

NABC NEWS

Spring 2008 No. 36

*Providing an open forum
for exploring issues in
agricultural biotechnology*



NABC'S PRINCIPAL OBJECTIVES ARE TO:

- provide an open forum for persons with different interests and concerns to come together to speak, to listen, to learn, and to participate in meaningful dialogue and evaluation of the potential impacts of agricultural biotechnology
- define issues and public policy options related to biotechnology in the food, agricultural, biobased industrial product, and environmental areas
- promote increased understanding of the scientific, economic, legislative, and social issues associated with agricultural biotechnology by compiling and disseminating information to interested people
- facilitate active communication among researchers, administrators, policymakers, practitioners, and other concerned people to ensure that all viewpoints contribute to the safe, efficacious and equitable development of biotechnology for the benefit of society
- sponsor meetings and workshops and publish and distribute reports that provide a foundation for addressing issues.

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Letter from the Chair...

Agricultural biotechnology has migrated. It has gone from the margins of farming that it occupied 20 years ago, when the technologies for genetic modification of single traits were developed, to a position much nearer the epicenter of international economies. Increasingly, it is aligned with non-food requirements of society. In doing so, it is attracting attention from people and organizations that previously took food for granted but that for other reasons now care what the future holds for farming. Renewable energy, chemicals and materials—things that agriculture can provide—are needed to help address concerns about the future of finite resources and the dependence of economies upon them. This is attention-grabbing stuff.

For many farmers, the activity remains the same. It's the annual cycle of seed and harvest, with the variables of genetics, weather, input costs, and prices being present as they were twenty, or for that matter many more, years ago. While it remains that little can be done about the weather, the movement from the margins to a more central position has made the effects of the other variables more dramatic.

NABC is in its 21st year. During the past two decades it has been a venue for dialogue on opportunities and challenges facing North American agriculture. This year's annual meeting, hosted by the Ohio State University, will carry that tradition forward with in-depth discussions on the new position within which agriculture and agricultural biotechnology now find themselves. Appropriately titled *Reshaping American Agriculture to Meet its Biofuel and Biopolymer Roles*, NABC 20 will bring to the fore dialogue on the issues, the trends and the future of agriculture's broader positioning within the economy. This is necessary and timely dialogue.

There are significant human dimensions to the dialogue. The profession of farming continues to be at the interface of rural economies and traditions, while increasingly subject to global forces that influence costs and revenues. The



ALAN WILDEMAN
UNIVERSITY OF GUELPH
NABC CHAIR 2007-2008

producers of agricultural commodities are typically not a part of value chains that lie downstream of the farm gate. On-going dialogue is needed to assess the research, technology, and economic and public policy to best mitigate trends that put rural livelihoods at risk. NABC-member organizations have a great stake in these matters.

The second human dimension to agricultural biotechnology and its expanding role revolves around students and education. Agricultural biotechnology is more and more an interdisciplinary and multidisciplinary challenge. It is about farming, about chemistry, about physics, about economics, about energy, and about many other things that underpin the new uses of farm products. More than ever before, it is an intensely knowledge-based industry that will depend on a continual infusion of new ideas and entrepreneurship. For these reasons, we have begun to place a greater emphasis on the *Student Voice at NABC*. Through this program, graduate students from member institutions can not only be a part of the dialogue at the annual meetings, they are also invited to contribute their viewpoints on the matters under discussion at the meeting to the final plenary session, and the *Student Voice* becomes a part of the published meeting report.

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Reshaping American Agriculture to Meet Its Biofuel and Biopolymer Roles

NABC 20 will be hosted by the Ohio State University in Columbus, June 3–5

Steve Slack
The Ohio State University

NABC's twentieth annual meeting will welcome attendees to downtown Columbus, Ohio, June 3–5, 2008. The conference will commence with remarks from Ohio Governor Ted Strickland at a joint luncheon with the Ohio Polymer Summit. With the theme, *Reshaping American Agriculture to Meet Its Biofuel and Biopolymer Roles*, speakers and attendees will explore trends and issues associated with using crops as resources for renewable energy and as feedstocks for sustainable synthesis of chemicals and materials while capitalizing on generated co-products and by-products.

