

# *The Alcohol School 2019*



## *Agenda*

# Montréal

InterContinental Montréal  
September 8-13, 2019



ETHANOL  
TECHNOLOGY  
INSTITUTE

6120 West Douglas Avenue  
Milwaukee, WI 53218 USA  
800 583-6484 | 414 393-0410  
Fax 414 358-8012  
institute@ethanoltech.com  
www.lbds.com

## *Ethanol Technology Institute Staff*

### **Graeme Walker, Ph.D, DSc**

Scientific Director  
gwalker@lallemand.com

### **Nadya Antoniades**

Administrative Director  
nantoniades@lallemand.com

### **Liz Ward, Ph.D**

Registration Coordinator  
lward@lallemand.com

## *Hotel Information*

### **InterContinental Montréal**

360 rue St-Antoine Ouest  
Montréal, Québec H2Y 3X4 Canada  
514 987-9900  
Fax 514 847-8730  
<https://aws.passkey.com/go/AlcoholSchool2019>

### *Montréal Information*

### **Greater Montréal Convention and Tourism Bureau**

<https://www.mtl.org/en/plan/visitor-information>

## *Facility Visits*

### ***Préfontaine Yeast Plant***

#### **Lallemand Inc.**

1620 rue Préfontaine  
Montréal, Québec H1W 2N8  
Canada  
514 522-2133  
[www.lallemand.com](http://www.lallemand.com)

### ***National Research Council of Canada***

6100 Royal Mount  
Montréal, Québec H4P 2R2  
Canada  
514 496-6100  
[www.nrc-cnrc.gc.ca/eng/](http://www.nrc-cnrc.gc.ca/eng/)

### ***Canada Malting Co. Ltd***

205 Riverside Street  
Montréal, Québec H3C 2H9  
Canada  
514 935-1133  
[www.canadamalting.com](http://www.canadamalting.com)

### ***Diageo Global Supply Valleyfield***

1 rue Salaberry  
Valleyfield, Québec J6T 2G9  
Canada  
450 373-3230  
[www.diageo.com](http://www.diageo.com)

### ***Greenfield Global Quebec, Inc.***

3300 boulevard Marie-Victorin  
Varenes, Québec J3X 1P7  
Canada  
450 652-1800  
[www.greenfield.com](http://www.greenfield.com)

### ***Cirka Distillery***

2075 Rue Cabot  
Montréal, Québec H4E 1E2  
Canada  
514 370-2075  
[www.cirka.ca](http://www.cirka.ca)

# The Alcohol School 2019



## Sunday

SEPT 8, 2019

**5:00 pm – 9:00 pm**

REGISTRATION AND WELCOME

Chez Plume  
Bistro

*Once you've checked into the hotel, please come and find the Alcohol School staff at the Chez Plume Bistro (on the reception desk level across the bridge) anytime after 5 pm. You will have a chance to register for the school, have your picture taken (to later share with your classmates for networking purposes), put your school materials back in your room, and then join us for hors d'oeuvres and an open bar to say hello to old and new friends and get the week off to a good start.*

