

NABC

Letter from the Chair

news

Spring 2006 No. 32

*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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These are challenging times! On a recent Friday, we held a half-day retreat with our campus leadership to discuss operational changes being considered on the Wooster campus of The Ohio State University. This campus is home to both the Ohio Agricultural Research and Development Center and the Agricultural Technical Institute, each with its distinct mission and infrastructural needs. We started the day with the video *Who Moved My Cheese?*, based on the popular book by Spencer Johnson on dealing with change. Change necessitates giving up something “old” in order to grasp something “new.” Johnson uses four characters (the mice Sniff and Scurry and the little people Hem and Haw) to explore how individuals respond to, and negotiate, change. These characters were all represented at our retreat, but everyone also engaged fully in the process and we are moving ahead; a successful outcome in my experience. The following week, I had the opportunity to play the role of one of these characters as I started to deal with the implications for change scripted in President Bush’s FY07 budget proposal, and then moved into discussions on the national organizational and support structure for agriculture and natural resources in the United States. These are not isolated events. They represent a continuum in an ongoing dialogue on how higher education generally—and the agricultural and natural-resource sector specifically—relate to society’s needs. In Ohio, we have ongoing discussions about the role of universities in discovery and in delivery of ideas and products leading to job creation and economic growth. As I visit with colleagues around the country, I find that this theme is recurring.



STEVE SLACK
NABC CHAIR 2005-2006

Perhaps Thomas Friedman captures not only the elements of current change but the drivers propelling its pace and magnitude in his compelling book *The World Is Flat*. Friedman details ten flattening (= equalizing) forces at work. For example, we deal daily with the impact of computers and Internet connectivity on our lives. The challenge, of course, is to try to understand these drivers and how they impact our environment so that we can develop strategies that will continue to keep us competitive.

NABC will be exploring one of these strategies at its eighteenth annual meeting this June 12–14 in Ithaca and Geneva, New York. Ithaca is home to Cornell University and the Boyce Thompson Institute, which will host the conference jointly with the Cornell Agriculture & Food Technology Park and New York Stated Agricultural Experiment Stations in Geneva. The theme will be agricultural biotechnology’s role in job creation and workforce development. We will explore the dynamics of public-private sector relations, starting with examples of past successes and future prospects, before moving to the examination of university-based

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NABC 18

Agricultural Biotechnology: Economic Development through New Products, Partnerships, and Workforce Development

June 12–14, 2006

Cornell University, Ithaca and Geneva, NY

**Anthony Shelton
Cornell University**

The subject of this year's conference is timely and has not been addressed in such an extensive format at any previous NABC meeting. Much of the conference will focus on providing examples of developing and moving research into the market and the roles played by universities and state and federal governments in making this happen. Topics to be addressed in NABC 18 will include:

- Past successes, future prospects and hurdles for moving technologies to market
- World examples of moving research to the market
- Economic and workforce development issues needed for success
- Function and role of university-based research parks in economic development
- An up-close look at the Cornell Agriculture & Food Technology Park (CAFTP)
- Roles of federal agencies in bringing products to market
- University faculty as entrepreneurs
- The student experience in agricultural biotechnology development
- Ethical and social considerations of university/private-sector relationships.

The impressive list of speakers who will address these diverse topics includes the president of the China Agricultural University and consultants and developers of products in the Netherlands, India, Brazil, Germany and Canada. Speakers from North America include the director of an agricultural technology park, entrepreneurial faculty who have created

their own companies, and representatives of government agencies that focus on business innovation and product development.

Most of the meeting will take place on Cornell's Ithaca campus (<http://www.cornell.edu>) during what is usually a pleasant time of year in beautiful central New York. Two other unique aspects of NABC 18 will be tours of the new Cornell Agriculture & Food Technology Park in Geneva (<http://www.thetechnologyfarm.com>) and of one of the premier Finger Lakes wineries, which are becoming renowned for excellent and award-winning wines (<http://www.fingerlakeswinecountry.com>).

NABC 18 will get to the heart of agricultural biotechnology—using modern science to develop novel products and fostering their movement to commercialization. This will be accomplished through partnerships and workforce expansion and result in economic development. And when this is done properly, it will fulfill the Land Grant mission of working for the public good in the twenty-first century.

The conference will be hosted by Cornell University, the Cornell Agriculture & Food Technology Park, the New York State Agricultural Experiment Station and the Boyce Thompson Institute, June 12–14, 2006. It will convene on Cornell's main campus in Ithaca and at Cornell's New York State Agricultural Experiment Station in Geneva. Speaker details are contained in this newsletter, as are registration, lodging and other information, and at <http://www.nyaes.cornell.edu/ent/nabc>.

