

NABC

NEWS

Spring 2015 No. 49

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



NABC'S PRINCIPAL OBJECTIVES ARE TO:

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

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Letter from the Chair...

A Focus on the Issues

This year is a milestone that marks the twentieth anniversary of the commercial introduction of genetically engineered (GE) crops. Global acceptance of this technology by 18 million farmers has resulted in more than 181 million hectares planted in GE crops¹. This includes <90% of all soybeans, upland cotton, and corn planted in the United States². While many traits are under development or at early stages of commercialization, GE-crop technology has primarily focused on a narrow range of traits that impart herbicide tolerance and insect resistance either individually or as stacked-gene varieties that have become effective management tools for reducing pest problems with significant benefits for agriculture.

In 2010, the National Research Council released an insightful report, *The Impact of Genetically Engineered Crops on Farm Sustainability in the United States*, that discusses the economic, environmental and social impacts of GE crops on American farms. This report provides an excellent overview of these complex issues as we consider responsible stewardship for the sustainability of these technologies. For example, the broad use of no-till practices enabled by the adoption of herbicide-resistant crops is having positive impacts on the quality of our soils and water. Furthermore, the adoption of insect-resistant crops minimizes chemical-pesticide use, reducing off-target effects of pesticides on beneficial insects. However, such wide use of a focused technology based on a limited number of genetic traits has not been without its challenges. Deployment of GE technologies—as with most agricultural advances—requires the development and use of effective

¹ <http://www.isaaa.org/resources/publications/briefs/default>.

² <http://www.ers.usda.gov/data-products/adoption-of-genetically-engineered-crops-in-the-us.aspx>.



Gary A. Thompson
The Pennsylvania State University
NABC Chair 2014—2015

management strategies. Development of resistance within the targeted pests has become an issue, especially in weed control where herbicide-tolerance genes have been widely employed in crop plants. Thus, adoption of cost-effective management strategies by growers is essential for the long-term utility and stewardship of GE crops. Increasingly, this includes combinations of management strategies for farming practices utilizing conventional, organic, identity-preserved and GE cropping systems that effectively “coexist” in close proximity. Coexistence of farming practices provides growers with the flexibility to respond to market opportunities and improve overall profitability.

Evaluating the economic impact of GE crops can be complex, especially in light of international commodity markets and trade policies. Economic impacts are also intertwined with social issues surrounding consumer views and acceptance of GE crops in local, regional and global markets. While numerous benefits have been realized by agricultural producers’ adoption of GE crops, few issues in our society spark the passions of individuals and groups as do GE crops.

NABC’s twenty-seventh annual conference, hosted by Penn State

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NABC 27—Mark Your Calendars

*Stewardship for the Sustainability of Genetically Engineered Crops:
The Way Forward in Pest Management, Coexistence, and Trade*

June 2–3, 2015

University Park, Pennsylvania

Gary A. Thompson

The Pennsylvania State University

The College of Agricultural Sciences at Penn State will host the 27th annual conference of the North American Agricultural Biotechnology Council (NABC) at the Nittany Lion Inn on Penn State's University Park campus on June 2–3, 2015. The conference—*Stewardship for the Sustainability of Genetically Engineered Crops: The Way Forward in Pest Management, Coexistence, and Trade*—will address various themes related to stewardship and sustainability of genetically engineered crops.

The meeting will consist of four keynote presentations and three plenary sessions that will comprise presentations, in-depth discussion, and opportunities for question and answer. Following the plenary sessions, there will be two moderated panel sessions covering “Social and Economic Dimensions of Sustainability” and “Putting it all Together.” In addition, a banquet speaker and two luncheon speakers will address these important topics.

Keynote Presentations

- *Overview* Kathleen Merrigan, George Washington University
- *Resistance Management* Richard Roush, Penn State University
- *Coexistence* Gregory Jaffe, Center for Science in the Public Interest
- *Trade and Markets* Sharon Bomer Lauritsen, Office of the United States Trade Representative

Resistance Management – David Mortensen, moderator

Agricultural biotechnology has introduced two widely adopted traits in grain-, fiber-, and forage-crop production: plant-incorporated protectants for insect protection and herbicide resistance enabling the use of broad-spectrum herbicides. While both are widely adopted, over-reliance on these traits has resulted in a significant rise in pest resistance. Specific steps that can be taken to address pest resistance and clarify the constraints to their adoption will be discussed.