# The Alcohol School 2019



## Monday

### fuel alcohol session

SEPT 9, 2019

<b>7:30 am – 8:30 am</b>	REGISTRATION	SARAH BERNHARDT ROOM
<b>8:30 am – 8:45 am</b>	Welcome <i>Angus Ballard, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>8:45 am – 9:00 am</b>	Introduction to the Agenda <i>Graeme Walker, Ethanol Technology Institute (Scotland)</i>	
<b>9:00 am – 9:30 am</b>	The Global Fuel Alcohol Industry <i>Craig Pilgrim, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>9:30 am – 10:00 am</b>	The Global Distilled Spirits Industry <i>Steve Wright, Lallemand Biofuels &amp; Distilled Spirits and Spiritech (Canada)</i>	
<b>10:00 am – 10:30 am</b>	COFFEE BREAK	
<b>10:30 am – 11:00 am</b>	Inter-relationships Between Fuel Ethanol and Distilled Spirits <i>Charles Abbas, iBiocat Inc (USA)</i>	
<b>11:00 am – 11:40 am</b>	Grain Receiving, Storage and Milling <i>Robert Piggot, Lallemand Biofuels &amp; Distilled Spirits (Canada)</i>	
<b>11:40 am – 11:50 am</b>	STRETCH/COMFORT BREAK	
<b>11:50 am – 12:30 pm</b>	Enzymes as Processing Aids in Alcohol Production <i>Phil Shaffer, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>12:30 pm – 1:00 pm</b>	Troubleshooting Problem Fermentations <i>Ben Sunderhaus, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	Ravel
<b>1:00 pm – 2:00 pm</b>	LUNCH	
<b>2:00 pm – 2:45 pm</b>	Feedstocks for Fuel Alcohol Production <i>Dale Monceaux, AdvanceBio LLC (USA)</i>	SARAH BERNHARDT ROOM
<b>2:45 pm – 3:30 pm</b>	Wet Mill Processes for Corn Ethanol Production <i>Scott Kohl, Franzenburg (USA)</i>	
<b>3:30 pm – 4:00 pm</b>	COFFEE BREAK	
<b>4:00 pm – 4:45 pm</b>	Grain Mashing for Fuel Alcohol <i>Tera Stoughtenger, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>4:45 pm – 5:30 pm</b>	Current Challenges & New Opportunities in Alcohol Production <i>Vijay Singh, University of Illinois (USA)</i>	

# The Alcohol School 2019



## Monday beverage alcohol session SEPT 9, 2019

<b>7:30 am – 8:30 am</b>	REGISTRATION	<b>SARAH BERNHARDT ROOM</b>
<b>8:30 am – 8:45 am</b>	Welcome <i>Angus Ballard, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>8:45 am – 9:00 am</b>	Introduction to the Agenda <i>Graeme Walker, Ethanol Technology Institute (Scotland)</i>	
<b>9:00 am – 9:30 am</b>	The Global Fuel Alcohol Industry <i>Craig Pilgrim, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>9:30 am – 10:00 am</b>	The Global Distilled Spirits Industry <i>Steve Wright, Lallemand Biofuels &amp; Distilled Spirits and Spiritech (Canada)</i>	
<b>10:00 am – 10:30 am</b>	COFFEE BREAK	
<b>10:30 am – 11:00 am</b>	Inter-relationships Between Fuel Ethanol and Distilled Spirits <i>Charles Abbas, iBiocat Inc (USA)</i>	
<b>11:00 am – 11:40 am</b>	Grain Receiving, Storage and Milling <i>Robert Piggot, Lallemand Biofuels &amp; Distilled Spirits (Canada)</i>	
<b>11:40 am – 11:50 am</b>	STRETCH/COMFORT BREAK	
<b>11:50 am – 12:30 pm</b>	Enzymes as Processing Aids in Alcohol Production <i>Phil Shaffer, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>12:30 pm – 1:00 pm</b>	Troubleshooting Problem Fermentations <i>Ben Sunderhaus, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>1:00 pm – 2:00 pm</b>	LUNCH	Ravel
<b>2:00 pm – 2:45 pm</b>	Raw Materials for Beverage Alcohol Production <i>Douglas Murray, Diageo (Scotland)</i>	<b>SALON SHERWOOD</b>
<b>2:45 pm – 3:30 pm</b>	Mash Preparation in the Beverage Distilling Industry <i>Steve Wright, Lallemand Biofuels &amp; Distilled Spirits and Spiritech (Canada)</i>	
<b>3:30 pm – 4:00 pm</b>	COFFEE BREAK	
<b>4:00 pm – 4:45 pm</b>	Rum Production <i>Shernell Layne, Lallemand Biofuels &amp; Distilled Spirits (Barbados)</i>	
<b>4:45 pm – 5:30 pm</b>	Canadian Whisky Production & Aspects of Continuous Improvement <i>Martin Laberge, Diageo Global Supply (Canada)</i>	