(continued from page 1) Letter from the Chair

research parks as a model for moving discovery into commercially viable formats. The latter experience will involve a day trip to the New York State Agricultural Experiment Station in Geneva to share their thinking about such a research park. A stop at a world-famous Finger Lakes winery will be part of the return trip to Ithaca. Coincidentally, the production of wine grapes and their conversion to wine is a rich story of public-private partnerships and relationships in many other

states as well. NABC 18 promises to be a stimulating and thought-provoking event.

Meanwhile, NABC has been active since last year's meeting in Nashville. The proceedings volume for NABC 17, which dealt with health and the environmental issues, has been published. Also available are the *Recommendations for Management Practices for Field Trials with Bioengineered Plants*. Our thanks to the committee of Steven Pueppke (chair), James Bloedel, Nancy Cox, Ian Gray, Kevin Kephart,

Registration Information for NABC 18

NABC 18 will convene on Cornell's main campus in Ithaca and then at Cornell's New York State Agricultural Experiment Station in Geneva. Much of the conference will focus on providing examples of developing and moving research into the market and the roles universities and state and federal governments play in making this happen. For further information on the conference and travel access, please visit <http://www.nysaes.cornell.edu/ent/nabc>.

General Registration

Registration for the meeting may be done at the conference Web-site, <http://www.nysaes.cornell.edu/ent/nabc>. The early-bird registration fee of \$300 will apply until May 10, 2006; after May 10, the fee will be \$350. The registration fee will cover the banquet dinner on Monday, and continental breakfasts, lunches and snacks on Tuesday and Wednesday. Dinner will be on your own on Tuesday evening and the meeting will conclude after lunch on Wednesday. The registration fee will also cover transportation to and from your hotel in Ithaca to the meeting site, the trip to the new Cornell Agriculture & Food Technology Park in Geneva, and a wine tour. Also covered are the conference materials and a copy of the proceedings volume scheduled for publication in March 2007. Lodging expenses are not covered by the registration fee nor are day-permits for parking on campus.

Student Registration

Student registration is \$200 until May 10 and \$225 thereafter. The student fee covers the same items and amenities as the general registration fee as described above; it does not include lodging.

Student Scholarships

A limited number of scholarships will be available to undergraduate and graduate students interested in the conference. A scholarship will cover the same items and amenities as the general registration fee described above. It will not include

lodging. Preference will be given to students from developing countries and those showing financial need. Students must apply by May 8 using the on-line form on the conference Web-site, <http://www.nysaes.cornell.edu/ent/nabc>. Applicants selected for scholarships will be notified by May 22.

Accommodation

Hotel reservations may be made via the conference Web-site. Blocks of rooms have been reserved at reduced rates (mention "NABC") at the Hilton Garden Inn (downtown Ithaca), the Holiday Inn (downtown Ithaca), the Ramada Inn (north Ithaca) and the Clarion Hotel (north Ithaca). Attendees are urged to make their hotel reservations as early as possible and definitely before May 10 to obtain reduced rates.

Transportation

Ithaca, NY, is served by Northwest and US Air/American-West. (<http://www.flyithaca.com/>). Syracuse airport is about 1 hour away and has more flights (<http://www.syr-airport.org/index.cfm>). You need to rent a car or call Ithaca Airline Limousine at 607-273-3030 ahead of your arrival to reserve shuttle service between Syracuse airport and Cornell or your hotel. Elmira/Corning airport is about 45 minutes away and is a third option, but there is no shuttle (<http://www.ecairport.com/bin/site/templates/ecra.asp>).

For questions about the conference, please contact:

Nancy Long

Communication Services

Cornell/New York State Agricultural Experiment Station

630 W. North Street

Geneva, NY 14456

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Information on registration, the program, lodging and the Finger Lakes:

<http://www.nysaes.cornell.edu/ent/nabc>

Sandra Ristow, Anthony Shelton and Randy Woodson, and to NABC staff Ralph Hardy and Allan Eaglesham who shepherded this document to completion. Additionally, a series of white papers explaining biotechnology and biotechnology processes—initiated and developed by colleagues at land-grant universities—is now being hosted on the NABC Web-site and NABC is facilitating the development of additional white papers for public use. It has been a busy year.

I hope that you will find use for these NABC products. I

also hope that you will arrange your schedule to participate in NABC 18. We are in a fast-changing, ever-flattening world. NABC continues to focus its efforts on topics that will help you think about how to navigate this environment.