Presenters:

Jack Housenger, EPA

Nick Storer, Dow AgroSciences

Hugh Beckie, Agriculture and Agri-Food Canada

Coexistence – Carol Mallory-Smith, moderator

Stewardship of genetically engineered crops is needed to address the concerns of adventitious presence in conventional and organic crops. Practical solutions that can be implemented at the farm and market levels will ensure the greatest success of these measures.

Presenters:

Carol Mallory-Smith, Oregon State University

Lynn Clarkson, Clarkson Grain Company

Greg Loberg, West Coast Beet Seed Company

Trade and Markets – David Blandford, moderator

The keynote and the plenary session on trade and markets will cover all the key current issues relating to international trade in genetically engineered crops. Topics of discussion will include asynchronous approval, testing, transfer of liability, and identity preservation.

Presenters:

Dave Abler, Penn State University

Randal Giroux, Cargill

Bill Kerr, University of Saskatchewan

Social and Economic Dimensions of Sustainability – Leland Glenna, moderator

Agricultural sustainability has social and economic, as well as ecological, dimensions that need to be included in discerning the contributions of biotechnology to a sustainable food and agricultural system. This panel will focus on two aspects of the social and economic dimensions: agricultural research and development infrastructure; and consumer acceptance of food generated by this agriculture system.

Presenters:

Paul Heisey, USDA-ERS

J. Rick Welsh, Syracuse University

William Hallman, Rutgers University

Putting it All Together – Steve Pueppke, moderator

On the basis of the earlier presentations and panels, the moderator will identify three to five keynoters/panelists to participate in this closing session. Contingent upon the discussions, presentations, and panels earlier in the meeting, this panel will be charged to synthesize the way forward in pest-management, coexistence and trade.

Banquet Presentation – Russell Redding, Pennsylvania Secretary of Agriculture

Poster Reception – We extend the opportunity for graduate students to present posters during the reception on Tuesday, June 2 at 5 PM. Poster topics should be related to agricultural biotechnology, but do not necessarily have to address the specific

foci of NABC 27. Please visit the conference website for more information and specifications.

Conference Website – <http://agsci.psu.edu/nabc>.

Registration – Registration may be completed online at <http://agsci.psu.edu/nabc>. The \$300 fee, payable by credit card (Master Card, Visa, Discover, or American Express) or check (payable to Penn State University), will cover refreshments at all breaks, two breakfasts and lunches, and the evening reception and banquet.

Accommodations – Penn State’s University Park campus is located in beautiful central Pennsylvania, an area that combines the natural beauty of hardwood forests and working farms, but is also easy to reach by road or air.

A block of rooms has been reserved for NABC 27 participants at the Nittany Lion Inn (conference site) at a rate of \$118 per night for single or double occupancy. To make a reservation, please call the hotel directly at 814-865-8500 or toll-free at 800-233-7505 and ask for the “COLE15H” room block. This rate will apply through Friday, May 1, 2015. A shuttle will be provided on campus and to/from University Park Airport upon request.

In addition, two off-site hotels have been secured:

Atherton Hotel (0.6 miles from the conference site) at a rate of \$85 per night for single or double occupancy. Please call the hotel directly at 814-231-2100 or toll-free at 800-832-0132 and ask for the NABC 27 block. This rate will apply through Friday, May 1, 2015. A shuttle will be provided on campus and to/from University Park Airport upon request.

Days Inn (1.1 miles from the conference site) at a rate of \$84 per night for single or double occupancy. Please call the hotel directly at 814-238-8454 or toll-free at 800-225-3297 and ask for the “CGNABC” room block. This rate will apply through Friday, May 1, 2015. A shuttle will be provided to and from the University Park Airport and the bus terminal upon request.

Visit the NABC 27 website at <http://agsci.psu.edu/nabc> for details of the conference agenda, online registration, travel planning, and other pertinent information ■

Questions, comments and suggestions may be directed to:

Gary Thompson (gat10@psu.edu)

or Rachel Unger (runger@psu.edu)

814-865-3136

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University, will bring together a broad range of experts to examine and discuss various perspectives on the key issues that impact the sustainability of GE crops, including stewardship approaches to resistance management, coexistence, trade and markets, and social and economic dimensions of sustainability. The organizing committee has sought out thought leaders from academia, government, and the agricultural industry in each of these critical areas to develop a constructive dialog that will engage the audience through panel discussions. An important component of NABC conferences is the *Student Voice* program, which empowers students to be active participants in the meeting.

