

NABC NEWS

Spring 2009 No. 38

*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.

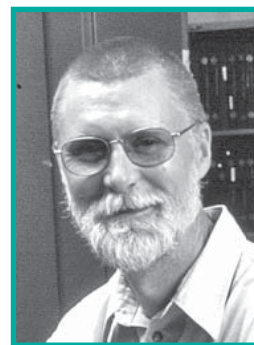
Ralph W. F. Hardy, President
Allan Eaglesham, Executive Director
Susanne Lipari, Executive Coordinator
B15 Boyce Thompson Institute
Ithaca, NY 14853
607-254-4856 fax-254-8680
nabc@cornell.edu
<http://nabc.cals.cornell.edu/>

Letter from the Chair....

As I sit to write this column, the global economic turmoil remains front-page news. World leaders recently convened for the annual meeting of the G-20 in the United Kingdom, and how best to stimulate the economy was the focus. Here in the United States, Congress recently passed the American Recovery and Reinvestment Act of 2009—the “stimulus bill.” That legislation contains substantial research funding for the health community through the National Institutes of Health, yet no research funding is designated for agriculture and the food system.

I had the opportunity to be in Washington, DC, visiting elected officials shortly after passage of the stimulus bill, and we discussed this in several offices. The message I carried was that none of us would ever impugn the investment in health research. We all have battled the effects of disease, and we all have seen the benefits attributable to research. However, I asked the people whom I met to remember that we go to the doctor once or twice per year, but we go to the refrigerator every day. Further, I suggested, if we are thoughtful about our choices while at the refrigerator, we might actually go to the doctor even less. A bit simplistic, but we must continue to send the message that research in agriculture means advances in the quality of our food, and this translates into health benefits.

NABC has just released a white paper, *Food and Agricultural Research: Innovation to Transform Human Health*, on precisely this issue. The subjects in which we, as agricultural scientists, could contribute are legion—from the report: food safety, altering diet, functional foods, enhanced flavor/taste, nutrigenomics, toxin and



BRUCE MCPHERON
THE PENNSYLVANIA STATE UNIVERSITY
NABC CHAIR 2008-2009

allergen reduction, probiotics, and education and communication on the diet-health relationship, to name a few. Consistent with the mission of the NABC, a number of these researchable areas will take advantage of our abilities in biotechnology. In our report, we catalog a number of the key health-related contributions made by agricultural scientists in the past, and that list is a significant set of scientific advances. There is every reason to believe that the future is just as bright. As highlighted in our report, just a 10% reduction in healthcare costs through disease prevention would amount to nearly a quarter of a trillion dollars. Investment in diet-related research targeting changes in the food system could clearly provide significant return on investment.

As we wait to see how the FY2010 US federal budget will play out, there are encouraging signs. The US Department of Agriculture will fund the next cycle of competitive grants under the Agriculture and Food Research Initiative (AFRI), administered under the new National Institute of Food and Agriculture. Not only did the 2008 US Farm Bill create a new structure within USDA

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Adapting Agriculture to Climate Change

NABC 21 will be hosted in Saskatoon, Canada,
by the University of Saskatchewan
June 24–26

Graham J. Scoles, University of Saskatchewan

NABC's twenty-first annual meeting will welcome attendees to the University of Saskatchewan campus in Saskatoon, Canada, June 24–26, 2009. The meeting will be held on our attractive campus, which is a 30-minute walk over the North Saskatchewan River from downtown Saskatoon (note: we will provide a shuttle between campus and the hotel area). The topic of the meeting, *Adapting Agriculture to Climate Change*, is timely and we look forward to a lively conference with a broad attendance. Our line-up of plenary speakers is almost complete.

As our climate continues to undergo changes at a rate unprecedented in recent times, agriculture will be challenged both locally and on a worldwide scale to respond appropriately to both short-term and longer-term changes. Probably a bigger question for agriculture than change itself is how to deal with the unpredictability of fluctuations in temperature, precipitation levels and patterns, and in growing season. Furthermore, the challenges posed by climate change must be met by agriculture as the industry tries to emerge from the current recession and also deal with declining reserves of fossil fuels and fertilizers.

