

Learning about ethanol production

The Alcohol School 2011 at Toulouse

The Ethanol Technology Institute will hold its 31st Annual European 2011 Alcohol School at Toulouse in France from April 11–15th. Delegates from over all over the world from various different countries will attend this week long course making this a truly international event.

by **Craig Pilgrim**
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The Alcohol School started out as a relatively small forum, growing moderately as the fuel alcohol industry in the States 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 its educational arm, Ethanol Technology Institute.

Over the years the industry has seen moderate growth until the last five to seven in which the industry took off and now it has leveled off for the time being back to moderate growth. So we as a School have grown accordingly. Education has always been a big part of this industry. With the expansion of the industry and more inexperienced people entering it, our School provides the necessary basic information for them. As technology changes, we also adapt our school to introduce new and relevant topics. We deal with the basics of alcohol production but try to keep up with the times as well. The focus in our group is both on alcohol production for fuel and distilled beverages.

We also have an Operators' School which is usually held at Omaha, Nebraska in the US Midwest which is designed for more practical aspects of alcohol production. It is geared more towards the operations side of a plant. There is a lot of hands on applications and a focus on troubleshooting. Most of the same information is there as the Alcohol School but it is more applied to what the average operator can do with that knowledge and how it affects them at the plant level.

The updated 31st Annual Alcohol School continues as an important educational



A fuel ethanol plant in the US mid west.

resource for fuel ethanol and distilled beverage producers, providing valuable scientific insight into the processing of alcohol.

Course Objectives

The course is designed to educate our delegates in both fuel ethanol and beverage alcohol. This year more emphasis will be made on beverage alcohol

production and as a result two separate breakout sessions are dedicated to that market. As usual, there is an equal mix of alcohol technologies applicable to either industry. The European Alcohol School is generally geared more towards the usage of small grains and sugar substrates with some emphasis on fractionated feedstocks. The European programme is designed for laboratory, plant and management personnel



A roundtable session at a recent School. The chap sitting on the step is the microphone monitor.

and is organised around lectures and laboratory demonstrations.

Course Agenda

The delegates will listen to an Industry overview from both fuel ethanol and distilled beverage perspectives, how the growth of both industries has occurred and what the future holds. Other presentations will range, from substrate selection and composition, the effects of small grains on processing, grain receiving, storage and milling (both wet and dry) and subsequent mash preparation. Lectures on fermentation (batch and continuous) and the processing of sugar beets, cane juice and molasses for fermentation will be featured.

Novel methods of dry grind processing, traditional enzymes and enzymes needed as processing aids, high gravity fermentation technology, cellulose technology and biomass usage will be interwoven with discussions on pollution abatement and the need for proper cleaning and sanitation to preserve ethanol yields. Emphasis on yeast production, propagation and nutritional requirements will be discussed as well as processing basics such as distillation, molecular sieves and dry house technologies at the end of the process.

The challenges of analytical methods used in process monitoring, a pertinent discussion on a nutritionist's view of DDGS and how we can improve the quality and consistency to open up more markets to this valuable co-product. The timely topic of water and energy balance in operating facilities will be also be covered with practical applications. The finale will consist of looking at the challenges facing the alcohol industry and some of the technical opportunities for the future including a talk on sustainability and its effect on European legislation and second generation biofuels.

For the breakout sessions in the beverage presentations, the topics deal with specific

information on raw materials used in various beverage processing facilities, mashing and fermentation of potable spirits, distillation for beverage alcohol and a special section on maturation and blending of potable spirits. Quality control procedures and the selection of specialty yeasts for various spirits and the differences in whisky production from various regions are also on the agenda.

New this year are roundtable discussions on important topics facing the alcohol (both ethanol and distilling) industry and utilising the panels' expertise to help find some answers about how to combat them.

One of the unique differentiating features of The Alcohol School is the use of a number of the world's foremost experts as well as the knowledge of the Lallemand Ethanol Technology senior staff.

Practical Applications

In addition to the lectures, tours of various facilities are interwoven into the programme 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 take place in order for the delegates to better understand aspects of microscopy, basic microbiology, yeast and bacterial fermentations and pilot scale alcohol fermentations.

