

NABC

news

Spring 2005 no. 30

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
Boyce Thompson Institute, Room 419
Tower Road
Ithaca, NY 14853
607-254-4856 fax-254-1242
nabc@cornell.edu
www.cals.cornell.edu/extension/nabc

Letter from the Chair...

We at the University of Kentucky are proud to be co-organizers—with the University of Tennessee—of NABC's seventeenth annual meeting, *Agricultural Biotechnology: Beyond Food and Energy to Health and the Environment*, which will convene at the Renaissance Hotel in Nashville, TN, June 27–29, 2005. An excellent program of speakers is lined up to provide a range of opinion on four subject areas:

- Plants as New Sources of Medicinals: Production of Protein Pharmaceuticals in Food and Non-Food Plants
- Bioremediation, Phytosensing and Ecorestoration
- Gene-to-Product Development
- Regulatory and Legal Challenges

The stage will be set with contrasting keynote addresses from Roger Beachy (Danforth Plant Sciences Center) and Michael Rodemeyer (Pew Initiative on Food and Biotechnology). Further information on NABC 17 is provided elsewhere in this newsletter. We anticipate a lively and informative meeting.

NABC 17 will be one of two meetings in 2005 to be sponsored by NABC. The Second World Congress on Industrial Biotechnology and Bioprocessing—jointly organized by the Biotechnology Industry Organization, the American Chemical Society and NABC—will convene near Orlando, FL, April 20–22, 2005. The subject matter will include:

- Agriculture Feedstocks for Bioproduction,
- Biopolymers,
- Bio-Energy Production,
- Biological Fuel Cells,
- Biorefinery Development, and
- Enzymes for catalysis

The Second World Congress will build on the significant success of the



Nancy M. Cox
NABC Chair 2004-2005

inaugural World Congress held in April 2004, also co-organized by NABC. It is expected that the meeting will become an annual fixture; there are plans to hold it also in Europe and in Canada. More information on the 2005 World Congress is provided inside.

In the eight years since genetically engineered (GE) crops were introduced, farmers have embraced their benefits and continue to adopt the technology at a phenomenal pace. No other technology has enjoyed such extraordinary acceptance by growers. The fast rate of adoption of agbiotech is now particularly striking in the developing world. A recent report from the International Service for the Acquisition of Agri-Biotech Applications (ISAAA) showed that, in 2004, 1.25 million more farmers grew GE crops than in 2003. Some 200 million acres of GE crops were planted last year in seventeen countries, eleven of which are in the developing world—a 20% increase, in total, over 2003. This trend shows that the theme of NABC 16,

continued on page 3

NABC to co-sponsor Second World Congress on Industrial Biotechnology and Bioprocessing

The *Second World Congress on Industrial Biotechnology and Bioprocessing: Linking Biotechnology, Chemistry and Agriculture to Create New Value Chains* will convene at Lake Buena Vista, FL, April 20–22, 2005, jointly organized by the Biotechnology Industry Organization (BIO), the American Chemical Society (ACS), the Society for Biological Engineering, EuropaBio and NABC.

Plenary sessions will include addresses by Paul Roberts (*The End of Oil is in Sight: Now What?*), Iowa Governor Tom Vilsack (*Iowa's Vision for Bioenergy Production and a Biobased Economy*) and Canadian futurist Richard Worzel. Industry, academic and government thought-leaders will make presentations in concurrent sessions on *Bioprocessing of Agricultural Feedstocks, Manufacturing and Synthesis, Sustainability Issues* and *Novel Applications*. More specifically, the subject matter related to agriculture and forestry will include:

- commodity agricultural crops for biobased platforms,
- industrial biotechnology for food and feed,
- energy from biomass,
- meeting feedstock needs for large biorefining plants,
- the bridge to biomass ethanol,
- bioethanol commercialization,
- plant traits for ethanol and chemical production,
- frontiers in oil-seed production,
- crop residue utilization,
- harnessing the poplar genome,
- environmental and energy issues in bioenergy production,
- biohydrogen,
- biomass crops,
- sustainability of biomaterials,
- wood cellulose feedstock for energy and chemicals.

In addition, workshops will be devoted to agricultural topics.

The first *World Congress*, held April 21–23, 2004, at the same location, was co-sponsored by BIO, ACS and NABC. There were over a hundred speakers in four parallel tracks with subjects ranging from biomass production to nanotechnology. Approximately 450 attended, and feedback was extremely positive. A Summary Proceedings booklet—edited by NABC Executive Director Allan Eaglesham—was published, and is available in hard copy from NABC or at http://nabc.cals.cornell.edu/pubs/WCIBB2004_proc.pdf.

