-
p-Cymene	-	-
Eucalyptol	-	-
Geraniol	-	-
Guaiol	-	-
α-Humulene	814	6.49
Isopulegol	-	-
d-Limonene	3479	27.7
Linalool	1275	10.2
β-Myrcene	2588	20.6
cis-Nerolidol	398	3.17
trans-Nerolidol	766	6.11
α-Ocimene	-	-
β-Ocimene	-	-
α-Pinene	549	4.37
β-Pinene	729	5.81
α-Terpinene	-	-
γ-Terpinene	-	-
Terpinolene	-	-
TOTAL	12539	100



Terpenoid Distribution

(% of Total Terpenes)



Reporting Limit (µg/g) 15

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

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Lab ID: 2019001305
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

HEAVY METAL PROFILE

Analysis Date/Time: 02-20-2019 1608 **Method:** ICP-OES (EPA 200.7)
Analyst: KWF **Instrument:** Agilent 720-ES

Deviations from SOP:
None

<u>Heavy Metal</u>	<u>Result</u> ($\mu\text{g}/\text{kg}$)	<u>Action Level</u> ($\mu\text{g}/\text{kg}$)
Arsenic (As)	-	200
Cadmium (Cd)	-	200
Lead (Pb)	-	100
Mercury (Hg)	-	500



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

Color Key

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

Reporting Limit ($\mu\text{g}/\text{kg}$)

50

"-" not detected above reporting limit

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Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 02-22-2019 1700 **Method:** Hardy Diagnostics CompactDry
Analyst: KWF **Instrument:** Plate/Incubation (35°C)

Deviations from SOP:
None

<u>Bacteria/Microbe</u>	<u>Result (CFU/mL)</u>	<u>Action Level (CFU/mL)</u>
Coliforms, Total	Absent	100
Escherichia Coli (E. Coli)	Absent	1
Yeast	Absent	1000
Mold	Absent	1000
Salmonella spp.	Absent	1



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/mL)

1

"Absent" not detected above reporting limit

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Date Completed: 02/22/2019

Remarks:

PESTICIDE PROFILE

Analysis Date/Time: 02-21-2019 1433 **Method:** LC/MS/MS and GC/MS
Analyst: KWF

Instrument: Waters TQD and Agilent 7890/5975 None

Deviations from SOP:

<u>Pesticide</u>	<u>Result</u> ($\mu\text{g/g}$)	<u>Action Level</u> ($\mu\text{g/g}$)	<u>Pesticide</u>	<u>Result</u> ($\mu\text{g/g}$)	<u>Action Level</u> ($\mu\text{g/g}$)
Abamectin (71751-41-2)	-	0.5	Imazalil (35554-44-0)	-	0.2
Acephate (30560-19-1)	-	0.4	Imidacloprid (138261-41-3)	-	0.4
Acequinocyl (57960-19-7)	-	2	Kresoxim-methyl* (143390-89-0)	-	0.4
Acetamiprid (135410-20-7)	-	0.2	Malathion (121-75-5)	-	0.2
Aldicarb (116-06-3)	-	0.4	Metalaxyl* (57837-19-1)	-	0.2
Azoxystrobin (131860-33-8)	-	0.2	Methiocarb (2032-65-7)	-	0.2
Bifenazate* (149877-41-8)	-	0.2	Methomyl (16752-77-5)	-	0.4
Bifenthrin* (82657-04-3)	-	0.2	Methyl parathion* (298-0-0)	-	0.2
Boscalid* (188425-85-6)	-	0.4	MGK 264* (113-48-4)	-	0.2
Carbaryl (63-25-2)	-	0.2	Myclobutanil (88671-89-0)	-	0.2
Carbofuran (1563-66-2)	-	0.2	Naled (300-76-5)	-	0.5
Chlorantraniliprole (800008-45-7)	-	0.2	Oxamyl (23135-22-0)	-	1
Chlorfenapyr* (122453-73-0)	-	1	Paclobutrazol* (76738-62-0)	-	0.4
Chlorpyrifos* (2921-88-2)	-	0.2	Permethrins* (52645-53-1)	-	0.2
Clofentezine (74115-24-5)	-	0.2	Phosmet* (732-11-6)	-	0.2
Cyfluthrin* (68359-37-5)	-	1	Piperonyl butoxide* (51-03-6)	-	2
Cypermethrin* (52315-07-8)	-	1	Prallethrin* (2331-36-9)	-	0.2
Daminozide (1596-84-5)	-	1	Propiconazole (60207-90-1)	-	0.4
DDVP (62-73-7)	-	0.1	Propoxur* (114-26-1)	-	0.2
Diazinon* (333-41-5)	-	0.2	Pyrethrins* (8003-34-7)	-	1
Dimethoate (60-51-5)	-	0.2	Pyridaben* (96489-71-3)	-	0.2
Ethoprophos* (13194-48-4)	-	0.2	Spinosad A (168316-95-8)	-	0.2
Etofenprox (80844-07-1)	-	0.4	Spinosad D (168316-95-8)	-	0.2
Etoxazole (153233-91-1)	-	0.2	Spiromesifen (283594-90-1)	-	0.2
Fenoxycarb (72490-01-8)	-	0.2	Spirotetramat (203313-25-1)	-	0.2
(E)-Fenpyroximate (134098-61-6)	-	0.4	Spiroxamine (118134-30-8)	-	0.4
Fipronil* (120068-37-3)	-	0.4	Tebuconazole (80443-41-0)	-	0.4
Fonicamid (158062-67-0)	-	1	Thiacloprid (111988-49-9)	-	0.2
Fludioxinil (131341-86-1)	-	0.4	Thiamethoxam (153719-23-4)	-	0.2
Hexythiazox (78587-05-0)	-	1	Trifloxystrobin* (141517-21-7)	-	0.2



Color Key

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

Reporting Limit ($\mu\text{g/g}$)
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

Pyrethrin measured as the cumulative residue of pyrethrin I, cinerin I, and jasmolin I.

<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		

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

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REPORT OF LABORATORY ANALYSIS

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

CERTIFICATE OF ANALYSIS

Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blue Monster
Sample Date: 02/12/2019

Lab ID: 2019001306
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

Analysis Date/Time: 02-14-2019 1951
Analyst: KWF

Method: HPLC/UV
Instrument: Agilent 1100

Moisture Content (%): 7.82
Water Activity (aw): 0.4931 at 24.99°C

<u>Cannabinoid</u>	<u>Result (%)</u>	<u>Result (mg/g)</u>	<u>Reporting Limit (mg/g)</u>	<u>Per Unit (mg)</u>
CBD	<RL	<RL	0.050	-
CBDa	0.0721	0.721	0.050	0.720
CBDv	0.102	1.02	0.050	1.02
Δ9-THC	0.669	6.69	0.050	6.69
Δ8-THC	0.134	1.34	0.050	1.34
THCa	19.6	196	0.050	196
CBC	0.0179	0.179	0.050	0.180
CBG	0.0276	0.276	0.050	0.280
CBGa	0.127	1.27	0.050	1.27
CBN	<RL	<RL	0.050	-
TOTAL	20.7	207		207



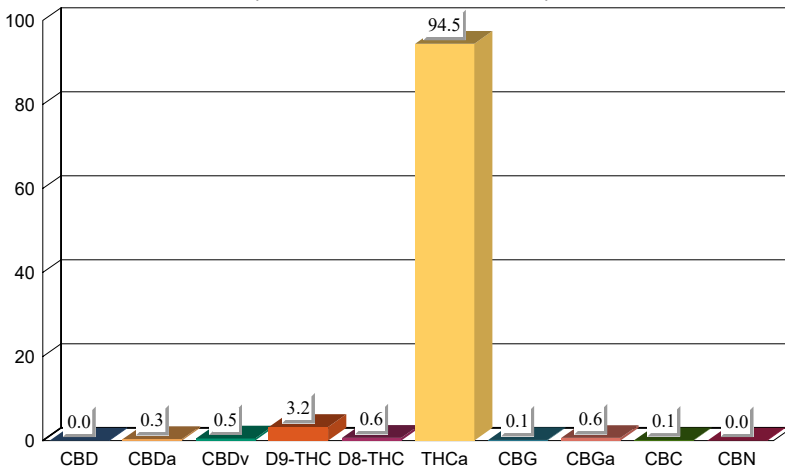
TOTAL THC 17.8 178
TOTAL CBD 0.0632 0.632