As we look forward to the upcoming conference, we also reflect on the many contributions that Allan Eaglesham has made to the biotechnology community as executive director of NABC. Allan, who is well known to all who are active in NABC, has announced his retirement effective April 30, 2015. He has served NABC for the past 15 years, contributing his writing and editorial expertise to fifteen NABC reports,

twenty-seven newsletters, and five white papers. Allan also has served a key role in representing NABC in Washington and was integral in establishing the annual World Congress on Industrial Biotechnology in 2004. The NABC office and all of the membership thank Allan for his many contributions and wish him well in his retirement ■



Gary A. Thompson

The Pennsylvania State University

Associate Dean for Research and Graduate Education

Director of the Agricultural Experiment Station

The overview of NABC 26: *New DNA-Editing Approaches: Methods, Applications and Policy for Agriculture*

and the NABC 26 *Student Voice Report* have been published in NABC Report 26.

Please read them there or visit the [NABC website](http://agsci.psu.edu/nabc).

Keynote Speakers



Sharon Bomer Lauritsen is assistant US trade representative for agricultural affairs and commodity policy, Office of the US Trade Representative, Executive Office of the President. She assumed the position in May 2011. She has overall responsibility for negotiations and policy coordination regarding agriculture. Responsibilities of the office include Free Trade Agreement (FTA) and World Trade Organization (WTO) negotiations on agriculture and sanitary and phytosanitary (SPS) measures, issues affecting trade in agricultural and food products, monitoring and enforcement of existing WTO and FTA commitments for agriculture, and WTO accession negotiations on agriculture market access.

Prior to joining USTR, she was executive vice president of the Food and Agriculture Section at the Biotechnology Industry Organization (BIO) where she led BIO's Food and Agriculture Section on public policy activities, including overseeing relationships with a wide range of international, federal, state and local entities.

Ms. Bomer has also held senior management positions in the US Department of Agriculture's Agricultural Marketing Service. Early in her career, she was director of government affairs for the United Fresh Fruit and Vegetable Association and worked for a member of Congress ■



Gregory Jaffe is the director of the Project on Biotechnology for the Center for Science in the Public Interest (CSPI), a non-profit consumer organization. He came to CSPI in 2001 after a long and distinguished career in government service as a trial attorney for the US Department of Justice's Environmental and Natural Resources Division and as senior counsel with the US EPA's Air Enforcement Division. He is a recognized international expert on agricultural biotechnology and biosafety and has published numerous articles and reports on those topics. He has worked on biosafety regulatory issues in the United States and throughout the world, including in Kenya, Uganda, Tanzania, Ghana, Nigeria, Malawi, South Africa, Indonesia, the Philippines, and Vietnam.

Mr. Jaffe was a member of the secretary of agriculture's Advisory Committee on Agricultural Biotechnology and 21st Century Agriculture from 2003 to 2008 and was reappointed for a new term in 2011. He was also a member of FDA's Veterinary Medicine Advisory Committee from 2004 to 2008.

He earned his BA with high honors from Wesleyan University in biology and government and then received a law degree from Harvard Law School ■



Since early 2014 at George Washington University, **Kathleen Merrigan** has been responsible for launching and nurturing the Sustainability Institute, which advances GW's prominence as an academic leader in multidisciplinary sustainability education, research and outreach. Named one of Time Magazine's *Most Influential People in the World* in 2010, she brings to the university diverse experience spanning nearly 30 years. In 2009, she was nominated to serve as USDA's deputy secretary by President Obama and was unanimously confirmed by the US Senate. During her four-year tenure at the USDA, she oversaw the daily operations of the agency, leading the budget process, establishing priorities and monitoring progress, and driving its rulemaking process. Her accomplishments include creating and leading the *Know Your Farmer, Know Your Food Initiative* to support local food systems; serving as a key architect of First Lady Michelle Obama's *Let's Move!* campaign; and representing the United States before the United Nations Commission on Sustainable Development. Prior

to joining the USDA, Dr. Merrigan was a faculty member and director of the Agriculture, Food and Environment Program at Tufts University. She earned a PhD from the Massachusetts Institute of Technology, a Master of Public Affairs degree from the University of Texas at Austin, and a BA from Williams College ■