The convergence of biotechnology, chemistry and agriculture is opening doors to innovations that could revolutionize nearly every aspect of our lives, from industrial manufacturing to production of chemicals and consumer goods and even environmental protection. The past three years have seen significant advances in industrial biotechnology and bioprocessing of agricultural feedstocks. These advances have come about because novel applications involving genomics, proteomics and bioinformatics are being applied to new problem sets. This conference will bring together individuals with diverse experience to share knowledge and expertise that will speed the development and growth of a sector that is vital for value creation and sustainable industrial and rural development.

This value creation and sustainability will be possible only through considerable effort on the part of industry—including agriculture—academia and the government. To offer a broad perspective on this effort, the conference will include participants from the

United States, Europe and Asia. The three-day event will foster exchanges of ideas, provide “real world” examples that can be applied in daily practice and will present overviews of technological developments and general trends and also barriers that must be overcome to advance a biobased economy.

The *Second World Conference* will be geared toward a diverse base of participants from biotechnology, agricultural, chemical and other industries, to government and academia. It is meant to provide a unique forum for interdisciplinary interaction and networking and will feature technical sessions for business, academic and research-related presentations on topics such as biotechnology in manufacturing and synthesis, industrial biotech in pharmaceuticals, cosmetics, and personal care products, bioprocessing of agricultural feedstocks, bioenergy production (including bioethanol), biotechnology and climate change, issues surrounding the application of biotechnology to industrial sustainability, enzymes for environmental remediation, bioplastics, pulp and paper processing, national defense applications, nanobiotech, animal feed ingredients, and more. ♦

**The World Congress on
Industrial Biotechnology
and Bioprocessing
April 20-22, 2005
Orlando, FL**

Registration details
and other information
are available at
www.bio.org/worldcongress/

Agricultural Biotechnology: Beyond Food and Agriculture to Health and the Environment

NABC 17 will cover a range of topical issues

An assemblage of excellent speakers—revealed in the pages of this newsletter—will participate in NABC's seventeenth annual meeting, which will convene in Nashville, TN, June 25-27, 2005, organized jointly by the Universities of Kentucky and Tennessee.

The overarching theme will be human and environmental health, encompassed within four modules:

- Plants as New Sources of Medicinals: Production of Protein Pharmaceuticals in Food and Non-Food Plants
- Bioremediation, Phytosensing and Ecorestoration
- Gene-to-Product Development in Forestry and Industrial Crops
- Regulatory and Legal Challenges

The stage will be set with contrasting keynote addresses from Roger Beachy (Danforth Plant Sciences Center, *Controlling Traits in Transgenic Plants: Tools that Can Enhance Value and Reduce Environmental Release*) and Michael Rodemeyer (Pew Initiative on Food and Biotechnology, *Can You Get There From Here? Speed Bumps in the Road to Health and Environmental Biotech Applications*).

Then, each module will involve plenary presentations followed by questions from expert panelists and audience Q&A. As has become an NABC tradition, participants will then meet in

smaller workshop groups for further discussion of the issues raised and to formulate recommendations to policymakers that will be passed along at a congressional briefing on Capitol Hill in the spring of 2006. Thus, every attendee at NABC 17 will have the opportunity to share her/his views. The panel discussions and audience Q&A will be audio-recorded and transcribed for inclusion in the proceedings volume; recommendations from the breakout sessions will also be detailed in *NABC Report 17*. Presentations will also be made during two luncheons and an evening banquet; Gregory Jaffe (Center for Science in the Public Interest) and Michael Phillips (Biotechnology Industry Organization) recently agreed to be luncheon speakers. Further speaker/panelist details are contained in this newsletter. The latest program information is available at www.outreach.utk.edu/ppd/nabc/

We hope for strong representation from pre- and post-graduate students, and to that end we offer a reduced registration rate and scholarship opportunities. Guidance for scholarship applicants is on page 4.

General information on registration and lodging is provided on page 4.

We look forward to a lively and enlightening meeting in amenable surroundings, and hope to see you there. ♦

continued from page 1-Letter

held in June 2004 at the University of Guelph—*Finding Common International Goals*—was particularly timely. Presentations at NABC 16 dealt with positive contributions possible from agbiotech to food production in West and East Africa and in Asia.

Biotech crops have had enormous economic impact. The ISAAA report shows that their global value is expected to exceed \$5 billion in 2005. Farmers in the Philippines planted nearly 250,000 acres of GE corn in 2004—just the second year in which commercial growth of GE varieties was approved. Filipino farmer Edwin Paralumin discovered that planting a GE variety yielded 40% more crop than usual.

