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## **The Alcohol School 2008 Recap**

The Ethanol Technology Institute has just completed its 2008 Alcohol School schedule. The European Alcohol School was held in the spring in Toulouse, France and the 28<sup>th</sup> North American Alcohol School, was recently completed in a Montréal, Québec venue on the edge of Old Montréal.

### **History**

The Alcohol School started out as a relatively small forum, growing moderately as the industry grew from 1980 to 2003. It provided valuable information in a format that continues to this day. In 2004, Lallemand Ethanol Technology (LET), a business unit of Lallemand, Inc., one of the world's foremost yeast supply companies, took over the management of the school under their educational arm the Ethanol Technology Institute. The updated Alcohol School continues as an important educational resource for fuel ethanol and distilled beverage producers, providing valuable insight into the science of alcohol production.

### **Course Objectives**

The course is designed to educate our delegates in the fields of production comprising both fuel ethanol and beverage alcohol and from allied industrial suppliers. While the bulk of the course is geared towards the ethanol production process for fuel, the majority of the concepts are equally applicable to the distilled beverage industry. The European Alcohol School is generally geared more toward applications of small grains and sugar fermentations while the North American School generally concentrates on corn and wheat, with increasing emphasis on fractionated feedstocks. Both European and North American programs are designed for lab, plant, and management personnel and are organized around lectures, laboratory demonstrations, seminars, and plant visits. This important resource is becoming more valuable every year as the market growth is making the need for continual education a must.

### **Course Agenda**

The delegates listened to an Industry Overview from both the Fuel Ethanol and Distilled Beverage perspective, how the growth of both industries has occurred and what the future holds. Other presentations ranged, from substrate selection and treatment through mash preparation, fermentation (batch and continuous), alcohol distillation and dehydration, and the processing of not only distillers dried grains and thin stillage for animal feed (wet and dry), but for ethanol production as well. Novel methods of starch processing and fractionation of grains, traditional and new process

enzymes, high gravity fermentation technology, cellulose technology and biomass usage were interwoven with discussions on pollution abatement and the need for antimicrobials, cleaning, and sanitation to preserve ethanol yields. Emphasis on yeast production, propagation, and nutritional fermentation management were discussed as well as processing basics such as distillation, molecular sieves, and dry house technologies. Design concepts such as fermentation design and a pertinent discussion on a nutritionist's view on DDGS and how we can improve the quality and consistency to open up more markets to this valuable co-product followed. A relevant and timely topic of water and energy balance in operating facilities was discussed with practical applications for all in attendance.

While most of the topics dealt specifically with the ethanol industry, there was also specific information provided on mashing and fermentation of potable spirits, distillation in general for beverage alcohol and the differences in whisky production from various regions. Overlapping technologies in the total alcohol production industry were emphasized. In conjunction with the lectures during the European School, there was a whisky tasting session dedicated to examining the differences created by particular aging and maturation and by the utilization of different types of malt. Each whiskey was paired with certain types of food to accentuate the various flavour profiles. The North American school featured a networking and tasting session held for the delegates to learn more about different types of beverage alcohol such as beer, wine, rum, vodka, tequila, and whisky to name a few. The tasting was set up to distinguish various types of beverage alcohol from different regions and processing techniques. Pertinent food combinations were also served with the beverages from the various regions.

One of the unique differentiating features of The Alcohol School is the use of a number of the world's foremost experts in these topics as well as the knowledge of the Lallemand Ethanol Technology staff. The partnership between these experts and the Ethanol Technology Institute is invaluable to be able to present this high quality program year after year to the industry.

### **Practical Applications**

In addition to the lectures, tours of various facilities were interwoven into the program to provide the delegates with practical aspects in the application of some of the lectures discussed. In the European School, tours of Lallemand's (Blagnac) laboratory facilities took place in order for the delegates to better understand aspects of microscopy, basic microbiology, yeast and bacteria fermentation, and pilot alcohol fermentations. In the North American school, the delegates spent a day at the National Research Council of Canada's Biotechnology Research Institute (BRI) where the R&D laboratories of Lallemand Ethanol Technology and parent company Lallemand are located. There they learned about yeast scale up and process control, culture collection maintenance and microbiological techniques. Also included were discussions of probiotic bacterial cultures and the interaction of bacterial systems and how genetics provide proof of yeast purity and identity. A visit to Lallemand Inc.'s (Prefontaine) yeast plant also provided an opportunity to learn how this important

fermentation starter is produced, processed and distributed in its various forms to industries around the world.

Visits to an ethanol production facility (Éthanol GreenField - Varennes, Québec) provided delegates with an opportunity to view a first class fuel alcohol facility and to see in practice some of the techniques and knowledge learned from the lectures.

A visit to Diageo Global Supply - Schenley Distillers (Salaberry-de-Valleyfield, Québec) provided another perspective in alcohol production from the distilled beverage point of view. However, emphasis is placed on comparing how similar or different alcohol production is within various industries. The delegates were given the opportunity to interact with other processors and learn how these techniques are used for the production of distilled beverages. Demonstrations such as distillation and a sensory panel were given to get a feel for not only the science, but the art of making alcohol for the distilled beverage industry.

### **Future Education**

Interest in both of The Alcohol Schools (Europe and North America) has been high over the past few years. In response, the Ethanol Technology Institute, run by Dr. Mike Ingledew, has constantly improved not only the quality but the relevance of the topics. Every year new topics are reviewed to ensure that current technologies and operating procedures are considered for inclusion into the agenda. Attendance has grown over the past 4 years and has presented an interesting challenge in mixing the proper number of alcohol producers and allied industry partners. While it would be simple for the Institute to increase attendance, instead the focus has been toward providing the highest quality education possible - thus the decision to limit the number of delegates for each school. Constant improvement is required to achieve our goal of providing the best educational experience. It is the belief of the Ethanol Technology Institute and the response of our former delegates, that the Alcohol School, and *The Alcohol Textbook (provided as part of tuition to each attendee)*, provide the right mix of educational materials to the industry. In addition to the School, The Institute is about to publish the 5<sup>th</sup> Edition of *The Alcohol Textbook*. This is the only textbook in the field of alcohol production that covers fuel alcohol production in detail while discussions of beverage alcohol production technologies are included as well. Chapters are written by industry-leading experts in their field, as well as by Lallemand Ethanol Technology's own senior staff - all allowing us to produce a textbook second to none.

Lallemand Ethanol Technology and The Ethanol Technology Institute, with Professor Emeritus Mike Ingledew as the Scientific Director, are proud to have been a part of this tradition for the past 4 years and look forward to many years to come.

We are happy to announce the following dates for next years 2009 Alcohol Schools to be held in Toulouse, France on March 30 – April 3, and in Montreal, Quebec on Sept 13-18. We hope to see you there! Look for more information on our website at [www.ethanoltech.com](http://www.ethanoltech.com).