UNIT MASS (g): 1.00

Deviations from standard operating procedure: None

Cannabinoid Distribution

(% of Total Cannabinoids)



*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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Laboratory Director

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Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blue Monster
Sample Date: 02/12/2019

Lab ID: 2019001306
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

TERPENOID PROFILE

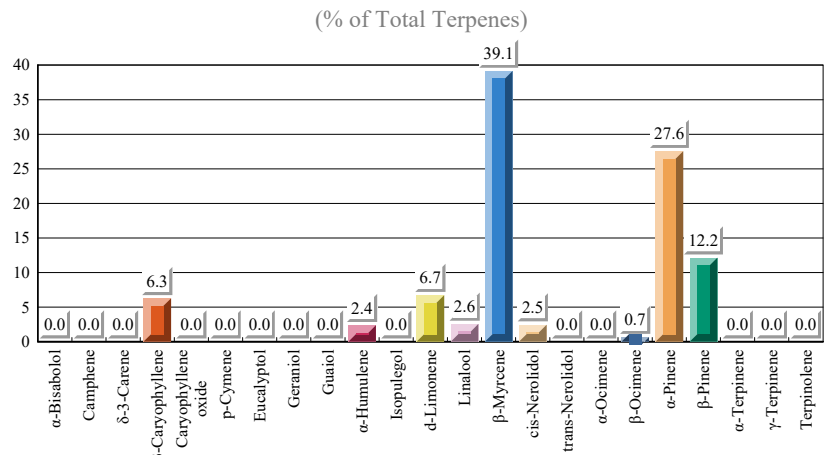
Analysis Date/Time: 02-20-2019 1919 **Method:** HS/GC/MS (Internal Method-002)
Analyst: KWF **Instrument:** Agilent 7890/5975

Deviations from SOP:
None

<u>Terpene</u>	<u>Result</u> ($\mu\text{g/g}$)	<u>Result</u> (%, total terpenes)
α -Bisabolol	-	-
Camphene	-	-
δ -3-Carene	-	-
β -Caryophyllene	613	6.29
Caryophyllene oxide	-	-
p-Cymene	-	-
Eucalyptol	-	-
Geraniol	-	-
Guaiol	-	-
α -Humulene	233	2.39
Isopulegol	-	-
d-Limonene	656	6.73
Linalool	251	2.57
β -Myrcene	3816	39.1
cis-Nerolidol	241	2.48
trans-Nerolidol	-	-
α -Ocimene	-	-
β -Ocimene	66.0	0.677
α -Pinene	2686	27.6
β -Pinene	1186	12.2
α -Terpinene	-	-
γ -Terpinene	-	-
Terpinolene	-	-
TOTAL	9748	100



Terpenoid Distribution



Reporting Limit ($\mu\text{g/g}$) 10

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

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Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blue Monster
Sample Date: 02/12/2019

Lab ID: 2019001306
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

HEAVY METAL PROFILE

Analysis Date/Time: 02-20-2019 1611 **Method:** ICP-OES (EPA 200.7)
Analyst: KWF **Instrument:** Agilent 720-ES

Deviations from SOP:
None

<u>Heavy Metal</u>	<u>Result</u> ($\mu\text{g}/\text{kg}$)	<u>Action Level</u> ($\mu\text{g}/\text{kg}$)
Arsenic (As)	-	200
Cadmium (Cd)	-	200
Lead (Pb)	-	100
Mercury (Hg)	-	500