As growth in worldwide demand for petroleum resources has led to increased costs and potential shortages, interest in the utilization of crops as an alternative resource has grown. The diversion of commodities, such as corn, to transportation fuel and other uses is raising concerns over impacts on land use and costs of feed and food. Rate and degree of these trends may be debatable, but it is inevitable that they will reshape the agricultural landscape.

The theme will be addressed in four modules designed to frame the questions and further develop insights regarding the issues. Speakers representing expertise in diverse aspects of each topic will present their viewpoints:

- **Module I: Megatrends Reshaping American Agriculture**
John Pierce, DuPont Applied Biosciences
Steve Pueppke, Michigan State University
Benson Lee, Technology Management, Inc.
Peter Ashcroft, Environmental Defense
- **Module II: Optimizing the Value of Co-Products/By-Products**
Stephen Myers, The Ohio State University
Robert Fireovid, USDA Agricultural

Research Services

Joseph Bozell, University of Tennessee

- **Module III: Enhancing Productivity of Biofeedstocks**

Stephen Long, University of Illinois at Urbana-Champaign

Robert Avant, Texas A&M University

David Bransby, Auburn University

- **Module IV: Policy Issues Impacting Agriculture and Bioenergy**

Paul Thompson, Michigan State University

Kenneth Cassman, University of Nebraska

Harry de Gorter, Cornell University

Following the keynote presentations for modules II, III and IV, invited panelists will reflect on the speakers' comments. Each plenary session will conclude with comments and questions from the audience. And—as is traditional for NABC meetings—participants will gather in smaller “breakout” workshops for further discussions of issues raised in the plenary and Q&A sessions and to formulate recommendations for policymakers.

Biographical sketches for the keynote speakers are provided on pages 3-7.

The conference will convene at the Hyatt Regency at noon on Tuesday, June 3, with a joint NABC 20-Ohio Polymer Summit luncheon, and will conclude immediately after lunch on Thursday, June 5. NABC-20 attendees will have the option of attending two portions of the Ohio Polymer Summit 2008:

- Pre-Summit networking party, Monday, June 2, at 6 PM, and
- Summit morning program, Tuesday, June 3, 8:45–11:55 AM.

Additional information on these options is available at <http://oarc.osu.edu/nabc20>.

Student Voice Grants

The *Student Voice at NABC* initiative will be continued at NABC 20. Grants of up

to \$750 are available to graduate-student delegates (GSDs, one per NABC-member institution) to help cover travel and lodging expenses, with the registration fee waived. The *Student Voice* GSDs are expected to attend the plenary sessions and workshops and to meet as a group on the evening of June 4 to identify current and emerging issues in agricultural biotechnology. The list of issues will be reported at the meeting and published in *NABC Report 20*.

Information on *Student Voice* grants is available at <http://nabc.cals.cornell.edu/studentvoice/index.cfm>.

General Registration

Online registration is available at <http://oarc.osu.edu/nabc20>. An early-bird fee of \$375 applies until May 12, 2008, after which registration will cost \$475. This covers the luncheon and dinner on Tuesday, a wine and cheese reception on Wednesday evening, and continental breakfasts lunches and refreshments on Wednesday and Thursday. Also covered are the conference materials and a copy of the proceedings volume scheduled for publication in March 2009.

Lodging expenses are not covered by the registration fee.

Student Registration¹

The registration fee for students is \$100 (<http://oarc.osu.edu/nabc20>), covering the same items and amenities as the general registration fee; it does not include lodging. Proof of status will be required at the registration desk.