Yes, these are challenging times!

Steve H. Jack

NABC 18 Hosts

Tony Shelton
Cornell University and
New York Agricultural Experiment Station



Tony Shelton received his BA in classics and philosophy at St. Mary's College of California and his MS and PhD in entomology at the University of California-Riverside. He began his professorial career in 1979 at Cornell's Department of Entomology at the New York Agricultural Research Station in Geneva and currently serves as professor of entomology, associate director of International Programs for the College of Agriculture and Life Sciences (CALs), and is an international professor for CALs.

Dr. Shelton's research and extension program focuses on developing sound insect pest management strategies for vegetables, with spin-offs for other crops. Components of the program stress plant productivity and marketability as a function of insect infestations. In addition to his work in the United States, he has projects in India, China, Vietnam and several other countries.

Shelton has served on numerous EPA and USDA panels. From 1993 through 2001 he served as associate director of research and associate director of the Cornell Agricultural Experiment Station. He has received several national awards for his work, including the Entomological Society of America's Award for Integrated Pest Management and the Recognition Award for Agricultural Research. He is chair of the organizing committee for NABC 18 and NABC's chair-elect for 2006-2007.

Daniel J. Fessenden
Cornell Agricultural &
Food Technology Park



In September 2004, Dan Fessenden was named executive director of the Cornell Agriculture & Food Technology Park, also known as The Technology Farm. The CAFTP is a bold, joint economic-development initiative of Cornell University, Ontario County and the City of Geneva. As the organization's first executive director, Dr. Fessenden is leading the development of a 72-acre research park located adjacent to Cornell's New York State Agriculture Experiment Station in Geneva, NY, where bio, agriculture and food technology businesses can leverage the university's knowledge. Tenants at the Farm are uniquely positioned to optimize the connections, resources, technology, expertise and research assets at Cornell.

Priorly, Fessenden directed government and community relations for Carrier Corporation, a division of United Technologies Corporation, before which he had served four terms in the New York State Assembly representing the 126th Assembly District. He has served also on the staff of the New York State legislature and as a lobbyist with the New York Farm Bureau.

A graduate of Cornell, he sits on several community and business boards. He was raised on a dairy farm in King Ferry, NY, and lives with his family on their farm in the Finger Lakes region.

NABC Report 17

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Contact us at nabc@cornell.edu for cost information for additional copies.

David B. Stern
Boyce Thompson Institute



David Stern is president of the Boyce Thompson Institute (BTI) for Plant Research, where he studies chloroplast-gene regulation. The (co)author of more than a hundred scientific publications, he has served as an editor for *Plant Cell* and *Plant Molecular Biology*, and is currently an editor for *Current Genetics*. He is a fellow at the American Association for the Advancement of Science and serves on the Scientific Advisory Board of Solazyme, Inc., and on the Board of Directors of the Boyce Thompson Arboretum in Superior, Arizona.

He earned an AB degree in molecular biology from the University of California, Berkeley, an M Phil in biochemistry from Cambridge University in England, and a PhD in biological sciences from Stanford University. After postdoctoral training with Wilhelm Gruissem at the University of California, Berkeley, he joined BTI as an assistant scientist in 1989. In 1995 he won a Georges Morel Prize and a Guggenheim Fellowship, enabling a sabbatic leave at the Edmond de Rothschild Foundation in Paris, France. In 2000, Dr. Stern received a Research and Technology Award from the French Ministry of Education, supporting a 3-month fellowship at the Université Joseph-Fourier, Grenoble. He served as BTI's vice president for research 2001–2004.

Steven A. Slack
NABC



Steve Slack has been at the Ohio State University since 1999 as associate vice president for Agricultural Administration and director of the Ohio Agricultural Research and Development Center. He received his BS and MS degrees from the University of Arkansas-Fayetteville and his PhD from the University of California-Davis.

In 1975, Dr. Slack joined the Plant Pathology Department at the University of Wisconsin-Madison and in 1988 he moved to Cornell University as the Henry and Mildred Uihlein Professor of Plant Pathology; he served as department chair from 1995 to 1999. He is a fellow and past president of the American Phytopathological Society, an honorary life member and past president of the Potato Association of America, and a fellow of the American Association for the Advancement of Science (AAAS).

Other honors include a USDA Group Honor Award for Excellence in 1995 for work on a non-pesticidal control strategy for the potato golden nematode, the Outstanding Alumnus award from the Dale Bumpers College of Agricultural, Food and Life Sciences at the University of Arkansas in 1996, and the meritorious service award for research by the National Potato Council in 1997. He is NABC's chair for 2005–2006.

