

## Analytical Report

Bill To: The Black Dirt Company  
Report To: The Black Dirt Company  
Box 3130  
Spruce Grove, AB, Canada  
T7X 3A5  
Attn: Darren Hinkel  
Sampled By:  
Company:

Project:  
ID:  
Name:  
Location:  
LSD:  
P.O.:  
Acct code:

Lot ID: **1147552**  
Control Number: C0080263  
Date Received: Jul 6, 2016  
Date Reported: Jul 27, 2016  
Report Number: 2115927

Reference Number: 1147552-3  
Sample Date: Jul 05, 2016  
Sample Time: NA  
Sample Location: NA  
Sample Description: Schwindt Field  
Topsoil

**Matrix**

Soil

Analyte	Units	Results	Nominal Detection Limit
<b>Physical and Aggregate Properties</b>			
Moisture	Wet Weight @ 105°C	9.8	0.1
Texture		Silt Loam	
Sand	50 µm - 2 mm	25.0	0.1
Silt	2 µm - 50 µm	52.4	0.1
Clay	<2 µm	22.6	0.1
<b>Salinity</b>			
pH	Saturated Paste	7.0	
Electrical Conductivity	Saturated Paste	1.29	0.01
SAR	Saturated Paste	0.4	
% Saturation		55	
Calcium	Saturated Paste	10.4	0.01
Calcium	Saturated Paste	114	
Magnesium	Saturated Paste	2.56	0.02
Magnesium	Saturated Paste	17.0	
Sodium	Saturated Paste	1.07	0.04
Sodium	Saturated Paste	14	
Potassium	Saturated Paste	0.19	0.03
Potassium	Saturated Paste	4	
Chloride	Saturated Paste	0.66	0.06
Chloride	Saturated Paste	13	
Sulfate (SO4)	Saturated Paste	5.23	0.06
Sulfate (SO4)	Saturated Paste	138	
Sulfate-S	Saturated Paste	5.23	0.06
Sulfate-S	Saturated Paste	45.9	
TGR	Saturated Paste	<0.1	
<b>Mono-Aromatic Hydrocarbons - Soil</b>			
Benzene	Dry Weight	<0.005	0.005
Toluene	Dry Weight	<0.02	0.02
Ethylbenzene	Dry Weight	<0.005	0.005
Total Xylenes (m,p,o)	Dry Weight	<0.03	0.03
<b>Volatile Petroleum Hydrocarbons - Soil</b>			
F1 C6-C10	Dry Weight	<10	10
F1 -BTEX	Dry Weight	<10	10
<b>Extractable Petroleum Hydrocarbons - Soil</b>			
Extraction Date	Total Extractables	06-JUL-16	

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<b>Sample Time</b>	NA
<b>Sample Location</b>	
<b>Sample Description</b>	Schwindt Field Topsoil

**Matrix**

Analyte	Units	Matrix	Results	Nominal Detection Limit
<b>Extractable Petroleum Hydrocarbons - Soil - Continued</b>				
Silica Gel Cleanup			Done	
F2c C10-C16	Dry Weight	mg/kg	<50	50
F3c C16-C34	Dry Weight	mg/kg	<50	50
F4c C34-C50	Dry Weight	mg/kg	<100	100
F4HTGCc C34-C50+	Dry Weight	mg/kg	<100	100
% C50+		%	<5	
<b>Subcontracted Analysis</b>				
Subcontractor Report Id	Biovision		1001952	

Approved by:   
Anthony Neumann, MSc  
Laboratory Operations Manager

Data have been validated by Analytical Quality Control and Exova's Integrated Data Validation System (IDVS).

Generation and distribution of the report, and approval by the digitized signature above, are performed through a secure and controlled automatic process.

## Methodology and Notes

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## Method of Analysis

Method Name	Reference	Method	Date Analysis Started	Location
BTEX-CCME in Soil EDM	CCME	* Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	06-Jul-16	Exova Edmonton
BTEX-CCME in Soil EDM	US EPA	* Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis/Gas Chromatography Mass Spectrometry, 5021/8260	06-Jul-16	Exova Edmonton
Moisture	Carter	* Gravimetric Method with Oven Drying, 51.2	07-Jul-16	Exova Edmonton
Particle Size Analysis - GS	Carter	* Hydrometer Method, 55.3	07-Jul-16	Exova Edmonton
Saturated Paste in General Soil	Carter	* Electrical Conductivity and Soluble Ions, Chapter 15	07-Jul-16	Exova Edmonton
Sublet to Biovision	Ext. Lab	See attached test report,	07-Jul-16	Biovision Seed Research Ltd.
TEH-CCME in Soil (Shake) EDM	CCME	* Reference Method for Canada-Wide Standard for PHC in Soil, CWS PHCS TIER 1	06-Jul-16	Exova Edmonton