Lodging

A block of rooms is reserved at the Hyatt Regency at \$139 per night for up to four people per room. Parking for registered guests is \$10 per day. To receive the reduced room rate, attendees should register online at <http://oarc.osu.edu/nabc20> or call 800.233.1234.

¹Except for participants in the *Student Voice* program.

Banquet and Luncheon Speakers



Christiane Deslauriers studied agronomy and plant breeding at McGill University, and plant biotechnology at the University of Guelph. She joined Agriculture and Agri-Food Canada in 1989, working on regulations for the testing of plants with novel traits. In 1991, she joined the department’s research branch as a tree-fruit breeder in Kentville, NS. In 1999, she was appointed director of the Crops and Livestock Research Centre in Charlottetown, PE, and became science director for biodiversity there in 2002. From December 2003 to October 2005, she was acting director general of the Science Bureau in Ottawa where she oversaw research policy, planning and operations.

Dr. Deslauriers is responsible for the Charlottetown and Saskatoon Research Centres. She serves also as the science director for biobased products and processes, in which capacity she provides leadership and direction in research to discover and develop new industrial, pharmaceutical and nutritional products from crops and other renewable plant resources and from livestock. She is located on the campus of the University of Prince Edward Island, in facilities jointly occupied by staff of the University and of the National Research Council’s Institute for Nutrisciences and Health.■



In October, 2007, **Gordon Gee** was appointed president of the Ohio State University, the leading comprehensive teaching and research institution in the state, with campuses in Columbus, Lima, Mansfield, Marion and Newark, the Agricultural Technical Institute and Ohio Agricultural Research and Development Center in Wooster, and extension offices in every county. The university comprises close to 60,000 students, approximately 40,000 faculty and staff, and has an annual budget of \$3.8 billion. The main campus in Columbus—the largest in the United States—has nearly 52,000 students.

Dr. Gee also has appointments as professor of law and professor of education. Previously he was chancellor of Vanderbilt University (2000–2007) and president of Brown University (1998–2000). He served a first term as president of the Ohio State University from 1990 to 1998, having been president of the University of Colorado (1985–1990), president of West Virginia University (1981–1985), and dean and professor at West Virginia University College of Law (1979–1981). At the J. Reuben Clark Law School of Brigham Young University (1975–1979), he served as associate/full professor and assistant/associate dean.

He has a BA from the University of Utah in history, a JD from Columbia University, and an EdD from Teachers College at Columbia.■



Ted Strickland became governor of Ohio in January, 2007, having served as a member of the US House of Representatives, a minister, a consulting psychologist at the Southern Ohio Correctional Facility and assistant professor of psychology at Shawnee State University.

In Congress, he helped author the Children’s Health Insurance Program (CHIP), and led efforts to keep promises to America’s veterans and to ensure that troops have life-saving equipment. He brought millions in investments to Ohio for roads, technology, economic development and health initiatives.

He came to public service not as a lawyer or investor, but as the son of a steelworker born in Lucasville, OH, one of nine children. After graduating from Northwest High School, he attended Asbury College in Kentucky, receiving a BA in history in 1963. He went on to attend the Asbury Theological Seminary, receiving an MD, then continued his studies at the University of Kentucky, where he obtained a doctorate in counseling psychology in 1980.

Governor Strickland is guided by his *Turnaround Ohio* plan, which focuses on the unbreakable link between economic growth and educational achievement.■

Ohio Polymer Summit 2008

The Ohio Polymer Summit 2008, “Success in Tomorrow’s Polymer Industry,” will be held in conjunction with NABC 20. The Summit is a venue for leaders from Ohio’s plastics, rubber and advanced materials companies to learn about technology and business practices that can help their enterprises grow and compete more effectively.