Clive James, founder and chair of ISAAA, estimates that the area planted to GE crops may double by 2010, spurred on by China's expected approval of GE rice as soon as this year. This pattern of continued rapid acceptance of agbiotech in many parts of the world contrasts with the situation in Europe. Although the EU ended a 6-year moratorium on new GE foods last May, consumer skepticism remains widespread and few, if any, GE crops are expected to reach market in the foreseeable future. It remains to be seen to what extent research in Europe on the genetic engineering of plants will lag behind that in other parts of the world.

My colleagues and I look forward to welcoming you to NABC 17. This year's meeting is scheduled later than usual, so bring the family and spend a few extra days vacationing in Nashville. There's lots to do and see, even in the unlikely event that you are not a fan of country music. ♦

Go to the website below to register for NABC 17

www.outreach.utk.edu/ppd/nabc/registration.htm

Nancy M. Cox

Conference Information

Agricultural Biotechnology: Beyond Food and Agriculture to Health and the Environment

NABC 17 will be hosted jointly by the Universities of Kentucky and Tennessee and will convene in the beautiful Renaissance Hotel in Nashville, TN, from 1:00 PM Monday June 27 through lunch on Wednesday June 29.

Registration

Please register early; five methods are detailed at:

www.outreach.tennessee.edu/ppd/nabc/registration.htm

The early-bird rate of \$300 will apply for applicants at NABC institutions until June 1. For applicants at non-NABC institutions, the early bird rate of \$350 will apply until June 1. After June 1, both rates increase by \$50. A 1-day registration fee of \$200 is also available.

The registration fee covers attendance at all sessions including workshops, the banquet dinner on June 27, the wine and cheese reception on June 28, banquet luncheons on June 28 and 29, and continental breakfasts on June 28 and 29. Also covered are the conference materials and a copy of the proceedings volume, *NABC Report 17*, scheduled for publication in early 2006. Lodging is not covered by the registration fee.

Student Registration

The fee for students is \$200. It covers attendance at all sessions including workshops, the banquet dinner on June 27, the wine and cheese reception on June 28, banquet lunches on June 28 and 29, and continental breakfasts on June 28 and 29. Also covered are the conference materials and a copy of the proceedings volume, *NABC Report 17*, scheduled for publication in early 2006. Proof of student status will be requested at the conference-registration desk.

Lodging is not covered by the student-registration fee.

Student Scholarships

A limited number of partial scholarships are available to pre- and post-graduate students who demonstrate an interest in the conference. Each scholarship covers registration and provides a \$500 travel stipend.

Completion of an application form is required with submission of a resume and a one-page statement of relevance of NABC 17 to the student's academic interests to:

Ric Bessin

NABC 17 Planning Committee Chair

Department of Entomology

S-225 Ag. Sci. Bldg. North

University of Kentucky

Lexington, KY 40546-0091

859-257-7456

fax-323-1120

rbessin@uky.edu

The statement should also demonstrate financial need. Please include proof of student status. The application form is available at:

www.outreach.utk.edu/ppd/nabc/scholar.htm

Applications must be received by **Friday April 29, 2005**. Applicants will receive result notification before **Friday May 13, 2005**. Scholarship winners will have until **May 27, 2005**, to inform NABC of intention to attend the conference. **DO NOT REGISTER ONLINE IF YOU ARE APPLYING FOR A SCHOLARSHIP.**

Accommodation

The meeting will convene at the: The meeting will convene at the:

Renaissance Nashville Hotel

611 Commerce Street

Nashville, Tennessee 37203

615-255-8400

fax-525-8163

800-327-6618

Special room rates are available for conferees:

\$139 per night for a single or double room (code NABNABA)

\$159 per night for a triple room (code NABNABB)

\$179 per night for a quadruple room (code also NABNABB)

Reservations may also be made at:

www.marriott.com/property/propertypage/BNASH

Travel

If flying, you will arrive at Nashville BNA International Airport. A Grayline shuttle to the hotel costs \$12, or a taxi will cost \$20. A city map showing the Renaissance Nashville may be obtained from the hotel's Web-site (above).

Contacts

Conference services:

Alan Brown

Program Coordinator

University of Tennessee

Knoxville, TN 37996

865-974-0159

browna@outreach.utk.edu

Program, scholarships, participants:

Ric Bessin

NABC 17 Planning Committee Chair

Department of Entomology

S-225 Ag. Sci. Building N.

University of Kentucky

Lexington, KY 40546-0091

859-257-7456

fax-323-1120

rbessin@uky.edu

www.outreach.utk.edu/ppd/nabc/

Speakers and Panelists



Roger N. Beachy

Roger Beachy is president and director of the Donald Danforth Plant Science Center in St. Louis, MO. He is recognized for his work in molecular virology and gene expression, and for development of transgenic plants that are resistant to virus infection.