# The Alcohol School 2019



## Tuesday

combined  
session

SEPT 10, 2019

<b>8:30 am – 9:20 am</b>	Sugar Feedstocks for Fuel and Beverage Alcohol <i>Jaime Finguerut, Sugarcane Technology Institute, ITC (Brazil)</i>	SARAH BERNHARDT ROOM
<b>9:20 am – 10:10 am</b>	Sorghum as a Feedstock for Ethanol Production <i>John Duff, National Sorghum Producers (USA)</i>	
<b>10:10 am – 10:40 am</b>	COFFEE BREAK	
<b>10:40 am – 11:30 am</b>	Physiology of Ethanol-Producing Yeasts <i>Graeme Walker, Ethanol Technology Institute (Scotland)</i>	
<b>11:30 am – 12:20 pm</b>	Optimizing Fermentations Through Yeast Nutrition <i>Jim Miers, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>12:20 pm – 12:30 pm</b>	STRETCH/COMFORT BREAK	
<b>12:30 pm – 1:00 pm</b>	Yeast Production for Fuel and Beverage Alcohol <i>Tobias Fischborn, Lallemand R &amp; D (Canada)</i>	
<b>1:00 pm – 2:00 pm</b>	LUNCH	Ravel
<b>2:00 pm – 2:45 pm</b>	Yeast: Propagation for Fuel and Beverage Alcohol <i>Craig Wills, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	SARAH BERNHARDT ROOM
<b>2:45 pm – 3:30 pm</b>	Distillation: Theory <i>Phil Madson, KATZEN International Inc (USA)</i>	
<b>3:30 pm – 4:00 pm</b>	COFFEE BREAK	
<b>4:00 pm – 4:45 pm</b>	Distillation: Practice & Troubleshooting <i>John Cengel, KATZEN International Inc (USA)</i>	
<b>4:45 pm – 5:30 pm</b>	Membrane Technologies for Alcohol Production <i>Virginia Andrade, Whitefox Technologies (Canada)</i>	