These themes will be addressed at *NABC 21* 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: An Overview of Climate Change and Agriculture

- **Our Evolving Climate**—Francis Zwiers (Canadian Centre for Climate Change and Analysis)
- **The Impact of Agriculture on Climate Change**—Raymond Desjardins (Agriculture and Agri-Food Canada)
- **The Impact of Climate Change on Agriculture**—Linda Mearns (Institute for the Study of Society and Environment)

Module II: Genetic Approaches to Crop Adaptation

- **Functional Genomics and Abiotic Stress Tolerance in Cereals**—Tim Sutton (Australian Centre for Plant Functional Genomics)
- **Enhancing Crop Productivity Through Increased Abiotic Stress Tolerance and Biomass**—Malcolm Devine (Performance Plants)
- **Technologies and Approaches Towards Adapting Crops to Climate Variation**—Mike Metzloff (Bayer BioScience N.V.)
- **Manipulating Photosynthetic Pathways**—Bob Furbank (High Resolution Plant Phenomics Centre, CSIRO)

Module III: Other Approaches to Adaptation

- **Adaptations for Climate Change**—Don Smith (McGill University, Green Crop Network)
- **Adapting Cropping Patterns to Climate Change**—Jeffrey White (Arid-Land Agricultural Research Center, USDA-ARS)

- **Soil and Water Management Options for Adaptation to Climate Change**—Rattan Lal (Ohio State University)

Module IV: Policy Issues and Ethics Related to Climate Change

- **Adapting to Climate Changes: The Challenges and Opportunities in an Uncertain Policy Environment**—Gordon McBean (University of Western Ontario)
- (other speakers to be confirmed)

Following the keynote presentations, 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 4-7.

The conference will convene on the campus of the University of Saskatchewan at 1:30 pm on June 24 and will close after lunch on June 26. For up-to-date information on speakers, travel, accommodation and registration please see the conference website at: <https://nabc21.usask.ca/index.htm>.

Student Voice Grants

The *Student Voice* program has become an important part of NABC meetings and NABC council members are urged to identify students interested in participating. One student from

each member institution will receive a complimentary registration and up to US\$750 from NABC to help defray costs (see <http://nabc.cals.cornell.edu/studentvoice/index.cfm>). The *Student Voice* delegates are expected to attend the plenary sessions and workshops and to meet late on the morning of June 26 to identify issues and themes emerging from the conference. Their list of issues will be reported at the meeting and published in *NABC Report 21*.

General Registration

Online registration is available at <https://nabc21.usask.ca/index.htm>. An early-bird fee of \$375 (US\$310¹) applies until June 5, 2009, after which registration will cost \$475 (US\$393). This covers refreshment breaks, a wine and cheese reception on Wednesday evening, continental breakfast and lunch on the Thursday and Friday

¹ Currency conversion as of 4/27/2009.

and the conference dinner at the Western Development Museum on the Thursday evening. Also covered are the conference materials and a copy of the proceedings volume scheduled for publication in March 2010.

Lodging expenses are not covered by the registration fee.

Student Registration²

The registration fee for students is \$100 (US\$83) and \$150 (US\$124) after June 5 (see <https://nabc21.usask.ca/index.htm>), 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 Sheraton Cavalier Hotel at \$149 (US\$123) per night. These can be booked on-line at <https://nabc21.usask.ca/Travel/accommodation.htm>.

² Except for *Student Voice* participants.

[ca/Travel/accommodation.htm](https://nabc21.usask.ca/Travel/accommodation.htm).

Attendees must make their reservations by May 26 to receive the reduced rate. Hotel rooms in Saskatoon tend to be booked early. If space is not available at the Sheraton Cavalier, information on nearby hotels can be found on the conference website.

Less-expensive accommodation is also available in dormitories on campus (see website above).

For questions about NABC 21, please contact:

Mary-Anne Ledsham
College of Agriculture
and Bioresources
303-966-4050
fax: 306-966-8894
m.ledsham@usask.ca
<https://nabc21.usask.ca/index.html>

NABC Will Co-Sponsor the Sixth *World Congress on Industrial Biotechnology and Bioprocessing: Linking Biotechnology, Chemistry and Agriculture to Create New Value Chains* Montreal, July 19–22

The sixth annual *World Congress on Industrial Biotechnology and Bioprocessing* will convene in Montreal, Canada, July 19–22, 2009. This year has seen the highest quality and number of “breakout session” submissions to date. As a result, this *World Congress* will have six tracks instead of the usual five: *Cellulosic Technologies; Feedstocks and Sustainability; Renewable Chemicals and Biobased Materials; Fine Chemicals, Food Ingredients, Pharmaceuticals and Personal Care; Business Development, Infrastructure and Public Policy; and New Fuels, New Tools*. In addition to an impressive lineup of over 200 speakers, almost 50% of this year’s program will comprise first-time *World Congress*

presenters—showing that this conference continues to broaden its base. The plenary program also promises to draw attention: twenty-two plenary presenters are confirmed, representing seven countries. Ten of these speakers are at the CEO level.