Dr. Beachy received a PhD in botany and plant pathology from Michigan State University in 1972. After postdoctoral work at the University of Arizona and Cornell University, in 1978 he was appointed to the faculty at Washington University, St. Louis. In 1991 he joined The Scripps Research Institute in La Jolla, CA, as Head of the Division of Plant Biology holding the Scripps Family Chair in the Department of Cell Biology. In 1999 he accepted the position as founding president of the Danforth Center.

Beachy was elected to the National Academy of Sciences in 1997 and received the Wolf Prize in Agriculture in 2001. He is a Fellow of the American Society for Microbiology and of the American Association for the Advancement of Science. He is a strong proponent for training of, and cooperative research with, scientists in developing countries and is an advocate for implementation of policies of technology management that encourage sharing of intellectual property, and research for the public good. ♦



Allan Bennett

Allan Bennett is the associate vice chancellor for research at UC Davis, responsible for technology transfer, strengthening research-based alliances with industry, and supporting technology-based economic development in the Sacramento/Davis region. He also serves as the founding executive director of the Rockefeller Foundation-supported Public Intellectual Property Resource for Agriculture (PIPRA), an organization comprised of twenty-five universities dedicated to the collective management of intellectual property to support broad commercial innovation as well as humanitarian uses of technology in agriculture.

From 2000 to 2004, Dr. Bennett served as the executive director of the University of California Office of Technology Transfer and Research Administration, responsible for intellectual property management and research policy statewide.

He earned BS and PhD degrees in plant biology at UC Davis and Cornell University, respectively, and joined the Davis faculty in 1983, where his research in plant molecular genetics has focused on cell-wall disassembly and fruit development. He has published over 130 research papers, holds several utility patents related to crop-quality traits and is a regular speaker at universities, international symposia and private companies. He served as associate dean of the College of Agricultural and Environmental Sciences at UC Davis from 1993 to 1999. ♦



Vincent L. Chiang

Vincent Chiang is a professor and co-director of the Forest Biotechnology Group at the College of Natural Resources, North Carolina State University. He obtained his MS (1980) and PhD (1983) degrees from the University of Washington in lignin chemistry and biochemistry.

Dr. Chiang's interests include chemistry, biochemistry, and the molecular biology of lignin, cellulose and hemicellulose biosynthesis. His research involves investigating genes, RNAs, and transcription factors associated with the regulation of lignin, cellulose, and hemicellulose biosynthesis during wood formation, using oligoarray to study the expression of genes and regulatory RNAs associated with woody cell wall formation, and genetic engineering of these regulations to develop superior trees with desirable wood traits for pulp/paper, lumber and energy productions. ♦





Alex Day

Alex Day brings over 14 years experience in development of pharmaceuticals and natural products and in team building, licensing, intellectual property issues, and manufacturing. Mr. Day graduated in 1991 from Western Kentucky University with a BS in physics. He then worked at Audax, Inc., a biomedical R&D company, as a technical liaison arranging contract studies on anti-atherosclerotic drugs. In 1993, he was promoted to vice president and in 1996 he became president of Audax. During his tenure, the company developed eight new products, for five of which patents were filed.

In 2000, Day left Audax to found Sheltowee, LLC, a life sciences business-development company. Sheltowee has assisted in the development of multiple life science start-ups and in 2004 was named as manager of the Kentucky Natural Products Fund.

In 2004, Day was appointed by Governor Ernie Fletcher to serve as the Chairman of the Governor's Life Sciences Consortium, which is developing a strategic plan for growing life science industry in Kentucky.

He runs an 80-acre farm in Grayson County, Kentucky, that has been in his family for six generations. It is his hope that the confluence of technology and agriculture will provide new opportunities for farmers in Kentucky and across the United States. ♦



Bruce W. Ferguson

Bruce Ferguson has served as chairman, president, and chief executive officer of Edenspace Systems Corporation since co-founding it in 1998. Edenspace is a leading phyto-technology company specializing in environmental uses of plants. Projects include a contract with the US Army Corps of Engineers to remove arsenic from soil, and research on corn and switchgrass for higher biofuel yields.

From 1997 to 1998, Mr. Ferguson was a visiting fellow at George Washington University's Center for International Science and Technology Policy. From 1982 to 1997, he was executive officer and director at Orbital Sciences Corporation (NYSE:ORB), a space technology company he co-founded in 1982. Prior to his work at Orbital, he was an attorney in the corporate and securities department of the Chicago law firm of Kirkland & Ellis.

In 1981, he received an MBA from Harvard Business School and a JD from Harvard Law School, where he was editor of the *Harvard Law Review*. He received an AB *magna cum laude* in government from Harvard College and an EdM from the Harvard Graduate School of Education in 1976. He is a member of the Pegasus launch vehicle team that received the 1991 National Medal of Technology, and is a 1999 recipient of the Harvard Business School Alumni Achievement Award. ♦



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; research scientist/project manager for Union Camp Corporation; 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) for 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. ♦



Elizabeth E. Hood

Elizabeth Hood has had twenty - five years experience in biology. She is currently associate vice chancellor for research and technology transfer at Arkansas State University. She was a program director in molecular and cellular biosciences at the National Science Foundation for the 2003–2004 academic year.