Richard Roush's career spans diverse research, teaching, regulatory, and administrative appointments in the US and Australia. He was dean of land and environment at the University of Melbourne from 2007 through June 2014, where he led 250 staff in a wide range of disciplines, including agriculture, animal welfare, rural sociology, and forestry. Previously, he was director of the University of California (UC) Integrated Pest Management and Sustainable Agriculture Programs (2003–2006), during which he had lead responsibility for two years to promote organic agriculture for the university. He was also director of the CRC for Australian Weed Management (1998–2003), and as associate professor at the University of Adelaide (1995–2003) and Cornell University. From 1998 through 2003, he served on the Australian government genetic engineering regulatory committees. He also served on GM risk-assessment panels for the US EPA from 1998 through 2011.

Dr. Roush's research has focused on strategies to slow insect pests and weeds from evolving resistance to pesticide and GM crops, and has had major roles in the development of resistance-management plans for cotton in Australia and cotton and corn in the United States. He has published extensively on biological control of insects and weeds ■

Plenary Speakers



Dave Abler is a professor of agricultural, environmental and regional economics and demography at Penn State University, and a principal and co-owner of *By The Numbers*, a consultancy. He obtained a BA degree in economics and mathematics from Macalester College in 1982 and a PhD in economics from the University of Chicago in 1987. While in graduate school, he was an intern at Cargill.

Dr. Abler’s research focuses on global food and agricultural markets, international economic development, and agriculture and the environment. He has over 25 years experience in carrying out projects on international food and agricultural trade for OECD, FAO, USDA, and the World Bank. Most of his research for the past 10 years has been on food and agricultural markets in China ■



Hugh Beckie is a weed scientist at the Agriculture and Agri-Food Canada Research Centre in Saskatoon, Saskatchewan, and adjunct professor in the Department of Agricultural, Food and Nutritional Science, at the University of Alberta in Edmonton. He obtained his BSA and MSc degrees from the University of Saskatchewan, and a PhD in 1992 from the University of Manitoba.

His research program focuses on monitoring, risk assessment, and management of herbicide-resistant weeds, as well as impact assessment of crops with novel traits. He has (co)authored 120 peer-reviewed publications.

In 2013, Dr. Beckie was awarded the QEII Diamond Jubilee medal. He serves on the board of directors of the Weed Science Society of America and is past president of the Canadian Weed Science Society ■



Lynn Clarkson serves as president of Clarkson Grain and managing director of Clarkson Soy Products. Founded in 1974 in Cerro Gordo, Illinois, Clarkson Grain contracts with farmers across Illinois, several other states and a few foreign countries to produce selected grains and oilseeds verified to meet client requirements. It selects hybrids, varieties and production protocols to optimize farm income, processor yield and market access. It supplies crops throughout the year to clients in North and South America, Asia and the EU willing to pay premiums for identity-preserved supplies with preferred characteristics. It offers products cleaned, sized, raw or processed, and traceable back to the supplying farm for organic, non-GMO, and conventional markets. The company owns and operates elevators, commercial preparation facilities for corn and soybean, several million bushels of commercial storage, and a barge station on the Illinois River. It receives by truck and rail and ships by truck, rail, barge and ocean vessel ■



Randal Giroux currently holds the position of vice president at Cargill Inc. located at the World Headquarters in Wayzata, Minnesota. He leads Cargill businesses in the areas of food safety, quality, and regulatory, and has overall global responsibility in these areas for Cargill’s agricultural supply-chain businesses, Cargill’s grain and oilseeds businesses, world trading, sugar, and palm. He is involved professionally with both science and trade organizations across the supply chain, and is recognized for expertise in both food safety and the integration of agricultural biotechnology in global food and feed supply chains. He holds a number of leadership positions in the trade and has served on several advisory committees.

Before joining Cargill, Dr. Giroux was a program manager with the Canadian Grain Commission and, previous to his public service, he was a national needs fellow with USDA. He graduated with a PhD in agriculture from the University of Guelph.

With his background in the life sciences and extensive experience with Cargill’s global supply-chain businesses, Giroux possesses unique skill sets that allow him to operate at a highly technical level and effectively identify and manage food safety, quality, and regulatory opportunities for global agricultural businesses and stakeholders ■



William Hallman is a professor and chair of the Department of Human Ecology at Rutgers University, and is a member of the graduate faculty of the Department of Nutritional Sciences, and of the Bloustein School of Planning and Public Policy. He is a 1983 graduate of Juniata College and earned his PhD in experimental psychology from the University of South Carolina in 1989.