The 2009 *World Congress*¹ will be held in a convention center, allowing more attendees and a larger exhibit hall. As before, there will be opportunities to arrange confidential partnering meetings and to network with colleagues, while keeping abreast of the latest developments in industrial biotechnology. The 2008 conference

¹ For more information, please visit www.bio.org/worldcongress or contact worldcongress@bio.org.

had over 1,100 attendees from thirty countries, and this year’s meeting is expected to break that record.

NABC is proud to have played a seminal role in the development of the *World Congress*. In 1998, NABC issued a *Vision Statement*² for agriculture and agricultural research in the twenty-first century. It envisioned improved food, feed, and fiber, but importantly it predicted agriculture’s expansion into energy, chemicals, and materials. This biobased economy, balanced with a reduced fossil-based economy,

² *Vision for Agricultural Research and Development in the 21st Century: Biobased Products Will Provide Security and Sustainability in Food, Health, Environment, and Economy.* <http://nabc.cals.cornell.edu/pubs/vision.cfm>.

Speakers for NABC 21



Malcolm Devine joined Performance Plants, Inc., in September 2006 as vice president for crop development and commercialization,

bringing extensive experience in both public- and private-sector R&D in agriculture and plant biotechnology.

Dr. Devine obtained his training at the Universities of Glasgow (Scotland), Guelph, and Alberta. From 1987 to 1998 he held a faculty position in the Department of Plant Sciences at the University of Saskatchewan, serving as department head, 1994–1998. He then joined AgrEvo Canada (later to become Aventis CropScience Canada) as head of biotechnology research and spent 3 years in Gent, Belgium, as head of technology acquisition and licensing for the BioScience division of Aventis CropScience, and later Bayer CropScience, with responsibility for technology evaluation, licensing and collaborations in support of BioScience research.

On his return to Canada in 2004, he spent 2 years as research director at the National Research Council Plant Biotechnology Institute in Saskatoon.



Raymond Desjardins graduated with a PhD from Cornell University in 1972 in micro-meteorology. He has worked most of his career in the

research branch of Agriculture and Agri-Food Canada in Ottawa. In 1993 he was appointed principal research scientist.

Dr. Desjardins is a acknowledged worldwide for having developed original techniques to measure carbon dioxide and various trace gases using tower and aircraft-based systems. He has been the principal investigator in many NASA-funded large-scale experiments designed to improve the understanding of biosphere-atmosphere interactions. He leads a research program on quantifying and reducing greenhouse-gas emissions, ammonia and particulate matter from agricultural sources.

Desjardins serves as a member of the editorial board of *Journal of Agriculture and Forest Meteorology* and is a fellow of the Canadian Society of Agricultural Meteorology, of the American Society of Agronomy and of the Agricultural Institute of Canada. He represents Canada on the Commission of Agricultural Meteorology of the World Meteorological Organization and has led many national programs in agricultural meteorology. Recently, he served as leader of an international expert team on the contribution of agriculture to climate systems for the World Meteorological Organization.

He has authored over 200 refereed publications and edited several books.



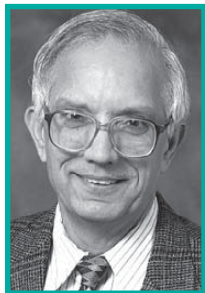
Bob Furbank is a team leader and scientific director at the High Resolution Plant Phenomics Centre, part of CSIRO Plant Industry, Canberra, Australia.

Born in Wollongong, Australia, he studied at the Australian National University, Canberra, for his PhD under Hal Hatch, Murray Badger and Barry Osmond, using stable isotopes to study photorespiration and the Mehler reaction in C_3 and C_4 plants.