# The Alcohol School 2019



## Wednesday

combined  
session

SEPT 11, 2019

<b>7:40 am</b>	BUSES FOR ALL TO NRC RESEARCH LABS	
<b>8:30 am – 8:40 am</b>	Welcome to Lallemand R&D at NRC <i>Frederic D'Aoust, Lallemand Biofuels &amp; Distilled Spirits (Canada)</i>	NRC RESEARCH LABS
<b>8:40 am – 8:50 am</b>	Introduction to Mascoma <i>Emily Stonehouse, Lallemand Biofuels &amp; Distilled Spirits and Mascoma (USA)</i>	
<b>8:50 am – 9:30 am</b>	New Yeasts for Fuel and Beverage Alcohol <i>Emily Stonehouse, Lallemand Biofuels &amp; Distilled Spirits and Mascoma (USA)</i>	
<b>9:30 am – 10:00 am</b>	Bacterial Contamination in Alcohol Production <i>Jayne Kalbfleisch, Lallemand Biofuels and Distilled Spirits (USA)</i>	
<b>10:00 am – 10:30 am</b>	Contamination Control in a Distillery <i>Francois van Zyl, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>10:30 am – 10:55 am</b>	COFFEE BREAK	
<b>11:00 am – 12:00 pm</b>	LAB VISITS	
<b>12:00 pm – 12:30 pm</b>	Applications of Lactic Acid Bacteria in Alcohol Production <i>Jim Steele, Lallemand Biofuels and Distilled Spirits (USA)</i>	
<b>12:30 pm – 1:30 pm</b>	LUNCH	
<b>1:35 pm – 2:40 pm</b>	LAB VISITS	
<b>2:45 pm – 3:30 pm</b>	Key Analytical Methods for Process Monitoring <i>Caleb Ogden, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	
<b>3:30 pm – 4:00 pm</b>	COFFEE BREAK	
<b>4:00 pm – 4:45 pm</b>	Process Control to Improve Alcohol Yield <i>Hank Brittain, OpX Control Inc (USA)</i>	
<b>5:00 pm</b>	BUSES BACK TO HOTEL	
<b>7:00 pm – 10:30 pm</b>	Wine, Beer and Spirits Tasting <i>Complimentary food provided</i>	
<b>Lab Visit I</b> <i>Technology Lab, LBDS</i>	<b>Tour of Fuel Ethanol and Distilled Beverage Laboratory</b> <i>Discussions on various aspects of fermentations applied to beverages and biofuels</i>	
<b>Lab Visit II</b> <i>Strain Development Lab</i>	<b>Tour of Molecular Biology Strain Improvement Laboratory</b> <i>Demonstration of yeast mutagenesis and screening techniques</i>	
<b>Lab Visit III</b> <i>Microbiology Lab</i>	<b>Tour of Culture Collection/Microbiology Laboratory</b> <i>Demonstration of yeast counting by microscope and plating</i>	
<b>Lab Visit IVa</b> <i>Process Lab</i>	<b>Tour of Yeast Scale-up and Process Control Laboratory</b> <i>Demonstration of yeast production and scale-up strategies</i>	
<b>Lab Visit IVb</b> <i>Beer Lab</i>	<b>Tour of Beer Application Laboratory</b> <i>Demonstration of characterization of beer yeast and fermentation ingredients</i>	
<b>Lab Visit V</b> <i>Genetics Lab</i>	<b>Tour of Genetic Identification Laboratory</b> <i>Demonstration of yeast and bacteria identification</i>	
<b>Lab Visit VI</b> <i>Animal Nutrition Lab</i>	<b>Tour of Animal Nutrition Laboratory</b> <i>Discussion of the use of coproducts and their values for animal nutrition</i>	

NOTE: LAB VISIT ORDER OF ROTATION TO VARY

# The Alcohol School 2019



## Thursday

### fuel alcohol session

SEPT 12, 2019

<b>8:30 am – 9:20 am</b>	Dryhouse Technologies in Distilleries <i>Dale Monceaux, AdvanceBio LLC (USA)</i>	SARAH BERNHARDT ROOM
<b>9:20 am – 10:10 am</b>	Fractionation Technologies for Alcohol Production <i>Vijay Singh, University of Illinois (USA)</i>	
<b>10:10 am – 10:40 am</b>	COFFEE BREAK	
<b>10:40 am – 11:30 am</b>	Oil Separation from Corn Ethanol Processes <i>Jennifer Aurandt-Pilgrim, Trucent (USA)</i>	
<b>11:30 am – 12:20 pm</b>	New Technologies for Fuel Alcohol Production <i>Scott Kohl, Franzenburg (USA)</i>	
<b>12:20 pm – 1:30 pm</b>	LUNCH	
<b>1:30 pm – 5:00 pm</b>	Plant Tours to Greenfield Global, OR Diageo Global Supply OR Lallemand's Préfontaine Yeast Plant, OR Canada Malting Co & Cirka Distillery	

#### OPTION #1 Greenfield Global Quebec Inc., Varennes, Québec

Greenfield Global Quebec Inc. is an ICM-designed plant, completed in early 2007, that produces fuel-grade ethanol, carbon dioxide, distillers' dried grains, MWDGS and corn oil. Current capacity is 190 million liters (around 50 million US gallons) of fuel-grade ethanol per year, made from 18 million bushels of Québec corn. In 2008 Greenfield Global completed a second ICM-designed plant in Johnstown, Ontario, that produces 250 million liters of fuel-grade ethanol.