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

Color Key

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

Reporting Limit ($\mu\text{g}/\text{kg}$)

50

"-" not detected above reporting limit

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Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blue Monster
Sample Date: 02/12/2019

Lab ID: 2019001306
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 02-22-2019 1700 **Method:** Hardy Diagnostics CompactDry
Analyst: KWF **Instrument:** Plate/Incubation (35°C)

Deviations from SOP:
None

<u>Bacteria/Microbe</u>	<u>Result (CFU/mL)</u>	<u>Action Level (CFU/mL)</u>
Coliforms, Total	Absent	100
Escherichia Coli (E. Coli)	Absent	1
Yeast	Absent	1000
Mold	Absent	1000
Salmonella spp.	Absent	1



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/mL)

1

"Absent" not detected above reporting limit

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Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): Blue Monster
Sample Date: 02/12/2019

Lab ID: 2019001306
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

PESTICIDE PROFILE

Analysis Date/Time: 02-21-2019 1454 **Method:** LC/MS/MS and GC/MS
Analyst: KWF

Instrument: Waters TQD and Agilent 7890/5975 None

Deviations from SOP:

<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)	<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)
Abamectin (71751-41-2)	-	0.5	Imazalil (35554-44-0)	-	0.2
Acephate (30560-19-1)	-	0.4	Imidacloprid (138261-41-3)	-	0.4
Acequinocyl (57960-19-7)	-	2	Kresoxim-methyl* (143390-89-0)	-	0.4
Acetamiprid (135410-20-7)	-	0.2	Malathion (121-75-5)	-	0.2
Aldicarb (116-06-3)	-	0.4	Metalaxyl* (57837-19-1)	-	0.2
Azoxystrobin (131860-33-8)	-	0.2	Methiocarb (2032-65-7)	-	0.2
Bifenazate* (149877-41-8)	-	0.2	Methomyl (16752-77-5)	-	0.4
Bifenthrin* (82657-04-3)	-	0.2	Methyl parathion* (298-0-0)	-	0.2
Boscalid* (188425-85-6)	-	0.4	MGK 264* (113-48-4)	-	0.2
Carbaryl (63-25-2)	-	0.2	Myclobutanil (88671-89-0)	-	0.2
Carbofuran (1563-66-2)	-	0.2	Naled (300-76-5)	-	0.5
Chlorantraniliprole (800008-45-7)	-	0.2	Oxamyl (23135-22-0)	-	1
Chlorfenapyr* (122453-73-0)	-	1	Paclobutrazol* (76738-62-0)	-	0.4
Chlorpyrifos* (2921-88-2)	-	0.2	Permethrins* (52645-53-1)	-	0.2
Clofentezine (74115-24-5)	-	0.2	Phosmet* (732-11-6)	-	0.2
Cyfluthrin* (68359-37-5)	-	1	Piperonyl butoxide* (51-03-6)	-	2
Cypermethrin* (52315-07-8)	-	1	Prallethrins* (2331-36-9)	-	0.2
Daminozide (1596-84-5)	-	1	Propiconazole (60207-90-1)	-	0.4
DDVP (62-73-7)	-	0.1	Propoxur* (114-26-1)	-	0.2
Diazinon* (333-41-5)	-	0.2	Pyrethrins* (8003-34-7)	-	1
Dimethoate (60-51-5)	-	0.2	Pyridaben* (96489-71-3)	-	0.2
Ethoprophos* (13194-48-4)	-	0.2	Spinosad A (168316-95-8)	-	0.2
Etofenprox (80844-07-1)	-	0.4	Spinosad D (168316-95-8)	-	0.2
Etoxazole (153233-91-1)	-	0.2	Spiromesifen (283594-90-1)	-	0.2
Fenoxycarb (72490-01-8)	-	0.2	Spirotetramat (203313-25-1)	-	0.2
(E)-Fenpyroximate (134098-61-6)	-	0.4	Spiroxamine (118134-30-8)	-	0.4
Fipronil* (120068-37-3)	-	0.4	Tebuconazole (80443-41-0)	-	0.4
Flonicamid (158062-67-0)	-	1	Thiacloprid (111988-49-9)	-	0.2
Fludioxinil (131341-86-1)	-	0.4	Thiamethoxam (153719-23-4)	-	0.2
Hexythiazox (78587-05-0)	-	1	Trifloxystrobin* (141517-21-7)	-	0.2



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

Pyrethrin measured as the cumulative residue of pyrethrin I, cinerin I, and jasmolin I.

