The Impact of Biotechnology on Farm Economics and Sustainability

Committee

David E. Ervin

Chair

David E. Ervin is Professor of Environmental Management, Professor of Economics at Portland State University, and Fellow at the Center for Sustainable Processes and Practices. He teaches courses in the economics of sustainability, business environmental management, and global environmental issues. His research and writing areas include university-industry research relationships in agricultural biotechnology, risk management of transgenic crops, voluntary business environmental management, and green technology. He recently directed two multi-university and multidisciplinary research projects: Public Goods and University-Industry Relationships in Agricultural Biotechnology funded by the U.S. Department of Agriculture (USDA), and Oregon Business Decisions for Environmental Management supported by the U.S. Environmental Protection Agency. He is preparing two book manuscripts including: University Agricultural Biotechnology Research: Influences and Challenges. (MIT Press) and The New Economics of Green Business (Earthscan). Prior appointments include Coordinator of Academic Sustainability Programs at Portland State University, Professor and Head of Agricultural and Resource Economics at Oregon State University, Professor of Agricultural Economics at the University of Missouri-Columbia, Chief of Resource Policy Branch in the USDA Economic Research Service, and Director of Policy Studies for the Henry A. Wallace Institute for Alternative Agriculture. He holds B.S. and M.S. degrees from The Ohio State University and a Ph.D. from Oregon State University.

Yves Carriere

Member

Yves Carrière is a professor of entomology and an expert on the development of insect resistance to synthetic insecticides and pesticides incorporated in transgenic crops. He has also examined the impacts of transgenics on non-target insects and unintended gene flow. With his team at the Department of Entomology, Dr. Carrière uses ecological and evolutionary perspectives to reveal how the interplay between constraints and selection affects resistance to transgenic crops and insecticides. He has published extensively on evolutionary models of the emergence of pesticide resistance. Dr. Carrière also works on developing spatially-explicit methods for the control of insect pests and assessing environmental impacts of transgenic crops. He received his Ph.D. degree in entomology from Simon Fraser University in Canada. He is an associate editor of the Journal of Insect Science.

William J. Cox

Member

William Cox, a Professor of Crop Science, joined the Cornell faculty on an extension/research appointment in 1984. He has served in several capacities for the Crop and Soil Sciences Department, including associate department chairman and extension leader. His recent on-farm, field-scale research is evaluating the effects of transgenic corn hybrid traits on productivity and profitability. His overall research program focuses on the environmental, biotic, and management interactions that influence the growth, development, yield, and quality of corn, soybeans, and wheat. He collaborates closely with soil scientists, animal scientists, plant pathologists, entomologists, and plant breeders in an effort to quantify whole-plant physiological responses of the crop to environmental, biotic, and crop management interactions. He is currently a Senior Associate Editor for the Agronomy Journal and he recently received the 2008 Agronomic Extension Education Award from the American Society of Agronomy. Dr. Cox holds a Ph.D. in Crop Science from Oregon State University. He received a M.S. in Agronomy from California State University-Fresno and a B.S. in History from the College of the Holy Cross.

Jorge Fernandez-Cornejo

Member

Jorge Fernandez-Cornejo is an agricultural economist in the Resource and Rural Economics Division of USDA's Economic Research Service (ERS). He currently works on the adoption and diffusion of agricultural technologies, agricultural biotechnology, and economics of biofuel production. Since joining ERS in 1990, Dr. Fernandez-Cornejo has researched U.S. farmers' experience with biotechnology in the first decade of its adoption and the effects that the technology has had on farmers' decision-making process. He had also studied the seed industry. He has a Ph.D. in Operations Research/Agricultural Economics and a Masters in Chemical Engineering from the University of Delaware, a M.A. in Energy and Resources from the University of California at Berkeley, and a B.S. in Industrial Engineering. Dr. Fernandez-Cornejo brings expertise in agricultural economics, farm management, integrated pest management and farm-level impacts of transgenic seed.

Raymond A. Jussaume, Jr.