From 1982, Dr. Furbank worked at the Research Institute for Photosynthesis, Sheffield, UK, on the co-regulation of chloroplast electron transport and photosynthetic carbon metabolism, in the pioneering days of chlorophyll-fluorescence research. After working also in France and Germany, in 1987 he returned to CSIRO Plant Industry to continue research work on C_4 photosynthesis as a Queen Elizabeth fellow. There he has remained, acquiring more of a crop focus as leader of the carbon partitioning and energy group, working on carbon allocation, sugar transport and yield in wheat, rice and cotton, and interacting strongly with the Australian National University (ANU) through an adjunct professorship. More recently, he has been championing the establishment of a national facility in plant phenomics for CSIRO and ANU, and has taken on the mantle of scientific director of the newly established High Resolution Plant Phenomics Centre, the local node of the Canberra/Adelaide-based Australian Plant Phenomics Facility.



Passports are required for all travel to Canada.



Rattan Lal is a professor of soil physics in the School of Environment and Natural Resources, and director of the Carbon Management and

Sequestration Center at the Ohio State University (OSU). He has a BSc from Punjab Agricultural University, an MSc from the Indian Agricultural Research Institute, a PhD from OSU, and he worked at the University of Sydney, Australia, as a senior research fellow. From 1969 to 1987 at the International Institute of Tropical Agriculture, Ibadan, Nigeria, he conducted long-term experiments on watershed management, water budget in relation to land use, and land-use change, erosion control, water conservation in the rootzone, no-till farming, and agroforestry. Since joining OSU in 1987, he has worked on soils and climate change, drainage of agricultural lands, soil degradation and global food security.

Professor Lal is a fellow of the American Society of Agronomy (ASA), the Soil Science Society of America (SSA), Third World Academy of Sciences, American Association for the Advancement of Science, Soil and Water Conservation Society (SWCS), and the Indian Academy of Agricultural Sciences. Among many awards, he is the recipient of an honorary Doctor of Science degree from Punjab Agricultural University, India, and from the Norwegian University of Life Sciences, Aas, Norway.

He has (co)authored over 1,350 research publications



Gordon McBean is a professor in the Departments of Geography and Political Science and is director of policy studies for the Institute for

Catastrophic Loss Reduction at the University of Western Ontario. He serves also as chair of the board of the Canadian Foundation for Climate and Atmospheric Sciences; chair of the International Council for Science's Science Committee for Integrated Research on Disaster Risk; and co-chair for START's Scientific Committee. He is a member of the Board of the International Institute for Sustainable Development; Ontario Premier's Advisory Committee on Climate Change; Ontario Ministry of Environment's Expert Panel on Climate Change Adaptation; Department of Fisheries and Oceans Scientific Advisory Committee; City of London's Mayor's Sustainable Energy Council; and other national and international committees.

He has a BSc in physics, an MSc in meteorology, and a PhD in oceanography, and has served as assistant deputy minister responsible for the Meteorological Service of Environment Canada.

As a lead author and review editor for the Intergovernmental Panel on Climate Change (IPCC), Dr. McBean was a co-recipient of the 2007 Nobel Peace Prize to the IPCC. He is a member of the Order of Canada, and a fellow of the Royal Society of Canada, the Canadian Meteorological and Oceanographic Society, and of the American Meteorological Society.



Linda Mearns is director of the Weather and Climate Impacts Assessment Science Program within the Institute for the Study of Society and the

Environment (ISSE), and senior scientist at the National Center for Atmospheric Research, Boulder, Colorado. She served as director of ISSE for 3 years ending in April 2008.

She has a PhD in geography/climatology from the University of California at Los Angeles. Her published research is mainly in climate-change scenario formation, quantifying uncertainties, and climate-change impacts on agro-ecosystems. She has most recently published papers on the effect of uncertainty in climate-change scenarios on agricultural and economic impacts of climate change, and quantifying uncertainty of regional climate change. She contributed to the Intergovernmental Panel on Climate Change 1995, 2001, and 2007 Assessments regarding climate variability, impacts of climate change on agriculture, regional projections of climate change, climate scenarios, and uncertainty in future projections of climate change. For the 2007 report, she was lead author for the chapters on Regional Projections of Climate Change in Working Group 1 and New Assessment Methods in Working Group 2.

Dr. Mearns is a member of the National Research Council Climate Research Committee and of the Human Dimensions of Global Change Committee. She was made a fellow of the American Meteorological Society in 2006.