Dr. Hood was a leader in forming the transgenic plant-research groups at ProdiGene, a biotechnology start-up company. Previous to ProdiGene, she was director of the cell biology group for plant production of therapeutic proteins at Pioneer Hi-Bred International.

Hood has over seventy publications and patents to her credit and she has been an advisor for graduate programs at several universities. Currently she holds adjunct positions at Texas A&M University in the Department of Biochemistry and Biophysics and in the Molecular and Environmental Plant Sciences program. Her previous positions were with Utah State University, the Swedish University of Agricultural Sciences, Washington University in St. Louis, and Oklahoma State University. She earned her PhD in plant biology from Washington University and an MS in botany from Oklahoma State. Her research interests are in the areas of renewable resources, foreign-gene expression in transgenic plants, plant cell-wall structure and function, and plant cell biology and protein targeting. ♦



Gregory Jaffe

Gregory Jaffe is director of the Project on Biotechnology for the Center for Science in the Public Interest (CSPI). He joined CSPI after a career in government service. He was a trial attorney for the US Department of Justice's Environmental and Natural Resources Division for seven years, then served as senior counsel with the US EPA's Air Enforcement Division.

As an expert on the US regulatory structure for agricultural biotechnology as well as related consumer issues, Mr. Jaffe has published articles in *Transgenic Research*, the *Sacramento Bee*, *St. Louis Post-Dispatch*, *Christian Science Monitor*, the Food and Drug Law Institute's *Update* magazine, the Environmental Law Institute's *Environmental Forum* magazine, and has spoken at numerous national and international conferences.

He was appointed in 2003 to Secretary of Agriculture Veneman's Advisory Committee on Agricultural Biotechnology and 21st Century Agriculture and in November, 2004, to the Food and Drug Administration's Veterinary Medicine Advisory Committee. He is also a member of the governing Bureau for the International Assessment of Agriculture Science and Technology for Development and the Advisory Board for the International Society for Biosafety Research.

Jaffe earned his BA from Wesleyan University in biology and government and then received a law degree from Harvard Law School. ♦



Schuyler S. Korban

Schuyler Korban is professor of molecular genetics and biotechnology in the Department of Natural Resources and Environmental Sciences (NRES) at the University of Illinois. He received his PhD in plant genetics from the University of Nebraska in 1980, completed postdoctoral training at the University of Illinois, and joined the Department of NRES as an assistant professor in 1982. His interests include plant genomics, plant-based vaccines, as well as biotic and abiotic stresses.

His research has been featured in the mass media, including NBC's *Today* show, TVE (TV-Spain), BBC, *St. Louis Post-Dispatch*, and *US News and World Report*. He has been an invited speaker at numerous institutions and conferences in the US and abroad, and has organized several symposia and workshops for various national and international conferences. He is (co)author of a dozen patent applications and has published over a hundred refereed scientific articles and thirteen chapters/reviews.

Korban received the American Society for Horticultural Science (ASHS) Outstanding Researcher Award in 2002 and the Paul A. Funk Recognition Award from the College of Agricultural, Consumer, and Environmental Sciences at the University of Illinois in 2004. He was elected a Fellow of ASHS in 2002 and a Fellow of the American College of Nutrition in 2003. ♦



Lena Q. Ma

Lena Ma is a professor in the Soil and Water Science Department at the University of Florida. She obtained her MS and PhD degrees from Colorado State University in 1989 and 1991. After three years as a postdoctoral scientist at the Ohio State University, she joined the University of Florida faculty in 1994.

Dr. Ma's research focuses on environmental soil chemistry, emphasizing biogeochemistry of trace metals, and includes phytoremediation of arsenic-contaminated soils and water, and chemical remediation of metal-contaminated soils.

She was the recipient of the Discovery 2001 Award sponsored jointly by Royal Geographical Society and Discovery Networks Europe. She received the 2002 Gamma Sigma Delta Junior Faculty Award, and the 2003 Sigma Xi Junior Faculty Research Award at University of Florida. She is a fellow of the American Society of Agronomy (ASA) and the Soil Science Society of America (SSSA). She also received the University of Florida Foundation Professorship in 2003.