Speakers

Michael Adang



Michael Adang received his BS in microbiology from Indiana University in 1974 and his MSc and PhD in bacteriology from Washington State University in 1978 and 1981. He is a professor of entomology, biochemistry and molecular biology at the University of Georgia with ninety journal articles and book chapters and thirteen US patents to his credit.

As a senior research scientist at Agrigenetics Corp. in Madison, Wisconsin, 1982–1988, Dr. Adang developed transgenic plants expressing proteins from *Bacillus thuringiensis* (*Bt*). Among his inventions are methods for expressing *Bt* genes in plants and a codon-usage method to optimize *Bt*-gene expression in plants. These technologies have been used worldwide with significant impact on pest control in agriculture.

Since 1988, his research has focused on receptors that determine *Bt* toxicity to insects. His laboratory was the first to discover a *Bt*-toxin receptor, with basic and applied implications for *Bt*-plant development and usage.

Adang has consulted for the government, Mycogen Corporation and DOW Agrosiences. His global activities in the intellectual property area include patent preparation and prosecution activities with approximately ten law firms over a 20-year period. In 2003, he co-founded InsectiGen, a start-up company focused on discovery and engineering of proteins for insect control.

Richard J. Brenner



As assistant administrator in ARS for technology transfer since October 2004, Rick Brenner represents the Secretary of Agriculture on issues pertaining to management of intellectual property arising from USDA research. He has the delegated authority for licensing inventions developed through intramural USDA research, and is a member of the Interagency Working Group for Technology Transfer convened monthly by the Department of Commerce Office of Technology Policy.

From August 2001, Dr. Brenner served as the deputy assistant administrator for the Office of Technology Transfer (OTT), USDA-ARS, where he managed much of the daily operations on Cooperative R&D Agreements (CRADAs), patents, and licensing. From 1984, he served as an entomologist and later as a research leader for ARS in Gainesville, Florida. His research led to a number of awards, including Outstanding Senior Scientist, the USDA Award for Superior Service, the ARS the Technology Transfer Award, a Federal Laboratory Consortium Technology Transfer Award, and the Pollution Prevention Project of the Year award in 1999 under the Strategic Environmental Research and Development Program, jointly awarded by the Department of Defense, Department of Energy and the EPA.

Zhangliang Chen



Zhangliang Chen—a pioneer in genetic engineering of plants—received his PhD in Roger Beachy’s laboratory at Washington University, St. Louis, in 1987. He has served as vice president of Peking University and as director of the China National Laboratory of Protein Engineering and Plant Genetic Engineering, one of China’s largest centers for R&D in agbiotech. Actively involved in biosafety issues, he is a member of the China National Agrobiotechnology Biosafety Committee, which approves field trials and commercialization of genetically engineered crops. He has (co)authored seven books and some 200 research papers.

Dr. Chen has been the president of the China Agricultural University since 2003. He also serves as chair of the Plant Biotech Committee of UNESCO, as a consultant for the International Society for Plant Molecular Biology (ISPMB), and as a member of the Sino-Euro Administration Committee for Biotechnology Cooperation. He was recently elected vice chairman of the Council of Scientific Advisers of the International Center for Genetic Engineering and Biotechnology (ICGEB) in Italy.

Mark Crowell



Mark Crowell is associate vice chancellor for economic development and technology transfer at the University of North Carolina at Chapel Hill. Prior to joining UNC in 2000, he held similar positions at North Carolina State and Duke Universities. He has extensive experience in technology transfer, new-company development, seed capital formation, economic development, and research park development and marketing.

Dr. Crowell’s beyond-campus duties in the Research Triangle Park area of North Carolina include serving on the boards of directors of the North Carolina Biotechnology Center, of the Research Triangle Regional Partnership, and of the Council for Entrepreneurial Development. He is an appointed member of the Orange County (NC) Economic Development Commission, and he recently co-chaired the Entrepreneurial Companies working group in conjunction with a North Carolina Governor’s Office initiative to develop a Statewide Strategic Plan for Biotechnology in North Carolina.

Crowell has extensive national and international speaking, consulting, and management experience in organizations and initiatives related to technology transfer and innovation-based economic development, including the American Academy for the Advancement of Science and the National Academy of Sciences. He is the 2005–2006 president of the Association of University Technology Managers, and is faculty advisor to the Carolina Student Biotechnology Network.