\* Reference Method Modified

## References

Carter Soil Sampling and Methods of Analysis.  
CCME Canadian Council of Ministers of the Environment  
Ext. Lab External Laboratory  
McKeague Manual on Soil Sampling and Methods of Analysis  
US EPA US Environmental Protection Agency Test Methods

## Comments:

- Clubroot and Weed Seed analysis was performed by a subcontract laboratory. See attached one page reports 1001950, 1001951 and 1001952.

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## Petroleum Hydrocarbons in Soil

### Batch Notes

1. The method used complies with the Reference Method for the Canada Wide Standards for Petroleum Hydrocarbons in Soil - Tier 1, April 2001, including Addendum 1, and is accredited for use in Exova.
2. Modifications of the method: See Notes and Methodology for nonconformances (if applicable).
3. Qualifications on results: See Notes and Methodology for nonconformances (if applicable).
4. Silica gel treatment is performed for fractions F2, F3, F4.
5. F1-BTEX: BTEX has been subtracted from the F1 fraction.
6. If analyzed, naphthalene has been subtracted from fraction F2 and selected PAHs have been subtracted from fraction F3.
7. F4HTGC is reported when more than 5% of the total carbon envelope elutes past C<sub>50</sub>.
8. Exova does not routinely report Gravimetric Heavy Hydrocarbons (F4G or F4G-sg), F4HTGC through extended range high temperature GC is reported instead.
9. When both F4(C<sub>34</sub>-C<sub>50</sub>) and F4HTGC are reported, F4HTGC is the final F4 that is to be used for interpreting the CWS.
10. Quality criteria met for the batch: Data is reported in Quality Control Section of report (if requested).
  - nC<sub>6</sub> and nC<sub>10</sub> response factors (RF) are within 30% of RF for toluene
  - nC<sub>10</sub>, nC<sub>16</sub> and nC<sub>34</sub> RFs are within 10% of each other
  - nC<sub>50</sub> RF is within 30% of the average RF for nC<sub>10</sub>+nC<sub>16</sub>+nC<sub>34</sub>
  - linearity is within 15% for each of the calibrated carbon ranges
11. Batch data for analytical quality control are available on request.
12. Extraction and analysis holding times were met: See Notes and Methodology for nonconformances (if applicable).

  
Approved by:

Anthony Neumann, MSc  
Laboratory Operations Manager

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**Submitted By:**  
Exova (Edmonton)  
7217 Roper Road  
Edmonton, AB CA T6B 3J4  
P (780) 438-5522  
E edmonton@exova.com

**Tested By:** BioVision Seed Labs  
Unit 310, 280 Portage Close  
Sherwood Park, Alberta T8H 2R6  
P 1 (780) 436-8822  
CFIA Acc #1172

*Trevor Mazutinec*  
Trevor Mazutinec, B.Sc.  
Lab Manager

**Sample of:** Soil  
**Designated:** PO 203982  
**Sample ID:** 1147552-3, Schwindt Field Topsoil

REPORT OF ANALYSIS

*Clubroot Pathogen (DNA)	Completed: 7/10/2016	Method	<b>OTH</b>
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Plasmodiophora brassicae (DNA) Not Detected (LOD: 1000 Spores per gram soil)

Accredited by CFIA to conduct tests in accordance with the laboratory's scope of accreditation and the Canadian Methods and Procedures for Testing Seed.

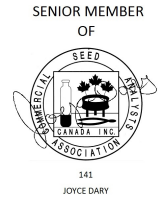
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\*Advisory test -- Method not CFIA M&P prescribed.

Method(s) used for promoting germination of dormant seed.



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 Unit 310, 280 Portage Close  
 Sherwood Park, Alberta T8H 2R6  
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 Edmonton, AB CA T6B 3J4  
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 E edmonton@exova.com

REPORT OF ANALYSIS

*Soil Seed Analysis 50g	Completed: 7/8/2016	Method	OTH
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None Found 0

Accredited by CFIA to conduct tests in accordance with the laboratory's scope of accreditation and the Canadian Methods and Procedures for Testing Seed.

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