NABC 20 participants will have the options of attending two segments of the Ohio Polymer Summit 2008:
Pre-Summit Networking Party, Monday, June 2, 6 PM Summit Morning Program, Tuesday, June 3, 8:45—11:55 AM

Plenary Speakers



Peter Ashcroft earned an undergraduate degree in applied physics from the California Institute of Technology before obtaining a PhD in engineering and public policy from Carnegie Mellon University. His graduate research addressed the use of ground-, air-, and space-based observations to characterize atmospheric methane fluxes. He worked for nearly a decade in satellite microwave remote sensing before receiving the Roger Revelle Global Stewardship Fellowship through the American Association for the Advancement of Science. With that fellowship he moved to Washington, DC, where he concentrated primarily on energy issues while working in the office of Senator Joseph Lieberman.

Dr. Ashcroft subsequently accepted a position with the National Climate Campaign of Environmental Defense, where his focus has been fuel and transportation policy. He has taken a leading role in coordinating a council of industrial and non-governmental organizations to develop policies to promote low-carbon fuels and otherwise reduce the greenhouse impact of vehicle fuels as part of a comprehensive climate policy. ■



Robert Avant is the director of the Bioenergy Program at Texas AgriLife Research, part of the Texas A&M University system. Registered as a professional engineer, his >30 years experience includes agricultural production logistics; food, fiber, and oilseed research management; agricultural air-quality engineering; environmental site selection and evaluation; environmental systems design; and biomass and wind-energy research management.

Mr. Avant has served as a World Wide Ag Team participant, (John Deere Waterloo Works), and as a member of the Texas Agricultural Forum Steering Committee and the Texas Agriculture Council. He is a member of the American Society of Biological and Agricultural Engineers, the Texas Agricultural Forum Steering Committee, the Texas A&M College of Agriculture Development Council, the USDA Agricultural Air Quality Task Force and the USEPA Clean Air Act Advisory Committee, and is president of Williamson County Farm Bureau.

Honors that he has received include the Government Service Award from Professional Agricultural Workers (2003), Distinguished Alumnus, Texas A&M College of Agriculture and Life Sciences (2005), and the Special Service Award, American Society of Agricultural and Biological Engineers, Texas Section (2006).

He has BS and MS degrees in agricultural engineering from Texas A&M University. ■



Joseph Bozell was appointed associate professor of biomass chemistry at the University of Tennessee's Forest Products Center in April, 2006. He has a BS in chemistry from South Dakota State University, and a PhD from Colorado State University in organic synthesis and organometallic chemistry. After a postdoctoral fellowship at Princeton University, he joined Monsanto's corporate research staff in St. Louis in 1982. In 1989, he joined the staff of the National Renewable Energy Laboratory in Golden, CO, where he rose to the rank of principal scientist in their National Bioenergy Center.

His primary research interest is in using the tools of organic chemistry to develop technologies for converting renewable materials (biomass, carbohydrates, lignin, lignocellulosics) into chemical products and polymers.

Dr. Bozell has served as editor of two ACS symposium series assessing chemicals from biomass opportunities, has organized two ACS symposia on the use of renewables for chemical production, and is an editor of the Wiley journal *CLEAN – Soil, Air, Water*. He has numerous peer-reviewed publications, meeting and symposium presentations, and has delivered a number of invited lectures on the topic of chemicals from renewables. In 1999, he was a co-recipient of the Environmental Protection Agency's Presidential Green Chemistry Award. ■

**NABC 20 — Reshaping American Agriculture
to Meet Its Biofuel
and Biopolymer Roles**

<http://oardc.osu.edu/nabc20>





David Bransby is a professor of energy crops and bioenergy in the Department of Agronomy and Soils at Auburn University. He emigrated from South Africa in 1987, and is a naturalized US citizen.

With over 30 years of experience in agronomic research, he has spent 20 years specializing in the production and processing of energy crops, a subject in which he has established an international reputation. With over 300 technical publications to his credit, he serves on the editorial boards of two international bioenergy journals and consults for several private bioenergy companies.