Deborah Delmer



Deborah Delmer received her BA degree with honors in bacteriology in 1963 from Indiana University and her PhD in cell biology in 1968 from the University of California, San Diego. She has held faculty positions at Michigan State University, The Hebrew University of Jerusalem, and the University of California at Davis where she was chair of the Section of Plant Biology.

With colleagues at Calgene, Inc., Dr. Delmer's group was the first to identify plant homologs of bacterial genes that encode the catalytic subunit of cellulose synthase and she was recognized for her work on cellulose synthesis by the American Chemical Society with their 2004 Anselme Payen Award. She also served as president of the American Society of Plant Biologists and is a member of the US National Academy of Sciences.

Since 2002, Delmer has served as associate director of Rockefeller Foundation's Food Security Program, where she is charged with grant making and policy relating to biotechnology's role in advancing improvements in crops for the developing world. She is also involved in efforts by the Foundation to address problems of intellectual property rights and biosafety that are important for development of genetically modified crops important to the developing world.

Keith Downey



Keith Downey was born in Saskatoon, Saskatchewan. He obtained his BSA and MSc from the University of Saskatchewan and PhD from Cornell University. He joined Agriculture and Agri-Food Canada in 1951 where he developed many outstanding rapeseed/canola and condiment mustard varieties. He is widely known as one of the "fathers" of canola and has been instrumental in improving nutritional quality and customer-acceptance of oil and meal from *Brassica* oilseed crops. He has authored over 200 scientific and technical papers, several book chapters and co-edited the book *Oil Crops of the World*.

Dr. Downey has received numerous awards and medals including Officer of the Order of Canada, Fellow of both the Royal Society of Canada and the Agriculture Institute of Canada, the Eminent Scientist Award from the International Rapeseed Congress, the James McAnsh Award from the Canola Council of Canada and the Clark-Newman Award from the Canadian Seed Growers Association. Recently, he was inducted into both the Saskatchewan and the Canadian Agriculture Halls of Fame.

In recent years, as senior research scientist emeritus at the Agriculture and Agri-Food Canada Research Centre in Saskatoon, Downey has investigated the impacts on agriculture of biotechnology and gene flow.

William Goldner



William Goldner has served as a National Program Leader for the United States Department of Agriculture, Cooperative State Research, Education, and Extension Service, Small Business Innovation Research (SBIR) Program since 1999. He is responsible for the Plant Production and Protection (Biology and Engineering) and Industrial Applications SBIR programs.

Dr. Goldner held positions as: associate biochemist at the Hawaiian Sugar Planters' Association (now Hawaii Agricultural Research Center); research scientist/project manager for Union Camp Corporation (now part of International Paper Company); and technical strategy manager for applied genetics in the Biotechnology Development Group for the Global Agricultural Products Division of American Cyanamid Co. (now BASF). While at Union Camp and American Cyanamid, he served for six years as an associate professor in the graduate program in Plant Biology at Rutgers University.

Goldner recently served as chair (with Ann Marie Thro) of the USDA-sponsored workshop: Public Research and the Regulatory Review of Small-Market (Specialty) Biotechnology-Derived Crops. He is a member of a team of government, academic and industry administrators and scientists developing a new Specialty Crop Regulatory Initiative to facilitate the timely, cost-effective, movement of transgenic specialty crops through appropriate regulatory processes. He holds a PhD in plant physiology from the Pennsylvania State University.

Mary Pat Huxley



Mary Pat Huxley coordinates and provides leadership to build the California Community College System's capacity to deliver education, technical-skills training and services appropriate to biotechnology-related businesses for their incoming and current employees. Her experience includes: five years as state director; fourteen years as a Ventura College adjunct instructor in biology; and ten years as a visiting research scientist with the Naval Facilities Engineering Service Center.

Ms. Huxley earned a BA degree in biology from University of California, San Diego, and an MSc in genetics from Trinity College, University of Dublin. She is enrolled in a doctoral program in Pepperdine University in organization change. She created the non-profit Venture Coast Biotechnology Initiative and served two years as its executive director. She is a member of the American Association for the Advancement of Science, Sigma Xi, the Biotechnology Industry Organization, the National Agricultural Biotechnology Council, and the Academy of Management. She serves on: the Advisory Committee for the Career Ladders Project; the Outreach and Education Committee of the Biotechnology Industry Organization; the Workforce Committee of BayBio; the Advisory Committee for Community Colleges for the Biotechnology Institute in Arlington, Virginia; and the Advisory Committee for Biotechnology Workforce of the California Labor and Workforce Development Agency.