From 1975 to 1980, **Michael Metzloff** studied biology at the Martin-Luther University, Halle-Wittenberg, Germany, specializing in plant genetics.

In 1983, he graduated with a PhD from the Institute of Genetics at the same university, researching chloroplast DNA modification.

Throughout the 1980s and the early 1990s, Dr. Metzloff taught plant molecular genetics and genetic engineering. From 1993 to 1999 he was a senior scientist at the John Innes Centre in Norwich, UK, where his team elucidated gene-silencing mechanisms in plants. In 1999, he moved to Belgium to take up a senior scientist position at the biotech company Plant Genetic Systems in Ghent, which, in 2002, became the Innovation Centre of Bayer CropScience-BioScience. A crop-productivity group leader, with a steadily growing team of researchers and scientists, he resumed his research on gene silencing/RNAi/epigenetics and initiated studies on abiotic-stress-response mechanisms with the objective of improving stress tolerance in major crops. In 2008 he became the research liaison manager at Bayer BioScience, coordinating global research including joint efforts with leading academic universities and research institutions.

He has authored over fifty scientific publications and holds a number of patents.

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Donald Smith received his PhD from the University of Guelph in 1984 and then held a postdoctoral fellowship at Agriculture

Canada. Since 1985 he has served on the faculty of the Plant Science Department at McGill University, working largely in production and physiology of crop plants. Areas of research include nitrogen metabolism, nitrogen fixation, root-zone temperature stress and nodule development, development of methods for injection of metabolites into developing plants, barley production, use of plant growth regulators, intercropping, the dynamics of inter-plant competition, plant-microbe signaling, plants and climate change and biofuel crops. He is particularly interested in physiological responses of crop plants to increasing atmospheric CO₂ levels and to climate change.

Work on nitrogen fixation has been a consistent theme, beginning with an undergraduate research project on cyanobacteria in 1974. Current work includes signaling between symbiotic partners during establishment of the legume-rhizobia symbiosis. This research activity has resulted in over 250 publications, five patents issued and three others applied for, and a spin-off company (Bios Agriculture, Inc.). Dr. Smith leads the National Sciences and Engineering Research Council-funded (\$1.2 million/year) Green Crop Network on crops and climate change, including work on biofuels, and he heads the McGill Network for Innovation in Biofuels and Bioproducts.



Since 2003, **Tim Sutton** has been a research fellow and group leader at the Australian Centre for Plant Functional Genomics, a Commonwealth-

funded entity focusing on the application of genomics to address drought, salinity and associated abiotic stresses that severely limit agricultural production in semi-arid environments.

The focus of Dr. Sutton's research is to understand the genetic and molecular mechanisms that enable some plants to survive under suboptimal soil conditions, such as mineral toxicity and deficiency and to develop cereals with increased tolerance of these stresses. The work involves collaboration within Australia and internationally, has attracted the attention of the popular press, and has been published internationally, recently in the journal *Science* describing the first example of the cloning of an abiotic stress-tolerance quantitative trait locus from a large-genome cereal. He has presented invited seminars in the USA, Europe and Egypt, and is regularly invited to peer review research papers for journals including *The Plant Journal*, *Genome*, and *Theoretical and Applied Genetics*.

In addition to supervision of graduate students in the area of cereal molecular biology, he is active in community and outreach activities within the Australian biotechnology education sector. He has a PhD in plant molecular genetics from the University of Adelaide (2002).

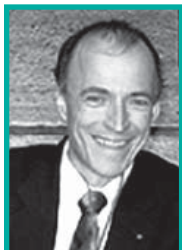


Jeffrey White is a plant physiologist who emphasizes use of ecophysiological models and geospatial tools to understand how crops respond to environment. He

obtained his training at Harvard College and the University of California-Berkeley. His early research on common bean, conducted at the International Center for Tropical Agriculture (CIAT) in Colombia, emphasized understanding the physiological and genetic basis of cultivar differences in yield potential, adaptation to water deficits, and responses to photoperiod and temperature. Achievements at CIAT included identifying two major loci controlling photoperiod response and demonstrating that higher yield under drought was associated with greater extraction of soil moisture, which depended on traits controlled by genes expressed in the roots.