In September of 2006, Dr. Bransby briefed Governor Riley of Alabama and President Bush on the status of the emerging biofuels industry. In February 2007 he was invited to the White House to advise President Bush, Secretary of Energy Samuel Bodman and senior White House officials on the feasibility of large-scale cellulosic biofuel production in the United States over the next 10 years.

Prior to joining Auburn University, he was a faculty member of the University of Natal. He has a BS and PhD (grassland science) from the University of Natal and MS degrees from the Universities of Missouri and South Africa. ■



Kenneth Cassman is the director of the Nebraska Center for Energy Sciences Research at the University of Nebraska, and the Heuermann professor of agronomy. He has worked as an agronomist in Brazil, Egypt and the Philippines, and as a faculty member at the University of California-Davis. His research, teaching, and extension efforts have focused on ensuring local and global food security while conserving natural resources and protecting environmental quality.

Dr. Cassman's current efforts include investigating the potential of corn-based cropping systems to produce biofuels, mitigate greenhouse-gas emissions and improve soil and water quality, and the optimization of water-use efficiency and crop productivity in moisture-limited irrigated agriculture.

He has a BS from the University of California-San Diego (1975) and a PhD from the University of Hawaii's College of Tropical Agriculture (1979) and is a fellow of the American Association for the Advancement of Science, the American Society of Agronomy, the Crop Science Society of America, and the Soil Science Society of America. He received the 2004 International Plant Nutrition Award from the International Fertilizer Association, and the 2006 Agronomic Research Award from the American Society of Agronomy. His work has been widely published, including in *Nature*, *PNAS* and *AMBIO*. ■



Harry de Gorter teaches and conducts research at Cornell University on the political economy and applied welfare economics of agricultural trade policy. Much of his recent work has been on biofuels and agricultural trade reform and the Doha Development Agenda, especially the impact of subsidies and protection on developing countries. His research is both theoretical and empirical with direct policy implications for governments, international institutions and non-governmental organizations. Prior to Cornell, he worked for the International Trade Policy Division of the Canadian government. He has long been involved in advising governments and organizations on issues related to agriculture trade policy, including the EU, FAO, G-20, IMF, OECD, UNCTAD, World Bank and WTO.

Dr. de Gorter has published over eighty articles and book chapters, with contributions to the *International Library of Critical Writings in Economics*, the *Handbook of Economics* and the *Princeton Encyclopedia of the World Economy*. Books that include his chapters have twice won the American Agricultural Economics Association's Quality of Communication Award, and he has won the Best Article Award in the *Journal of Agricultural and Resource Economics*. Recent papers focus on the economics of biofuel policies, WTO disciplines on agriculture, alternative agricultural import barriers, domestic subsidy programs and export subsidies, and the impact of trade liberalization. ■



The Student Voice at NABC

TRAVEL STIPEND AND FREE REGISTRATION TO ATTEND NABC 20
FOR ONE GRADUATE STUDENT FROM EACH NABC MEMBER INSTITUTION

<http://nabc.cals.cornell.edu/studentvoice/index.cfm>

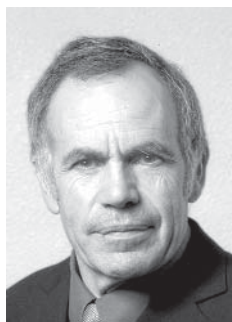
In November, 2004, **Robert Fireovid** joined the national program staff of the USDA-ARS to help lead research programs in quality land utilization (*i.e.* bioproducts). Previously, he was at the Department of Commerce's National Institute of Standards and Technology where he spent 10 years as a program manager in the Advanced Technology Program (ATP). While at ATP, he led nationwide programs in high-risk/high-payback R&D within the chemical, materials, agricultural and industrial biotechnology industries and worked with companies such as Cargill-Dow, Genencor, Metabolix, Seminis, Cognis, Maxygen/Verdia, Maxygen/Codexis and CropTech. Currently, he is the ARS national program leader for bioenergy research.