Wim Jongen



Wim Jongen began his career as a technician at the former Institute for Insecticide Research in Wageningen, Holland, in 1972. In January 1975, he moved to the Toxicology Department of Wageningen University where he became an assistant professor in 1985. He obtained his PhD in 1988 and took a postdoctoral position at the International Agency for Research on Cancer in Lyon, France.

At the 1990 founding of the Agrotechnological Research Institute (ATO-DLO) in Wageningen, Dr. Jongen became head of the Post Harvest and Product Quality Division and in 1994 was appointed professor of Integrated Food Technology. In 1999 he became professor of Product Design and Quality Management while serving as research director of ATO-DLO.

In 2001 he was appointed director of Business Development in the Animal Science Group, responsible for contract research, the IP portfolio and spin-off companies. Since January 2005 he has served as director of the Wageningen Business Generator, an affiliate of Wageningen University, responsible for development of the corporate IP portfolio and maximizing the impact of research through building business ventures. He also acts as chairman of the board of the board of the Food Valley Group for pre-seed activities in building business ventures.

Ganesh M. Kishore



Ganesh "Kish" Kishore joined DuPont in June 2002 as vice president of science and technology and chief biotechnology officer, after a 20-year research and executive-management career at Monsanto and an 18-month stint as a venture capitalist/advisor and entrepreneur. He has a PhD in biochemistry from the Indian Institute of Science and received postdoctoral training in microbiology and chemistry at the University of Texas at Austin.

Dr. Kishore has made several significant contributions to the fields of biotechnology and nutrition. In his early days at Monsanto, he developed processes for the manufacture of aspartame and subsequently led the research effort on Roundup Ready®, the most successful plant-biotech trait commercialized thus far, for which he received the Queeny Award from Monsanto.

At DuPont, Kishore leads the effort to build a broad biotechnology platform to help the transition to a biotech-plus-chemical company.

He is co-founder of Metahelix Life Sciences Pvt. Ltd. in India, and Mogene LC in St. Louis. He serves on the advisory and governing boards of venture capital groups, educational institutions, and biotech boutiques. His personal mission is to increase agricultural productivity, sustainability and reliability and promote the development of diet- and nutrient-based systems for managing human health.

Peggy G. Lemaux



Peggy Lemaux is a cooperative extension specialist in the Department of Plant and Microbial Biology at the University of California, Berkeley. She has a BS from Miami University in Ohio and a PhD in microbiology and immunology at the University of Michigan and had postdoctoral training at Stanford University under Stanley Cohen. Her attention turned to applications in agriculture after studying light-harvesting in algae at the Carnegie Institution of Washington. She joined DeKalb Plant Genetics, where she and coworkers published the first successful strategy to engineer corn. From there she went to Berkeley where she does research, teaching and public outreach.

Dr. Lemaux's research group focuses on practical agricultural problems, like allergenicity of wheat, digestibility of sorghum for developing countries, and drought tolerance. She devotes much of her time to educational outreach relating to genetically engineered crops and foods with emphasis on public understanding of agricultural practices and food production and the impact of new technologies on food and agriculture. These efforts have increased with interest in California of counties attempting to pass anti- and pro-GMO ordinances and resolutions. She spearheaded the development of an award-winning educational Web-site, ucbiotech.org, providing scientific information relating to biotechnology.

Ashley O'Sullivan



As president and CEO of Ag-West Bio, Ashley O'Sullivan is responsible for working with the board of directors to establish the strategic direction and focus for Ag-West Bio in support of the growth of the bio-economic sector in Saskatchewan.

Born in Cork City, Ireland, he completed a BSc and PhD at University College, Cork, before moving to Canada in 1973 for a research associate position at the University of Alberta in the Plant Sciences Department. At Monsanto Canada he was responsible for R&D in Western Canada. In 1978, Dr. O'Sullivan joined the team at Agriculture Canada and served as research head at the Lacombe Research Station; assistant director at the Lethbridge Research Station; Director of the Swift Current Research Station; and director of the Saskatoon Research Centre.

While with Agriculture and Agri-Food Canada, he obtained a wealth of international experience as the Canadian principal advisor for the India Dryland Project in Hyderabad; managing a CIDA-sponsored research project at Rio Grande do Sul, Brazil; and as research advisor to the Hebei Dryland Project in China.

O'Sullivan also spent a year as the managing director of CABI Bioscience in the United Kingdom and has served on a number of management boards and advisory committees.

Fernando Reinach



Fernando Reinach graduated in biology from the University of São Paulo, Brazil, and has a PhD in cellular and molecular biology from Cornell University. He is executive director of Votorantim New Business. In 1989 he co-founded Genomic Engenharia Molecular, one of the first companies to carry out paternity tests in Brazil. He was also one of the founders of .comDominio, a company created in 1999 to provide data-center services.