#### OPTION #2 Diageo Global Supply, Salaberry-de-Valleyfield, Québec

The original building dates from 1909 and became a distillery in 1938 producing alcohol for military purposes. It really became a beverage distillery in 1945 with the first vodka, Troika Premium Vodka produced in 1946 and the first whisky, Golden Wedding, produced in 1948. During the fifties, new products such as Schenley OFC and Ron Carioca Rum came online. The sixties saw the construction of additional warehouses for aging and the addition of a grain dryer. On October 22, 1969, the one-millionth barrel was produced, followed by the second millionth in 1986. Today, the plant continues to produce world-renowned brands such as Smirnoff vodka, Captain Morgan rums, Gordon's London Dry gin, and VO Canadian whisky. In 2008 the plant was acquired by Diageo, the largest spirits manufacturer in the world. Today, with a newly installed can production line producing RTDs, Valleyfield plant produces over 6 million cases of beverage alcohol annually.

#### OPTION #3 Lallemand's Préfontaine Yeast Plant Montréal, Québec

Lallemand was founded in Montréal at the end of the 19th century by a young immigrant from the Alsace region of France, Fred "Lallemand." The plant on Préfontaine Street was built in 1915, with production of baker's yeast starting there in 1923. Roland Chagnon acquired the business in 1952 and set it on a path of expansion. The Chagnon family remains the current owner. Today, the plant produces a range of liquid, cake, and dry yeasts for the fuel ethanol, beverage alcohol, and baking industries.

#### OPTION #4 Canada Malting Co. Ltd. & Cirka Distillery Montréal, Québec

Canada Malting Co. Limited was formed in 1902, with the company's first modern malthouse built in Montreal in 1906. From humble beginnings as small, community malsters and brewers in the 19th century, Canada Malting grew to become one of the world's largest malsters. Though they have evolved, their passion for building relationships and creating quality malts has always defined their character.

Cirka Distillery, founded in 2014 next to the historic Lachine Canal, is the first grain to bottle artisanal distillery in Montreal open to the public. They produce vodkas and gins, and recently, have begun putting rye spirit in barrels. The distillery uses Québec's rich terroir with high quality local grains, pristine water and unique aromatic botanicals from the northern boréal forest to create their unique, high quality spirits.

NOTE: This tour will start with the malting plant followed by the craft distillery



# The Alcohol School 2019



## Thursday

## beverage alcohol session

SEPT 12, 2019

<b>8:30 am – 9:20 am</b>	Beverage Alcohol Distillation Batch & Continuous Processes <i>Matt Strickland, Distillerie Cote des Saints (Canada)</i>	<b>SALON SHERWOOD</b>
<b>9:20 am – 10:10 am</b>	Flavour Distillation for Grain Whisky <i>Douglas Murray, Diageo (Scotland)</i>	
<b>10:10 am – 10:40 am</b>	COFFEE BREAK	
<b>10:40 am – 11:30 am</b>	Pilot Fermentations for Yield Potential Analysis & Conversion Process Optimization <i>Kevin Smith, Brown-Forman Corporation (USA)</i>	
<b>11:30 am – 12:20 pm</b>	Analytical Methods for Distilled Spirits <i>Robert Fotheringham, Lallemand Biofuels and Distilled Spirits (Scotland)</i>	
<b>12:20 pm – 1:30 pm</b>	LUNCH	
<b>1:30 pm – 5:00 pm</b>	Plant Tours to Greenfield Global, OR Diageo Global Supply OR Lallemand's Prefontaine Yeast Plant, OR Canada Malting Co & Cirka Distillery	

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NOTE: This tour will start with the malting plant followed by the craft distillery