Ma has served on many committees in the Soil Crop Science Society of Florida. She has also served on ASA and SSSA committees, as a chair of Division S-11 Soils and Environmental Quality of SSSA and as an associate editor of the *Journal of Environmental Quality*. ♦



Scott Merkle

Scott Merkle received his BS in biology from the College of William and Mary in 1976 and his MS and PhD in forestry from Virginia Tech in 1978 and 1982, respectively. His graduate training was in forest genetics and tree improvement and in predicting cone and seed yields in southern pine seed orchards using computer models. Dr. Merkle was a postdoctoral associate with Tom Adams at Oregon State University during 1983–1984; his research was on population genetics of Douglas fir using isozyme markers. In 1984, he began postdoctoral work with Claud Brown and Harry Sommer at the Daniel B. Warnell School of Forest Resources at the University of Georgia, focusing on tissue culture and protoplast culture of hardwood forest trees. He joined the University of Georgia faculty in 1987 and is currently a professor in the Warnell School.

His lab has developed embryogenic regeneration systems for over a dozen forest tree species and hybrids, including American chestnut, yellow poplar, black locust, sweetgum, magnolia and longleaf pine. Merkle has employed these cultures in research involving mass clonal propagation, biomass energy, genetic engineering, artificial seeds and cryopreservation. He has collaborated with Richard Meagher of the UGA Genetics Department to engineer forest trees with heavy-metal-resistance genes for use in phytoremediation. ♦



Henry Miller

Henry Miller was educated at MIT (BS in molecular biology), the University of California, San Diego (MS in molecular biology, MD), and Harvard Medical School (internship and residency in internal medicine). He also was a research fellow at the NIH.

As an FDA official for 15 years, he served in a number of posts involved with the new biotechnology and drug regulation, among them special assistant to the FDA commissioner and founding director of the FDA's Office of Biotechnology. Since 1994, Dr. Miller has been a fellow at Stanford University's Hoover Institution where his research focuses on the relationship between science and regulation, the costs and benefits of government regulation, models for regulatory reform, federal and international oversight of biotechnology, and various aspects of bioterrorism.

He has authored six books and more than five hundred articles in scholarly and popular publications and is a regular commentator on ABC radio. He has received many awards and honors, and his latest book (co-authored with Gregory Conko), *The Frankenfood Myth: How Protest and Politics Threaten the Biotech Revolution* (Praeger, 2004), was selected by Barron's as one of the twenty-five best books of 2004. ♦



Canice Nolan

Canice Nolan was awarded a BS (Hons.) in zoology at University College Dublin in 1979. In 1984, he received a PhD from the same university based on research on heavy metal metabolism and toxicology in shellfish at the Radiochemistry Division of the European Commission Joint Research Centre in Ispra (Italy). During 1984–1986 he worked at the Department of Pharmacology and Toxicology at the University of Rhode Island looking at markers of environmental and occupational exposure to heavy metals. And from 1986 to 1991 he researched the movement of radioactivity in marine food chains at the Marine Radioactivity Laboratory of the International Atomic Energy Agency in Monaco.

Dr. Nolan joined the European Commission in 1991 where in DG Research he was responsible for program management on environment, health, and chemical safety. In 1998 he moved within the Commission to DG Agriculture where he was responsible for pesticide-residues legislation. With the reorganization of the Commission in 1999, this work moved to DG Health and Consumer protection, where he was head of the Plant Protection Products Sector.

Since September 2004, he has served as counselor dealing with health, food safety, and consumer protection at the Delegation of the European Commission to the United States, based in Washington DC. ♦



Michael J. Phillips

Michael Phillips is vice president for Food and Agriculture, Science and Regulatory Policy of the Biotechnology Industry Organization (BIO). With over 1,000 members, BIO is the largest trade organization to serve the life sciences industry, representing biotech companies, academic institutions, state biotechnology centers, and affiliated organizations in all fifty states and thirty-four nations. BIO members are involved in R&D on healthcare, agricultural, industrial, and environmental biotechnology products.

Prior to joining BIO in 1999, Dr. Phillips was the executive director of the Board on Agriculture and Natural Resources at the National Academy of Sciences. Before working for the Academy, he was director of the W.K. Kellogg Foundation program for Food, Agricultural and Natural Resource Issues for the 21st Century. He was also director of the Food and Agriculture program of the Office of Technology Assessment (OTA) of the United States Congress. Prior to his OTA service, he was a faculty member at Purdue University and was a senior staff member in the Secretary's office at the USDA.

Phillips has an MS and PhD in food and agricultural policy from Ohio State and Purdue Universities, respectively. He has authored and supervised numerous studies and reports on food and agriculture with a special focus on agricultural biotechnology. ♦



Thomas P. Redick

Attorney Thomas Redick practices environmental litigation and consults on international environmental law. He has published and lectured on liability prevention for agricultural environmental impacts, and recently authored the chapter on Agricultural Environmental Law in the *LEXIS-Bender Environmental Law Practice Guide*.