<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		

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

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

CERTIFICATE OF ANALYSIS

Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): XXX OG
Sample Date: 02/12/2019

Lab ID: 2019001307
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

Analysis Date/Time: 02-14-2019 2002
Analyst: KWF

Method: HPLC/UV
Instrument: Agilent 1100

Moisture Content (%): 7.77
Water Activity (aw): 0.4851 at 24.99°C

<u>Cannabinoid</u>	<u>Result (%)</u>	<u>Result (mg/g)</u>	<u>Reporting Limit (mg/g)</u>	<u>Per Unit (mg)</u>
CBD	<RL	<RL	0.050	-
CBDa	0.0483	0.483	0.050	0.480
CBDv	<RL	<RL	0.050	-
Δ9-THC	1.75	17.5	0.050	17.5
Δ8-THC	0.101	1.01	0.050	1.01
THCa	20.4	204	0.050	204
CBC	0.0286	0.286	0.050	0.290
CBG	0.0514	0.514	0.050	0.510
CBGa	0.0928	0.928	0.050	0.930
CBN	<RL	<RL	0.050	-
TOTAL	22.5	225		225



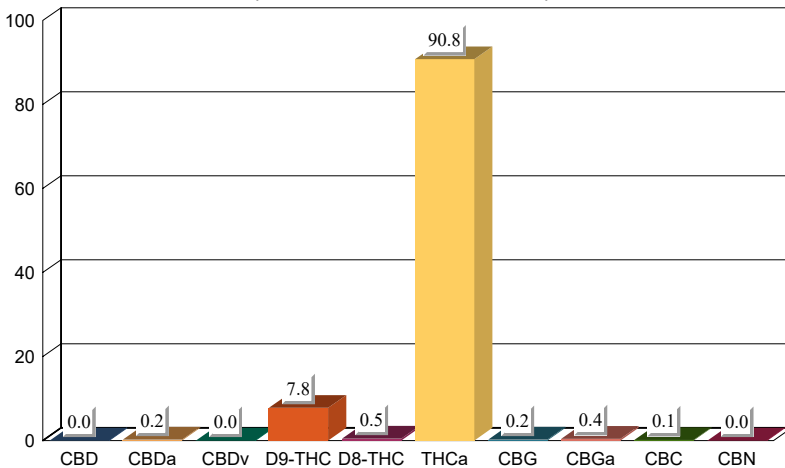
TOTAL THC 19.7 197
TOTAL CBD 0.0423 0.423

UNIT MASS (g): 1.00

Deviations from standard operating procedure: None

Cannabinoid Distribution

(% of Total Cannabinoids)



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

CERTIFICATE OF ANALYSIS

Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): XXX OG
Sample Date: 02/12/2019

Lab ID: 2019001307
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

TERPENOID PROFILE

Analysis Date/Time: 02-20-2019 1944 **Method:** HS/GC/MS (Internal Method-002)
Analyst: KWF