Moving to the International Maize and Wheat Improvement Center (CIMMYT) in Mexico in 1995, he established the first GIS and crop-modeling laboratory. His group revised CIMMYT's meg-environment classifications for maize and wheat research, and successfully promoted use of geospatial tools at national and regional scales such as for efforts to develop drought-tolerant maize in eastern and southern Africa. In 2003, Dr. White joined USDA-ARS in Arizona, where he works on predicting crop response to global change, continuing his work with models and geospatial tools.

He has (co)authored over sixty journal papers and supervised fifteen MSc and PhD theses.



Francis Zwiers is an internationally recognized expert in the fields of climate-change detection and attribution, the analysis of climate

variability and extremes, and in climate modelling and analysis. He was recently elected to the Bureau of the Intergovernmental Panel on Climate Change (IPCC), an organization with which he has been involved since its inception, including as a coordinating lead author of the chapter "Understanding and Attributing Climate Change" in the most recent IPCC Assessment Report.

Dr. Zwiers served for a decade as chief of Canada's premier climate modeling centre, the Canadian Centre for Climate Modelling and Analysis, and since 2006, he has directed the Climate Research Division within Environment Canada.

He is a fellow of the Royal Society of Canada and has received numerous awards and accolades for scientific excellence and distinguished service.

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is projected to contribute to national security, sustainability, minimization of global climate change, expanded farmer-market opportunities, and rural development. Wording in the *Vision Statement* can be found in Executive Order 13134—*Developing and Promoting Biobased Product and Bioenergy*—signed by President Clinton in 1999. In 2000, NABC 12, hosted by the University of Florida, Gainesville, focused on these opportunities. It was the first conference to explore benefits from, and concerns about, the biobased economy. From that meeting grew the annual *World Congress on Industrial Processing and Biotechnology: Linking Biotechnology, Chemistry and Agriculture to Create New Value Chains*³, co-organized and co-sponsored since its initiation by the Biotechnology Industry Organization, the American Chemical Society, and NABC. In 2007, NABC issued *Agriculture and Forestry for Energy, Chemicals and Materials: The Road Forward*⁴, an updated and expanded version of the *Vision Statement* describing opportunities for agriculture and forestry to be the basis for a hybrid bio-/petro-based economy with 100+ billion gallons of transportation fuel and value-added chemicals and materials produced from domestic biomass, and a structure for attainment.

³ The *Summary Proceedings* from the 2008 *World Conference* is available at http://nabc.cals.cornell.edu/pubs/WCIBB2008_proc.pdf.

⁴ http://nabc.cals.cornell.edu/pubs/The_Road_Forward.pdf; Hardy R WF Eaglesham A Shelton A (2007) Agriculture and forestry for energy, chemicals, and materials: The road forward. *Industrial Biotechnology* 3 133–137.

**The Student Voice
at NABC**

**TRAVEL STIPEND AND FREE
REGISTRATION TO ATTEND
NABC 21
FOR ONE GRADUATE STUDENT
FROM EACH NABC MEMBER
INSTITUTION**

[HTTP://NABC.CALS.CORNELL.EDU/
STUDENTVOICE/INDEX.CFM](http://nabc.cals.cornell.edu/studentvoice/index.cfm)

NATIONAL AGRICULTURAL BIOTECHNOLOGY COUNCIL

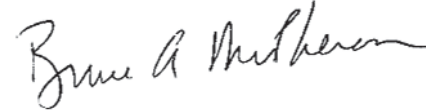
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to elevate the profile of agricultural research, but also food and agriculture are thoughtfully and visibly linked. Funding for FY2009 increased in the agricultural sector, and the president's initial budget message for FY2010 suggests a focus on food safety and nutrition and support for the mission of the US land-grant university system.

We must do our part as well. It is incumbent upon us to encourage faculty and students who pursue the food-diet-health connections, and we

need to advocate for funding for this work. We should continue to raise the visibility of these issues through our Council priorities and activities. We should take a cue from the health-research community and develop a strategy to identify and cultivate champions for agricultural research funding. If sufficient resources are available to support quality research, important translational benefits will follow. Each of us has a stake in this game.

Plans are proceeding for our annual meeting, NABC 21, in Saskatoon, Saskatchewan, Canada. The broad issue of climate change, with all of the attendant potential implications for agriculture, will be the focus of our attention. Hope to see you there!



14853
Tower Road
B15 Boyce Thompson Institute
NABC