In addition to his business activities, Dr. Reinach is involved in genomics research as a professor at the University of São Paulo. He organized and was one of the coordinators of the Brazilian Genome Project, a multi-institutional initiative that sequenced the genomes of *Xilella fastidiosa* and *Xanthomonas citri*, the first bacterial pathogens of plants to be thus characterized.

Register for NABC 18 at
<http://www.nysaes.cornell.edu/ent/nabc>

Michael R. Sussman

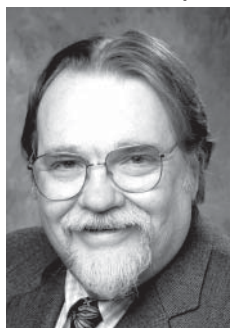


At the University of Wisconsin-Madison over the past two decades, Michael Sussman's research has focused on the role of plasma-membrane proteins in signal transduction and solute transport. His laboratory was the first to report on unique protein kinases found only in plants and protists and on the plasma-membrane proton pump, which provides the driving force for the uptake of all nutrients. In the past decade, Dr. Sussman has focused on the development and application of innovative new genomic technologies. With Franco Cerrina, he invented the Maskless Array Synthesizer (MAS) which makes "chips" that can analyze the structure and activity of hundreds of thousands of genes simultaneously, eliminating the requirement for expensive masks normally needed in DNA chip technology. This invention is the basis for NimbleGen Systems, Inc., founded by Sussman and Cerrina.

In 1996, he was appointed interim director of the UW Biotechnology Center (UWBC), and in 1997 was appointed director. The UWBC is a campus-wide facility devoted to research, outreach and service in the area of biotechnology and genomic science and instrumentation.

Sussman's honors include a Fulbright fellowship for a research sabbatical in Belgium, a McKnight Foundation Award, a UW-Madison WARF Kellett Mid-Career Award, and a Vilas Associates Award.

Paul B. Thompson



Paul Thompson holds the W. K. Kellogg Chair in Agricultural, Food and Community Ethics at Michigan State University in East Lansing, Michigan. He formerly held positions in philosophy at Texas A&M University and Purdue University. His research has centered on ethical and philosophical questions associated with agriculture and food, especially concerning the guidance and development of agricultural technoscience. This research focus has led him to undertake a series of projects on the application of recombinant DNA techniques to agricultural crops and food animals.

Dr. Thompson published the first book-length philosophical treatment of agricultural biotechnology in 1997, and has traveled the world speaking on the subject. In addition to philosophical outlets, his work on biotechnology has appeared in technical journals including *Plant Physiology*, *The Journal of Animal Science*, *Bioscience*, and *Cahiers d'Economie et Sociologie Rurales*. He serves on the

US National Research Council's Agricultural Biotechnology Advisory Council and on the Science and Industry Advisory Committee for Genome Canada.

Thompson has published extensively on the environmental and social significance of agriculture. His 1992 book (with four coauthors) on U.S. agricultural policy, *Sacred Cows and Hot Potatoes*, won the American Agricultural Economics Association Award for Excellence in Communication.

K. Vijayaraghavan



With a masters and a fellowship in public accounting and management consulting, focussing on strategic and technology-management consulting, K. "Vijay" Vijayaraghavan is a certified management consultant (CMC) and a fellow of the International Council of Management Consulting Institutes (ICMCI).

Mr. Vijayaraghavan is the chief executive of Sathguru Management Consultants Pvt Ltd, based in Hyderabad, India. Sathguru advises government organizations, multilateral and bilateral development institutions, private enterprises and NGOs in several countries across the Asian region. He is engaged in shaping policy initiatives in life sciences for India and is a member of national committees constituted for this purpose.

Sathguru is associated with the Cornell-in-India program, of which Vijayaraghavan is a director. The program encompasses several countries in Asia. Vijayaraghavan is also regional coordinator of the South Asian (India and Bangladesh) activities of the Agricultural Biotechnology Support Program II.

Peter Welters



After studying chemistry, biochemistry and food chemistry in Germany, Peter Welters spent 4 years at the Max Planck Institute for Plant Breeding Research, there obtaining his Diploma and PhD. He worked in Jeff Schell's group on promoter control in legume/rhizobia nitrogen-fixing symbioses. After 3 years at the University of California, San Diego, in the laboratories of Maarten Chrispeels and Scott Emr, researching protein transport regulation in plants and yeasts, he was chosen as head of the Production of Pharmaceutical Proteins in Plants Project in Rouen, France.

