

Emerging Markets

Corn Utilization and Technology Conference

by Ken Hough, OCPA Director of Research & Market Development

In early June, Don McCabe and I attended the 2002 Corn Utilization and Technology Conference (CUTC) in Kansas City, Missouri. This conference, held every two years, is sponsored by the U.S. National Corn Growers Association (NCGA) and the Corn Refiners Association Inc. (the 'wet-millers') and is the premier event for showcasing new and emerging technologies and products for corn processing and value-added market opportunities (largely excluding ethanol, which now has its own dedicated series of conferences).

In overview, the agenda was organized with two concurrent streams of speakers under several topic areas:

- Corn and Biotechnology (regulatory, production and consumer issues related to genetically modified crops)
- Resource Conservation (diverse topics such as clean coal technology, some technical processing and waste management issues, and climate change)
- Supply Chain Management (specialty corn for processing; identity preserved handling and tracking systems; and value-added market opportunities)
- Operations Technologies (new/improved processing technologies)
- Opportunities and Threats for Corn Growers and Refiners (new uses and market outlook for corn)
- Corn - Feedstock of the Future (bio-based products and bio-refinery processing of corn).

The conference also featured an extensive research poster display area highlighting approximately 100 projects directly related to the conference topics, and a trade show of close to 30 exhibitors promoting a variety of wares pertinent to the conference clientele.

Following are a few of the highlights from the CUTC on the topic of 'Emerging Market Opportunities' for corn. Conference highlights on the topics of 'Biotechnology' and 'Supply Chain Management' will be presented in upcoming issues of the Ontario Corn Producer.

Emerging Market Opportunities:

- New market opportunities for ethanol on the horizon include use in e-diesel (5 to 10% blend of ethanol with diesel, to improve combustion and reduce pollution emissions); use of ethanol in fuel cells (a very logical step on the way to the more expensive and more hazardous use of hydrogen for fuel cells, especially where the E-85 refueling infrastructure could be easily adapted to the fuel cell market); new and higher value uses for co-products and extractable constituents; and interest in many countries, including the U.S., Canada, Europe and Asia for a renewable fuels standard (mandate).
- The Agricultural Research Service (ARS) of USDA is investigating potential new uses for constituents of corn oil (such as tocopherols and tocotrienols, having antioxidant and potential cholesterol-lowering benefits) and corn fibre, a major component in distillers' grains from the dry mill ethanol industry and corn gluten meal from wet-milling. Corn fibre can be a source of several valuable constituents, including:
 - Corn fibre oil that contains high levels of cholesterol-lowering and anti-oxidant phytosterols. (In the U.S., food labelling regulations allow health claims based on this type of benefit, and a multitude of products are gaining popularity in the marketplace.)
 - Corn fibre gum with attractive properties suggesting substitution for gum arabic in a variety of food applications
 - Cellulose/acarabinoxylan (CAX) complexes capable of absorbing up to 100 times their weight in water, and therefore useful as bulking agents
 - Polyamine conjugates, such as diferuloylputrescine (DPF) and p-coumaroyl-feruloylputrescine (CFP), which may have natural pesticide properties

- L-arabinose, one of nature's few L-sugars, thus having use as a non-caloric bulking agent and being used in preparation of chiral drugs.

Methods of extracting and purifying these compounds are also being researched.

The U.S. invested almost a quarter of a billion dollars in development of bio-based products and bioenergy in their fiscal year 2001, targeting energy security, climate change, rural development and environmental improvement goals. Under the Agricultural Biomass R&D Act of 2000, federal agencies such as the Department of Energy (DOE), the Department of Agriculture (USDA) and others are compelled to work together to fund research and foster the emerging biobased products and bioenergy industry. Much of this funding is used in cost-sharing (matching) arrangements with industry partners (meaning the dollar commitment to these outcomes is even greater than it first appears.) A joint government/industry vision document and technology roadmap, Plant/Crop-based Renewable Resources 2020, has been developed to guide the coordinated effort, identifying key areas for research and development investment (plant sciences, production, processing, utilization), focusing on several priority technology platforms essential to the future of biobased products (fermentation of sugars; thermochemical conversion of sugars to value-added chemicals; oils and lipids as feedstocks for hydraulic fluids, lubricating oils and novel polymers; proteins as materials; biomass gasification and pyrolysis; and plants as biofactories). Research in many areas with direct, practical applications is already well underway.

[OCPA Home](#)

[OCP Magazine](#)