From 2000 to 2002, he chaired the Agricultural Management Committee for the American Bar Association's Section on Environment, Energy and Resources (ABASEER) and is vice-chair for that Section's Environmental Litigation and Toxic Torts Committee. He has represented the American Soybean Association on liability prevention programs for agricultural biotechnology since 1998, and has advised various clients in the food-production and grain-handling industries on liability risks arising from biotech crops (including the Cartagena Protocol on Biosafety). He is the founding chair of the International Biotechnology Regulation Roundtable hosted by ABA SEER, Croplife America, and the Council for Agricultural Science and Technology (summarized at www.cast-science.org/roundtable.htm).

Mr. Redick has been honored several times for his *pro bono* work in political asylum appeals and guardianship petitions for abused and abandoned children.

He graduated with high honors from the University of Michigan in 1982 (BA) and earned his JD there in 1985. ♦



Steve Rock

Steve Rock is project manager at the Environmental Protection Agency's National Risk Management Research Laboratory (NRMRL), Cincinnati, OH. He supervises field projects using various phytotechnologies, such as phytoextraction, phytodegradation, plume control, and vegetative covers.

Dr. Rock is the author of several "phyto" publications, including EPA's *Introduction to Phytoremediation* and a chapter in the *Standard Handbook of Environmental Engineering*. He was part of the Interstate Technology and Regulatory Cooperation (ITRC) team that developed the Phytoremediation Decision Tree, and the Phytotechnologies Technical and Regulatory Document.

Rock co-chairs the Remediation Technology Development Forum (RTDF) Action Team on Phytoremediation and has three subgroups researching the phytoremediation issues of petroleum hydrocarbons, chlorinated solvents, and vegetative covers for waste containment. He conducts field, greenhouse, and chambers research, and provides technical assistance to EPA regional staff on questions of phytoremediation. ♦



Michael Rodemeyer

Michael Rodemeyer is the executive director of the Pew Initiative on Food and Biotechnology, a non-partisan research and education project of the University of Richmond established in 2001 by a grant from the Pew Charitable Trusts. From 1998 to 1999, he served as the assistant director for Environment in the Office of Science and Technology Policy in the Executive Office of the President, where he worked on a wide range of environmental science policy issues.

Mr. Rodemeyer also served for more than fifteen years on the staff of the US House of Representative's Committee on Science, including positions as chief counsel, and staff director and counsel of the Subcommittee on Natural Resources, Agriculture Research and Environment. From 1976 to 1984, he also worked on antitrust and consumer protection issues at the Federal Trade Commission.

Rodemeyer received his law degree from Harvard Law School in 1975 and his undergraduate degree from Princeton University in 1972. ♦



Jacqueline V. Shanks

Jacqueline Shanks is a professor of chemical engineering at Iowa State University (ISU) and an adjunct professor of bioengineering at Rice University. She received her BS from ISU in 1983 and her PhD from the California Institute of Technology in 1989. She joined Rice in 1988 and ISU 1999.

Dr. Shanks' research interests include engineering of secondary metabolites in plants, nuclear magnetic resonance spectroscopy techniques for metabolic flux analysis, phytoremediation of explosives and related nitroaromatics, and production of valuable products from biorenewable resources.

She received the NSF Young Investigator Award in 1992 and ISU's Professional Progress in Engineering Award in 1994. She was elected as fellow to the American Institute of Medical and Biological Engineers in 2000, and served as a member of the NRC Committee on Biobased Industrial Products. She is a member of the ACS's Biochemical Technology (BIOT) and Environmental Chemistry (ENVI) divisions. She received the Van Lanen Award for service in the BIOT division in 2004. Shanks has served as co-editor of the Biochemical Engineering section of *Current Opinion in Biotechnology* and as co-editor for a 2002 issue of *Metabolic Engineering* devoted to plant metabolic engineering. She is a member of the Editorial Advisory Board for *Biotechnology Progress*. ♦



Contact to us at

NABC

Boyce Thompson Institute, Room 419
Tower Road

Ithaca, New York 14853
607-254-4856 fax-254-1242
nabc@cornell.edu

or visit us on the web at

www.cals.cornell.edu/extension/nabc



Cindy J. Smith

Cindy Smith currently serves as deputy administrator for the Animal and Plant Health Inspection Services (APHIS) Biotechnology Regulatory Services (BRS). She has been charged with providing leadership to BRS, the newly formed program that was created as a result of a restructuring of APHIS's biotechnology regulatory functions in June of 2003. BRS is responsible for the regulation of the import, interstate movement, and field-testing of transgenic plants, and is currently evaluating the role it will play in the regulation of transgenic animals and arthropods.