Member

Raymond Jussaume is currently Professor and Chair of the Department of Community and Rural Sociology. His main research goal has been to contribute to a growing international research agenda on the question of whether agricultural sustainability can be enhanced by increasing the extent to which agri-food systems are "localized." He recently contributed to several published journal articles evaluating Washington State farmers' attitudes toward biotechnology. Dr. Jussaume was a member of the NRC's committee on Incorporating Science, Economics and Sociology in Developing Sanitary and Phytosanitary Standards in International Trade. He received his Ph.D. in Development Sociology from Cornell University.

Michele Marra

Member

Michele Marra is a professor of agricultural economics at North Carolina State University and an extension specialist. A production economist, she has concentrated on economic issues surrounding integrated pest management and the economics of new agricultural innovations. She currently works on the farm level impacts of crop biotechnologies and the economics of precision farming. Recent publications have analyzed the farm level impacts of adopting rootworm-resistant transgenic corn, the effects of agricultural biotechnology on farmer welfare, and the dynamics of the demand for first-generation crop biotechnologies. Dr. Marra is a member of the American Agricultural Economics Association and served as the Associate Editor of the American Journal of Agricultural Economics from 2004 to 2007. She has a Ph.D. in economics from North Carolina State University.

Michael D. Owen

Member

Micheal D. K. Owen has a Ph.D. in Agronomy/Weed Science from the University of Illinois. He has extensive expertise on weed dynamics and integrated pest management and crop risk management. His objective in extension programming is to develop information about weed biology, ecology, and herbicides that can be used by growers to manage weeds with cost efficiency and environmental sensitivity. His work is focused on supporting management systems that emphasize a combination of alternative strategies and conventional technology. Dr. Owen has published extensively on farm-level attitudes towards transgenic crops and their impacts; selection pressure, herbicide resistance, and other weed life-history traits; tillage practices; and many other pertinent issues. He also has administrative responsibilities as associate chair in his department.

Peter H. Raven

Member

Peter Raven is President of the Missouri Botanical Garden; George Engelmann Professor of Botany, Washington University in St. Louis; and a NAS member. He earned his Ph.D. at the University of California, Los Angeles. Dr. Raven was a member of President Bill Clinton's Committee of Advisors on Science and Technology. He also served for 12 years as home secretary of the National Academy of Sciences and is a member of the academies of science in Argentina, Brazil, Chile, China, Denmark, India, Italy, Mexico, Russia, Sweden, the U.K., and several other countries. Dr. Raven’s primary research interests are the systematics, evolution, and biogeography of the plant family Onagraceae; plant biogeography, particularly in the tropics and southern hemisphere; and tropical floristics, conservation, and global sustainability. The author of numerous books and reports, both popular and scientific, Raven co-wrote Biology of Plants and Environment.

L. L. Wolfenbarger

Member

L. LaReesa Wolfenbarger has a Ph.D. in Ecology from Cornell University and is an Associate Professor of Biology at University of Nebraska at Omaha. Currently, she is conducting research on ecological effects of transgenic crops and agricultural practices and on land management for grassland bird conservation. Her further research interests include: the effects of agriculture on grassland ecosystems and the ecology of grassland ecosystems in agricultural landscapes. She has published several articles on the relationship between genetically engineered organisms and the environment and on the ecological risks and benefits of genetically engineered plants. Her research also seeks to understand the responses of avian communities and reproduction to habitat variation and to management practices on restored grasslands, remnant prairies, and marginal agricultural habitats. Her other occupations include synthesizing science on agricultural biotechnology and organizing public symposia on environmental issues. For the 2008-2009 academic year, she is a Fulbright Scholar in Norway at the Centre for Ecological and Evolutionary Synthesis at the University of Oslo.

David Zilberman

Member

David Zilberman has been a professor in the Agricultural and Resource Economics Department since 1979. His research interests are in agricultural and nutritional policy, economics of technological change, economics of natural resources, and micro-economic theory. He is a Fellow of the American Agricultural Economics Association and the Association of Environmental and Resource Economists, which have recognized many of his publications on the adoption and regulation of agricultural biotechnology for their quality and value to the field. He received his B.A. in Economics and Statistics from Tel Aviv University in Israel and his Ph.D. in Agricultural and Resource Economics from the University of California-Berkeley. Dr. Zilberman brings a wealth of knowledge on the intersection of biotechnology and politics, economics, and agricultural marketing. He has recent publications on biofuels and biotechnology marketing.