His research examines public perceptions of controversial issues concerning food, health, and the environment. His current research projects include studies of public perceptions and responses to food safety risks, the safety of fresh meat, poultry, game, and seafood products purchased on the Internet, the use of nanotechnology in food, and public understanding of health claims made for food products.

Dr. Hallman serves on the executive committee of Rutgers Against Hunger, and helped to found the New Brunswick Community Farmers Market, which offers food-insecure residents access to fresh, locally grown, affordable, nutritious, and culturally appropriate produce and other food products. He formerly served as the director of the Food Policy Institute at Rutgers, and currently serves as the chair of the risk communication advisory committee of the US Food and Drug Administration ■



Paul Heisey is a senior economist in the Structure, Technology, and Productivity Branch of the Resource and Rural Economics Division, US Department of Agriculture Economic Research Service (ERS). His work focuses on agricultural science policy, in particular public- and private-sector agricultural research and development, intellectual property, and genetic resources. He joined ERS in 1998. From 1985 to 1998, he worked for the International Maize and Wheat Improvement Center (CIMMYT) in Pakistan, Malawi, and Mexico, where his research focused on impact assessment and the economics of technical change in cereals. This included work on varietal development and diffusion, seed systems, and fertilizer use in developing countries.

He holds a PhD in agricultural economics from the University of Wisconsin-Madison, and is a member of the Agricultural and Applied Economics Association, the American Economics Association, and the American Association for the Advancement of Science ■

Jack Housenger was selected as the new director of the Office of Pesticide Programs (OPP) at EPA, effective May 5, 2014. He had been with OPP for 35 of the last 37 years and worked in five of the nine divisions within the program. Since 2011, he has served as the director of the Health Effects Division (HED), which is responsible for managing the review of health effects and exposure data for pesticides, as well as the development of human-health risk assessments. Prior to joining the HED, he was the director of the Biological and Economic Analysis Division.

Mr. Housenger has held other management positions within OPP, including associate director for HED; associate director of the Antimicrobials Division; acting director and associate director of the Special Review and Reregistration Division (SRRD); and chief of the special review branch in SRRD ■



William Kerr is a university distinguished professor at the University of Saskatchewan, Saskatoon. He is an agricultural economist specializing in trade policy issues in the agri-food industry. Saskatoon is the heartland of Canada's biotechnology industry and the university is recognized internationally for its expertise in social-science issues relating to all aspects of the technology

Dr. Kerr has over 400 academic publications including 25 books. He published his first paper on biotechnology in 1989 and it has remained a central area of research interest. Recent titles include: *Conflict, Chaos and Confusion—The Crisis in the International Trading System* (2010); *The Trade System and Biotechnology* (in the *Handbook on Agriculture, Biotechnology and Development*) (2014); *Food Security and the Evaluation of Risk* (2015); *Conflicting Rules for the International Trade in GM Products: Does International Law Provide a Solution?* (2014); *Zero Tolerance for GM Flax and the Rules of Trade* (2014); and *The Trade Implications of the Post-Moratorium European*

Union Approval System for Genetically Modified Organisms (2012). He is editor of the *Journal of International Law and Trade Policy*, and is a fellow of the Canadian Agricultural Economics Society ■



Greg Loberg joined the West Coast Beet Seed Company in 2007 as only the fourth manager since its inception in 1940. The company is centrally located in the Willamette Valley of western Oregon. This area continues to be the primary source of sugarbeet seed for the US and is globally famous for the production of many other specialty seeds. West Coast Beet Seed is a third-party producer that is jointly owned by the American Crystal Sugar Company, Holly Seed, SESVanderHave, and Syngenta.

He spent the previous nineteen years in sales and marketing of seed treatments, first with Gustafson and then with Bayer CropScience. His responsibilities included national sales-account management and companion marketing functions for seed treatments in specialty crops, including sugarbeets. From 1981 through 1988, he worked in a diversified vegetable and grass-seed production company in Oregon. While there, he was responsible for obtaining several plant variety protection certificates and a utility patent on a peculiar trait in snap beans.