# The Alcohol School 2019



## Thursday tour options SEPT 12, 2019

	<b>TOUR OPTION 1:</b> Greenfield Global Quebec Inc <b>Groups 1gh, 1ij</b>	<b>TOUR OPTION 2:</b> Diageo Global Supply <b>Groups 2a, 2b</b>	<b>TOUR OPTION 3:</b> Lallemand Préfontaine Yeast Plant Montréal <b>Groups 3e, 3f</b>	<b>TOUR OPTION 4:</b> Canada Malting Co Ltd and Cirka Distillery <b>Groups 4c, 4d</b>	
12:30					12:30
1		bus			1
1:30	bus	box lunch served	bus	bus	1:30
2					2
2:30	Greenfield Global Quebec Inc. Fuel Plant		Lallemand Préfontaine Yeast Plant Montréal	Canada Malting Co Ltd	2:30
3				bus	3
3:30		Diageo Global Supply Valleyfield Distillery			3:30
4			bus	Cirka Distillery	4
4:30	bus				4:30
5					5
5:30				bus	5:30
6		bus			6
6:30					6:30
7					7
7:30					7:30

### General Description

Each delegate will visit only one of the four tour options shown.

Only those on the Diageo tour will be provided with a box lunch due to the distance from the hotel. Other delegates will have lunch on their own and then join their tour group. Spaces are limited, and tours will be filled on a first-come, first-served basis.

- Option 1:** Greenfield Global Quebec Inc. Fuel Plant in Varennes, QC. Groups 1g, 1h, 1i, 1j
- Option 2:** Diageo Global Supply's Distillery in Valleyfield, QC. Lunch on the bus followed by the tour. Groups 2a, 2b
- Option 3:** Lallemand's Préfontaine Yeast Plant in Montréal. Groups 3e, 3f
- Option 4:** Canada Malting Co Ltd and Cirka Distillery Groups 4c, 4d

# The Alcohol School 2019



## Friday fuel alcohol session SEPT 13, 2019

<b>8:30 am – 9:10 am</b>	Overview of Lignocellulosic Ethanol Processes <i>Raquel Rodriguez, Lallemand Biofuels &amp; Distilled Spirits (USA)</i>	<b>SARAH BERNHARDT ROOM</b>
<b>9:10 am – 9:50 am</b>	Fermentation Aspects of Gen 1.5 and Gen 2.0 Ethanol Production <i>Allan Froehlich, Lallemand Biofuels &amp; Distilled Spirits and Mascoma (USA)</i>	
<b>9:50 am – 10:10 am</b>	COFFEE BREAK	
<b>10:10 am – 10:50 am</b>	Commercial-Scale Cellulosic Ethanol Production <i>Mark Yancey, D3Max (USA)</i>	
<b>10:50 am – 11:00 am</b>	STRETCH/COMFORT BREAK	

## Friday beverage alcohol session SEPT 13, 2019

<b>8:30 am – 9:10 am</b>	Distilled Spirits Maturation <i>Don Livermore, Hiram Walker (Canada)</i>	<b>SALON SHERWOOD</b>
<b>9:10 am – 9:50 am</b>	Gin and Vodka Production <i>Kirsty Black, Arbikie Distillery (Scotland)</i>	
<b>9:50 am – 10:10 am</b>	COFFEE BREAK	
<b>10:10 am – 10:50 am</b>	Craft Distilling: Challenges and Opportunities <i>Paul Cirka, Cirka Distilleries (Canada)</i>	
<b>10:50 am – 11:00 am</b>	STRETCH/COMFORT BREAK	

## Friday combined session SEPT 13, 2019

<b>11:00 am – 11:40 am</b>	A Nutritionist's View of Distillers Grains <i>Kurt Rosentrater, Iowa State University (USA)</i>	<b>SARAH BERNHARDT ROOM</b>
<b>11:40 am – 12:30 pm</b>	Technical Opportunities in the Industry – Where are we Going? <i>Phil Madson, KATZEN International Inc.(USA)</i>	
<b>12:30 am – 1:00 pm</b>	Course Wrap-up and Presentation of Certificates	