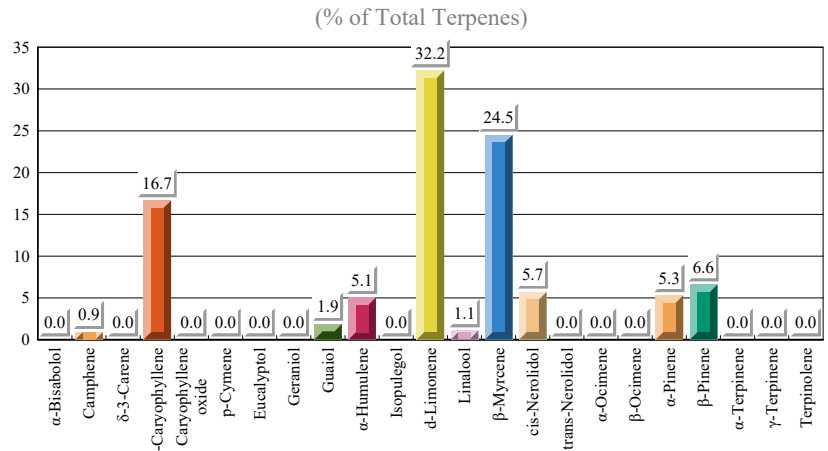
Deviations from SOP:
None

Instrument: Agilent 7890/5975

<u>Terpene</u>	<u>Result</u> (<u>µg/g</u>)	<u>Result</u> (<u>% total terpenes</u>)
α-Bisabolol	-	-
Camphene	71.1	0.915
δ-3-Carene	-	-
β-Caryophyllene	1294	16.7
Caryophyllene oxide	-	-
p-Cymene	-	-
Eucalyptol	-	-
Geraniol	-	-
Guaiol	146	1.88
α-Humulene	394	5.07
Isopulegol	-	-
d-Limonene	2500	32.2
Linalool	85.6	1.10
β-Myrcene	1903	24.5
cis-Nerolidol	445	5.73
trans-Nerolidol	-	-
α-Ocimene	-	-
β-Ocimene	-	-
α-Pinene	412	5.31
β-Pinene	512	6.60
α-Terpinene	-	-
γ-Terpinene	-	-
Terpinolene	-	-
TOTAL	7763	100



Terpenoid Distribution



Reporting Limit (µg/g) 11

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

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Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): XXX OG
Sample Date: 02/12/2019

Lab ID: 2019001307
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

HEAVY METAL PROFILE

Analysis Date/Time: 02-20-2019 1614 **Method:** ICP-OES (EPA 200.7)
Analyst: KWF **Instrument:** Agilent 720-ES

Deviations from SOP:
None

<u>Heavy Metal</u>	<u>Result</u> (µg/kg)	<u>Action Level</u> (µg/kg)
Arsenic (As)	-	200
Cadmium (Cd)	-	200
Lead (Pb)	-	100
Mercury (Hg)	-	500



Abbreviations: ICP - Inductively-Coupled Plasma, OES - Optical Emission 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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Project: Medical Cannabis
Order ID: 2019000367

Customer ID: 90477779
Customer Name: Red Earth Cannabis

Harvest/Extract Lot:
Harvest/Extract Date:

Cultivar (Strain): XXX OG
Sample Date: 02/12/2019

Lab ID: 2019001307
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

MICROBIOLOGICAL PROFILE

Analysis Date/Time: 02-22-2019 1700 **Method:** Hardy Diagnostics CompactDry
Analyst: KWF **Instrument:** Plate/Incubation (35°C)

Deviations from SOP:
None

<u>Bacteria/Microbe</u>	<u>Result (CFU/mL)</u>	<u>Action Level (CFU/mL)</u>
Coliforms, Total	Absent	100
Escherichia Coli (E. Coli)	Absent	1
Yeast	Absent	1000
Mold	Absent	1000
Salmonella spp.	Absent	1



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/mL)

1

"Absent" not detected above reporting limit

Disclaimer: This information is provided as a service and makes no claims of efficacy and/or safety of this product. Results are applicable only for the sample(s) analyzed and for the specific analysis conducted. This report is for informational purposes only and should not be used to diagnose, treat, or prevent any medical-related symptoms. The statements and results herein have not been approved and/or endorsed by the FDA.