One of the highlights of the European

School is the Scotch whisky tasting session dedicated to examining the differences created by aging and maturation and by the utilisation of different types of malt. Each whisky is paired with certain types of food to accentuate the various flavour profiles. This is a great example of blending general

information about a topic with the practical aspects of putting to use what was actually learned.

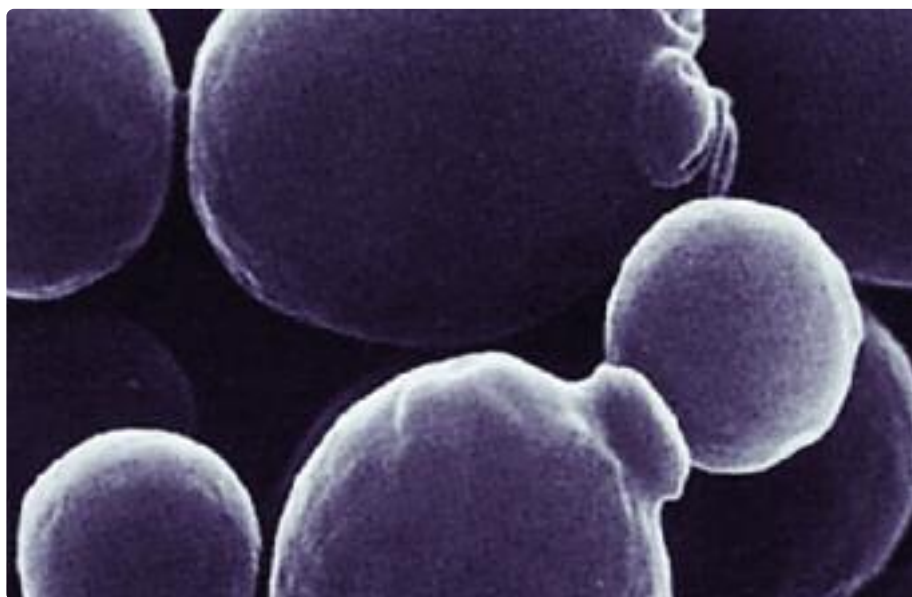
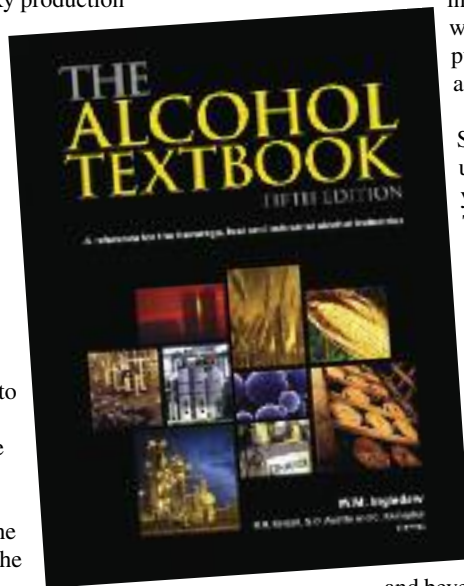
The North American School is held in Montreal usually in September. This year's dates are Sept 18-23. The Montreal school is very similar to that in Toulouse except there is more focus on fuel ethanol as North America is the largest market and is a little more focused on corn, wheat and milo as the feedstock as compared to the smaller grains in Europe. We also have tours of operating fuel ethanol

and beverage alcohol facilities as well as our research labs and yeast production facility.

Interest in both of Lallemand's Alcohol Schools (Europe and North America) has been high over the past few years. In response, the Ethanol Technology Institute 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. Constant improvement is required to achieve our goal of providing the best educational experience possible.

It is the belief of the Ethanol Technology Institute through the response of former delegates, that the Alcohol School with its padfolio of colored prints of each talk, combined with the fifth edition of The Alcohol Textbook (provided as part of tuition to each attendee) provides the right mix of educational materials to the industry. The Alcohol Textbook is the only textbook in the field of alcohol production that covers fuel alcohol production in detail along with discussions of beverage alcohol production technologies. 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. ■

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Delegates will tackle aspects of microscopy, basic microbiology, yeast and bacterial fermentations and pilot scale alcohol fermentations.