Dr. Fireovid has been involved in research on bioenergy and biobased products since his PhD work on ethanol fermentation of cellulosic feedstocks over 30 years ago, including bioproducts research on penicillin fermentation and enzymatic production of 6-aminopenicillic acid (Wyeth Laboratories), the conversion of lactic acid to acrylics (Corn Products), and fermentation-derived food additives (Hercules). In addition to a PhD in chemical engineering, he has an MBA from Northwestern University. He served as a business manager at Black & Decker and GE Plastics. ■



Benson Lee is the founding CEO of Technology Management, Inc. (TMI), a Cleveland-based developer of modular, solid-oxide fuel-cell (SOFC) systems for kilowatt-scale, “on-the-farm,” rural and mobile applications. Developed originally by SOHIO/British Petroleum, the system operates on a range of liquid and gas fuels and is designed for operation and maintenance by end-users without special tools, equipment or access to a trained service workforce. To identify cost-effective biomass-waste-to-energy applications in agriculture, TMI has formed collaborations with the Colleges of Agriculture at Cornell University and the Ohio State University. The current system prototype—using biomass-derived fuels such as ethanol and transitional fuels such as natural gas—is being engineered to begin field-testing.

Mr. Lee received his BEE and MA in engineering from Cornell University. He has specialized in product development and commercialization throughout his career, starting with IBM and Westinghouse, and continuing as a fulltime entrepreneur. He is a trustee (emeritus) of Cornell and is on the board of Cornell's Center for Sustainable Global Enterprise at the Johnson School of Management. In Cleveland, he serves on the boards of the Cleveland Foundation, the Ohio Fuel Cell Coalition and the Nance School of Business at Cleveland State University. ■



Stephen Long has a BS in agricultural botany from the University of Reading (UK) and a PhD from the University of Leeds. He was professor of environmental biology at the University of Essex, and has held appointments at Brookhaven National Laboratory, the Smithsonian Institution and the University of Vienna. He moved to the University of Illinois in 1999 to his present position: Robert Emerson professor in plant biology and crop sciences.

Dr. Long is founding and chief editor of *Global Change Biology* and is listed by the Institute of Scientific Information as one of the 250 most highly cited authors in plant and animal biology, and one of the twenty most cited authors on global change. He has been a contributing author and referee for *Assessment Reports* on the scientific basis for climate change for the UN Intergovernmental Panel on Climate Change, and has served on several national and international committees for research on renewable energy and global change.

He is deputy director of the University of California-Berkeley and University of Illinois Energy Bioscience Institute—which was recently awarded \$500 million over 10 years by BP. He is a fellow of the American Academy for the Advancement of Sciences. ■



Stephen Myers is assistant director of the Ohio State University's Ohio Agricultural Research and Development Center and director of the Ohio BioProducts Innovation Center. The latter is a research venture funded by Ohio's Third Frontier Program, integrating academia and industry for the development of renewable specialty chemicals, polymers/plastics and advanced materials. The venture builds on the strength of two of Ohio's largest industries—agriculture and the chemicals, plastics and rubber materials sector—with significant involvement of Battelle, the National Renewable Energy Laboratory, and USDA.

The Center leverages significant core-research capabilities at the Ohio State University, including the Ohio Agricultural Research and Development Center, the Molecular and Cellular Imaging Center, the Plant Biotechnology Center, the Center for Advanced Polymers and Composite Engineering, and the Center for Advanced Processing and Packaging Studies. With major leadership from the Battelle Memorial Institute, Center alliance members include Archer Daniels Midland, Cargill, Cooper Tire, Delphi Packard Electric, Delta Plant Technologies, National

Renewable Energy Lab, Oak Ridge National Lab, Ohio Polymer Strategy Council, Owens Corning, Pacific Northwest National Lab, PolyOne Corporation, Proctor and Gamble, Scotts and Sherwin-Williams. ■



John Pierce is vice president of technology at DuPont Applied BioSciences, with responsibility for DuPont's biotechnology R&D efforts in the production of fuels, chemicals and materials. He began his career at DuPont in 1982 as a research scientist in Central Research & Development (CR&D). He moved to agricultural products in 1988 and held research-management positions in agricultural biotechnology and in crop-protection chemical discovery. In 1994, he became director of chemical and biological sciences in CR&D, where DuPont's current focus on industrial biotechnology began to take shape.