Ms. Smith has worked at APHIS since 1979, playing various roles across four programs: Plant Protection and Quarantine (PPQ); Biotechnology, Biologics and Environmental Protection (BBEP); Wildlife Services (WS); and BRS. Prior to assuming her leadership role with BRS, she most recently served as associate deputy administrator of Wildlife Services, the federal program protecting agriculture, natural resources, property, and humans from wildlife damage.

Smith obtained a masters degree in Management from the University of Maryland in 2000, and holds a BS in microbiology from the University of Maryland (1983). ♦



Neal Stewart

Neal Stewart holds the Racheff Chair of Excellence in plant molecular genetics and is a professor in the Department of Plant Sciences at the University of Tennessee. He holds degrees from North Carolina State University State (BS) and the Virginia Polytechnic Institute (MS and PhD), and gained postdoctoral experience at the University of Georgia.

Dr. Stewart's research spans plant genomics, physiology, and ecology. He has been involved in agricultural biotechnology and biotechnology risk assessment research since 1994. His research has been supported by various granting agencies including the USDA, NSF, EPA, NASA, and various US military agencies. He teaches a graduate level course in plant genomics and has given scientific and lay-presentations around the United States and in ten other countries.

Stewart has (co)authored over 100 publications. He recently wrote *Genetically Modified Planet: the Environmental Impacts of Genetically Engineered Plants*, published by Oxford University Press. In his spare time he participates in debates, panel discussions, and interviews on plant biotechnology. He is married with one teenage son who is a recent recipient of a driver's license. ♦



Kim Waddell

Kim Waddell is executive director of the American Vineyard Foundation, an educational entity that supports research in viticulture and enology for the US wine industry. Before coming to AVF and Napa, Dr. Waddell spent 4 years at the National Academies in Washington, DC, as director for a series of research and policy studies on agricultural biotechnology, pesticides, Pierce's disease, and related subjects.

An ecologist by training, he completed his undergraduate degree in agroecology at the University of California at Santa Cruz in 1990 and his PhD in biological sciences at the University of South Carolina in 1996. He then did postdoctoral research in entomology and taught at the University of Maryland, College Park.

Prior to these academic pursuits, Waddell spent 15 years as a waiter, wine steward, and wine buyer for a number of restaurants throughout the Caribbean and in the San Francisco bay area. He still enjoys good food and wine and is excited to be living on a small farm in the Napa wine country. ♦



See the program for NABC 17 at:

www.outreach.utk.edu/ppd/nabc/program.htm

National Agricultural Biotechnology Council

H. Maelor Davies

Maelor Davies is director of the Kentucky Tobacco Research and Development Center (KTRDC) at the University of Kentucky. He received his education at the Universities of Oxford and London (UK). Prior to joining KTRDC, he was a senior scientist with Calgene Inc., a pioneering agricultural biotechnology company. During his 14 years with Calgene, Dr. Davies played key roles in R&D programs that produced some of the world's first genetically engineered crops. His Calgene work focused on, *inter alia*, crop use of fertilizers, herbicide tolerance, improved fruit quality, and novel natural products.

Since 1996, Davies has been responsible for designing and overseeing the transition of KTRDC from health-related research to facilitating the development of new crops for Kentucky agriculture. The research in plant-made pharmaceuticals (PMPs) emphasizes the development

of a new, PMP-dedicated crop plant and an associated agricultural production system that will be useful to all companies using tobacco-based gene-expression technologies for protein production. The Center also supports research into natural products, anticipating that the development of new applications for intrinsic, small-molecule plant metabolites will, in turn, create new crop opportunities for growers. ♦

Maud A. W. Hinchee

Maud Hinchee has been chief technical officer for ArborGen LLC since its inception in 2000. ArborGen, a forestry biotechnology company, conducts research and develops products to improve the value, productivity, and sustainability of plantation forests.

Prior to joining ArborGen, Dr. Hinchee was instrumental in the development of transformation technologies for soybean, sugarbeet, potato, and

strawberry at Monsanto, and led the introduction of herbicide tolerance, insect tolerance, and disease resistance traits into these crops. At Monsanto she also successfully led a business unit aimed at applying biotech traits to specialty crops—alfalfa, sugarcane, and forestry species—through collaborative partnerships.

Hinchee is an inventor on five patent applications, and author of over twenty scientific publications. She has organized annual meetings and symposia for the International Union of Forest Research Organizations and the Society of In Vitro Biology, has served for four years on the board of the Institute for Forest Biotechnology, and has also been a board member for the Council for Agricultural Science and Technology.

She received her PhD in plant morphogenesis from the University of California, Davis, in 1982. She also holds an MS in botany from the University of Washington, Seattle, and a BS in botany from Davis. ♦

419 Boyce Thompson Institute
Cornell University
Ithaca, NY 14853