REPORT OF LABORATORY ANALYSIS

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CERTIFICATE OF ANALYSIS

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Order ID: 2019000367

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Sample Date: 02/12/2019

Lab ID: 2019001307
Date Received: 02/12/2019

Sample Matrix: Flower
Date Completed: 02/22/2019

Remarks:

PESTICIDE PROFILE

Analysis Date/Time: 02-21-2019 1515 **Method:** LC/MS/MS and GC/MS
Analyst: KWF

Deviations from SOP:
Instrument: Waters TQD and Agilent 7890/5975 None

<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)	<u>Pesticide</u>	<u>Result</u> (µg/g)	<u>Action Level</u> (µg/g)
Abamectin (71751-41-2)	-	0.5	Imazalil (35554-44-0)	-	0.2
Acephate (30560-19-1)	-	0.4	Imidacloprid (138261-41-3)	-	0.4
Acequinocyl (57960-19-7)	-	2	Kresoxim-methyl* (143390-89-0)	-	0.4
Acetamiprid (135410-20-7)	-	0.2	Malathion (121-75-5)	-	0.2
Aldicarb (116-06-3)	-	0.4	Metalaxyl* (57837-19-1)	-	0.2
Azoxystrobin (131860-33-8)	-	0.2	Methiocarb (2032-65-7)	-	0.2
Bifenazate* (149877-41-8)	-	0.2	Methomyl (16752-77-5)	-	0.4
Bifenthrin* (82657-04-3)	-	0.2	Methyl parathion* (298-0-0)	-	0.2
Boscalid* (188425-85-6)	-	0.4	MGK 264* (113-48-4)	-	0.2
Carbaryl (63-25-2)	-	0.2	Myclobutanil (88671-89-0)	-	0.2
Carbofuran (1563-66-2)	-	0.2	Naled (300-76-5)	-	0.5
Chlorantraniliprole (800008-45-7)	-	0.2	Oxamyl (23135-22-0)	-	1
Chlorfenapyr* (122453-73-0)	-	1	Paclobutrazol* (76738-62-0)	-	0.4
Chlorpyrifos* (2921-88-2)	-	0.2	Permethrins* (52645-53-1)	-	0.2
Clofentezine (74115-24-5)	-	0.2	Phosmet* (732-11-6)	-	0.2
Cyfluthrin* (68359-37-5)	-	1	Piperonyl butoxide* (51-03-6)	-	2
Cypermethrin* (52315-07-8)	-	1	Prallethrin* (2331-36-9)	-	0.2
Daminozide (1596-84-5)	-	1	Propiconazole (60207-90-1)	-	0.4
DDVP (62-73-7)	-	0.1	Propoxur* (114-26-1)	-	0.2
Diazinon* (333-41-5)	-	0.2	Pyrethrins* (8003-34-7)	-	1
Dimethoate (60-51-5)	-	0.2	Pyridaben* (96489-71-3)	-	0.2
Ethoprophos* (13194-48-4)	-	0.2	Spinosad A (168316-95-8)	-	0.2
Etofenprox (80844-07-1)	-	0.4	Spinosad D (168316-95-8)	-	0.2
Etoxazole (153233-91-1)	-	0.2	Spiromesifen (283594-90-1)	-	0.2
Fenoxycarb (72490-01-8)	-	0.2	Spirotetramat (203313-25-1)	-	0.2
(E)-Fenpyroximate (134098-61-6)	-	0.4	Spiroxamine (118134-30-8)	-	0.4
Fipronil* (120068-37-3)	-	0.4	Tebuconazole (80443-41-0)	-	0.4
Fonicamid (158062-67-0)	-	1	Thiacloprid (111988-49-9)	-	0.2
Fludioxinil (131341-86-1)	-	0.4	Thiamethoxam (153719-23-4)	-	0.2
Hexythiazox (78587-05-0)	-	1	Trifloxystrobin* (141517-21-7)	-	0.2



Color Key



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

Pyrethrin measured as the cumulative residue of pyrethrin I, cinerin I, and jasmolin I.

<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		

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

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Kyle W. Felling
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Laboratory Director