From 1996 to 1998, Dr. Pierce was based in Paris as planning manager for agricultural products for Europe, the Middle East and Africa. Upon returning to Wilmington, he worked to integrate the agricultural biotechnology research efforts of DuPont and its subsidiary Pioneer Hi-Bred International. In 2001, he returned to CR&D as director of biochemical sciences and engineering and was named to his current position in June 2006.

He is a founding board member of the Society of Biological Engineering and serves as a member of the Department of Energy's Biological and Environmental Research Advisory Committee. He has a BS degree from Penn State and a PhD from Michigan State University. ■



On January 1, 2006, **Steven Pueppke** became director of the Michigan Agricultural Experiment Station and assistant vice president for research and graduate study at Michigan State University (MSU). Shortly after his arrival, he was appointed to serve also as the director of the Office of Bio-Based Technologies. It was a homecoming of sorts. The Fargo, ND, native received his undergraduate degree in horticulture from MSU. He also has a doctorate in plant pathology from Cornell University.

Dr. Pueppke came to MSU from the University of Illinois, where he served as associate dean for research in the College of Agricultural, Consumer and Environmental Sciences (1998–2005), as a professor of crop sciences and as director of the University of Illinois National Soybean Research Laboratory and of *Global Connect*, an initiative focused on globalization of the college's academic, research and outreach programs.

Before moving to Illinois, he served as chairman of the Department of Plant Pathology at the University of Missouri and as plant sciences unit leader. He was also a faculty member in the Departments of Plant Pathology at the University of Florida and of Biology at the University of Missouri-St. Louis (1976–1979), and was a senior research associate at the Charles F. Kettering Laboratories (1975–1976). ■



Paul Thompson holds the W. K. Kellogg Chair in Agricultural, Food and Community Ethics at Michigan State University, where he is also a professor in the Philosophy, Agricultural Economics and Community, Agriculture, Recreation and Resource Studies Departments. He formerly held positions in philosophy at Texas A&M and Purdue Universities. He has been engaged in teaching and research and on ethical issues associated with food production and consumption for 25 years, and is the author or editor of seven books and over one hundred journal articles and book chapters.

In 1997, Dr. Thompson published *Food Biotechnology in Ethical Perspective*, the first book-length philosophical treatment of agricultural biotechnology; it was released as a second edition in March 2007. He has traveled the world speaking on this subject.

He is a two-time recipient of the American Agricultural Economics Association Award for Excellence in Communication, including for his 1992 book on US agricultural policy (with four coauthors): *Sacred Cows and Hot Potatoes*. He serves on numerous advisory boards, including Genome Canada's Science and Industry Advisory Committee. Thompson is the principal investigator on a National Science Foundation project to examine ethical issues associated with the development of nanotechnologies in agriculture and food. ■

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<http://nabc.cals.cornell.edu>



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Attendees must make their reservations by May 6 to receive the reduced rate.

Transportation

Attendees traveling by air should fly into the Port Columbus International Airport. Transportation options from the airport to the hotel and directions for those traveling by car are available on the NABC 20 website.

For questions about NABC 20, please contact:
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There was a time when farming was a hobby that someone might take up in retirement. Today, however, it would be no easier to take up farming than it would be to take up science or economics. That is what happens when you move from the margins to the center. NABC 20 is the latest in what will undoubtedly be an on-going dialogue on how to deal with that reality and find the sustainable opportunities within it. ■



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