Mr. Loberg holds degrees in agronomy from the University of Minnesota (BS 1977) and Iowa State University (MS 1979) ■

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Carol Mallory-Smith is a professor of Weed Science at Oregon State University in the Department of Crop and Soil Science with responsibilities for teaching and research in agronomic crops. Mallory-Smith's main areas of research are gene flow and hybridization between crops and weeds—including genetically engineered and conventionally bred crops—herbicide resistance, weed management in agronomic crops, and weed biology. She has coauthored more than 100 journal articles, eight book chapters and numerous extension and popular press articles.

Dr. Mallory-Smith has visited Australia and Korea as an invited expert on gene flow and other weed-related issues. She also has been an invited speaker in Australia, France, Korea and Thailand to address the potential risk of introducing genetically engineered crops. She is a fellow of the Western Society of Weed Science and of the Weed Science Society of America, has served as president and treasurer of the Weed Science Society of America and secretary-treasurer for the International Weed Science Society. She received the Alumni Achievement Award from the University of Idaho's College of Agriculture in 2007, the Excellence in Graduate Mentoring Award from Oregon State University and was recognized as the Western Society of Weed Science Outstanding Weed Scientist in 2009. ■



Russell Redding, recently nominated by Governor Tom Wolf as the 26th secretary of agriculture for the Commonwealth of Pennsylvania, is the former dean of the School of Agriculture and Environmental Sciences at Delaware Valley College. He has extensive experience as a public servant, having spent more than 20 years serving Pennsylvania in Harrisburg and Washington DC. He worked on Capitol Hill as ag policy advisor to US Senator Harris Wofford and served for 16 years in the Pennsylvania Department of Agriculture, serving as secretary from 2009 to 2011 under Governor Rendell.

He is a graduate of Penn State, having earned his BS in agriculture education and an MS in agriculture and extension education. In addition, he is a graduate of the agribusiness executive program.

A native of Pennsylvania, Redding has an innate understanding of production agriculture, stemming from his youth on his family's dairy farm and his time as a dairy-farm operator. He currently serves as chair of the USDA Advisory Committee on Biotechnology and 21st Century Agriculture. ■



Nicholas Storer is the global leader for science policy in the Biotechnology Regulatory Affairs group at Dow AgroSciences. He is responsible for developing and overseeing the company's biotechnology science-policy program, including environmental risk assessment and insect-resistance management for transgenic crops. He is called upon by academics and governments around the world to provide advice on approaches for assessing the environmental risks and benefits of genetically engineered crops in a regulatory context. He is a member of, and past chairman of, CropLife International's Environmental Risk Assessment Project Team, the Insecticide Resistance Action Committee Plant Biotechnology Team, and the Agricultural Biotechnology Stewardship Technical Committee, organizations that promote research and stewardship of genetically engineered crops globally.

Dr Storer is the (co)author of more than twenty journal articles, book chapters, and reviews relating to safety assessment, environmental-risk assessment, and insect-resistance management for transgenic crops. He received his BA in natural sciences from the University of Cambridge, his MSc in zoology from the University of Glasgow, and his PhD in entomology from North Carolina State University. ■



Rick Welsh joined the Department of Public Health, Food Studies and Nutrition at Syracuse University as a professor of food studies in August, 2012. Beforehand, he worked at Clarkson University as a professor of sociology. Previous positions include policy analyst with the Henry A. Wallace Institute for Alternative Agriculture and the director of the US Department of Agriculture's Sustainable Agriculture Research and Education Program for the Southern Region. He also serves as editor-in-chief for the journal *Renewable Agriculture and Food Systems*. His research and teaching focus on social change and development with emphases on agri-food systems, science and technology studies and environmental sociology.

Dr. Welsh has done a substantial amount of work interviewing and surveying scientists regarding their research agendas and the role of funding source in influencing these agendas. He has published more than thirty peer-reviewed journal articles and co-edited the volume *Food and the Mid-level Farm: Renewing an Agriculture of the Middle*, published in 2008. His research has been funded by the US Departments of Agriculture and Energy, US Environmental Protection Agency, New York State Energy Research and Development Authority, University of Michigan Water Center and NY State Agriculture and Markets among others entities. ■



THE STUDENT VOICE AT NABC

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FOR ONE GRADUATE STUDENT FROM EACH NABC MEMBER-INSTITUTION***

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

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