Dr. Welters's innovative ideas led to the foundation of Biotechnology and Molecular Biology, which became Phytowelt GmbH in 1998. Four years later, he became CEO of GreenTec GmbH, a spin-off company of the Max Planck Institute, founded by Schell, Klaus Hahlbrock, Frederico Salamini, and Heinz Saedler .

Since January 2006, Welters has been CEO of Phytowelt GreenTechnologies GmbH, a fusion of GreenTec and Phytowelt, located in Nettetal (head office) and Cologne (R&D). The company offers laboratory and know-how services in agbiotech, *e.g.* somatic hybridization, tissue culture, marker technologies, contract studies and project coordination. He is also a board member of the ABIC Foundation, Canada, and BioCologne eV, Germany.

H. Alan Wood



Alan Wood, a graduate of Middlebury College, Vermont, received MS and PhD degrees from Purdue University, majoring in plant pathology. He joined the Boyce Thompson Institute in 1968 as an assistant plant virologist, achieving the ranks of full scientist and program director. In 2001 he became the founding director of the Life Sciences and Biotechnology Institute at Mississippi State University. He was a member of the USDA Agricultural Biotechnology Research Advisory Committee and the recent congressionally mandated USDA Research, Education and Economics Task Force that developed the framework for the National Institute of Food and Agriculture.

Dr. Wood's research defined the interactions of the components of the cowpea mosaic and bean pod mottle viruses, developed methods for purification and characterization of fungal viruses, and elucidated the molecular biology of insect viruses. In 1989, he conducted the first US field release of a genetically engineered virus in Geneva, New York, which led to the optimized production of pharmaceutical proteins with insect viruses.

Based on his patented discoveries, he was a co-founder and chief scientific officer of AgriVirion, which produced pharmaceutical proteins in insect larvae. He is a member of Phi Beta Kappa, Gamma Sigma Delta and Sigma Xi, and was awarded a Fulbright Fellowship in 1981.

Roger E. Wyse



Roger Wyse received his BS degree in agronomy from The Ohio State University and his PhD in plant physiology from Michigan State University where he also did postdoctoral work in the Department of Biochemistry. He then spent 16 years as a scientist with the USDA-ARS.

Dr. Wyse has over 27 years experience as an internationally recognized scientist and as a dean at Rutgers and the University of Wisconsin-Madison. Immediately prior to joining Burrill & Company, he served for 5 years as dean of the College of Agricultural and Life Sciences at the University of Wisconsin-Madison. From 1986 to 1992 he served as dean of research at Rutgers. Throughout his administrative career, he has been known for his vision and leadership in developing national policies and funding for life-sciences research.

Currently he is managing director/general partner of Burrill & Company, a life sciences merchant bank. In that role he has led the development of Burrill & Company's agriculture, nutraceuticals, and industrial biotechnology-related activities in venture-capital investing, partnering and the spinout of technology from large companies. The firm has over \$650 million under management.

Wyse is sought after as a speaker and advisor on biotechnology: trends, issues, market opportunities, and financing.

Welcome to NABC 18

On behalf of Cornell's College of Agriculture and Life Sciences, the New York State Agricultural Experiment Station, the Cornell Agriculture and Food Technology Park, Boyce Thompson Institute for Plant Research and the National Agricultural Biotechnology Council, welcome to NABC 18. Perhaps there is no better time than the present to address the theme of this meeting: *Agricultural Biotechnology: Economic Development through New Products, Partnerships, and Workforce Development*. Biotechnology has already produced major successes in agriculture. As just one example, the global value of biotech crops was projected to be more than \$5 billion during 2005. But this is only the tip of the iceberg. Biotechnology has contributed tremendous economic value to animal agriculture, food processing, environmental efforts, basic breeding programs, and provided better understanding of fundamental life processes and human health. These developments have only been possible through collaboration of private and public partnerships and an educated workforce.

When the Morrill Act was passed to create the Land Grant University structure—whose mandate is to work for the public good—the United States was an undeveloped and agrarian country. Time has dramatically changed not only the United States, but the rest of the interconnected world in which we live. As Land Grant Universities search out new ways to fulfill their mission of serving society in the twenty-first century, they are increasingly using modern science and biotechnology, which has led to new products, economic development and job creation, main themes of governments throughout the world. How we bridge these themes to our evolving Land Grant mission is a central focus of NABC 18.

Tony Shelton
Chair, NABC 18 Organizing Committee

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