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Other Resources

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Program:	***The University of Maryland Center for Environmental Science (UMCES)*** http://www.co.cees.edu/
Contact:	Dr. Donald F. Boesch – President (410) 228-9250 ext.601 boesch@ca.umces.edu
Established:	1975
Institution:	University of Maryland
Mission and Focus	The Center for Environmental and Estuarine Studies will continue to evolve as a globally eminent yet locally relevant institution dedicated to discovery, integration, application and teaching concerning the environment and natural resources. By pursuing strategic goals and adapting to meet needs and opportunities, UMCEES will develop a model program of studies spanning atmospheric, terrestrial, freshwater, estuarine, and oceanic environments that will: ➢ Advance knowledge and inspire further discovery through fundamental research; ➢ Insightfully integrate across disciplines, leading to a holistic understanding of ecosystems and their resources; ➢ Apply a predictive ecology for the sustainable future of Maryland, the Nation, and the biosphere; ➢ Empower researchers, teachers, and professionals and enrich the public's understanding of the environment; and ➢ Catalytically interact with other institutions in the University System of Maryland family.
Structure:	Total Employees: 350; Ph.D.-level faculty: 75
Budget:	$28 million in FY 1994, $20 million estimated for FY 1995
Action:	Research Centers within the UMCES: ➢ Appalachian Laboratory (AL) ➢ Chesapeake Biological Laboratory (CBL) ➢ Horn Point Laboratory (HPL)

Overview: The University of Maryland Center for Environmental and Estuarine Studies (UMCES) traces its origins back to the founding of the Chesapeake Biological Laboratory (CBL) in 1925. In 1941, the Maryland General Assembly expanded and formalized these programs by creating the Department of Research and Education; in 1962, the Department's programs were legislatively transferred to a newly created Natural Resources Institute in the University System of Maryland (USM); and in 1975, the General Assembly created UMCES.

The most recent legislation directed that UMCES "shall conduct a comprehensive program to apply a predictive ecology for Maryland to the improvement and preservation of the physical environment, through a program of research, education, and public service." UMCES' position as a separate, multidisciplinary institution within USM has allowed it to quickly and efficiently recognize and respond to opportunities and challenges for environmental research while contributing to and drawing strength from the USM family.
The University of Maryland Center for Environmental Science (UMCES) is the foremost institution for environmental research within the University System of Maryland and is a world leader in the science of coastal environments. The Center's faculty members include scientists, engineers, and economists who work together in a truly transdisciplinary community. UMCES has made many essential scientific contributions to the restoration efforts of the Chesapeake Bay and participates in research all over the world.

Staffing: Total Employees: 350; Ph.D.-level faculty: 75; Graduate Students in residence and directed by UMCES' faculty: 120 (50% Ph.D. Candidates)

Governing Body: Board of Regents at the University of Maryland System governs the university affiliated center.

Funding: Sources of Support: 40% state general funds, 60% grants, contracts, and private contributions. **Significant Sponsors:** National Science Foundation (NSF), National Oceanographic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA), U.S. Department of the Interior (DOI), Maryland Department of the Environment (MDE), Maryland Department of Natural Resources (DNR), Ford Foundation, McArthur Foundation.

Research:

- Appalachian Laboratory (AL) is located in Frostburg in Western Maryland's Allegheny Mountains. This location is also at the farthest upland reaches of the Chesapeake Bay watershed within the state. AL faculty conducts research on the structure and function of terrestrial and freshwater systems and the ecology of their component species. These studies not only expand the breadth of UMCES' mission beyond saline waters, but also make a significant contribution to our knowledge of the complete Chesapeake Bay system from upland stream to tidal tributary to the coastal Atlantic Ocean. Projects are conducted in forest/lake/stream ecology, landscape ecology, watershed ecology, conservation biology and restoration ecology, and animal behavior and evolution.
- Chesapeake Biological Laboratory (CBL) is located on the western shore of the Chesapeake Bay at the mouth of the Patuxent River. The CBL faculty members have established a distinguished record of major contributions to regional, national, and international environmental research in the marine sciences. Projects are conducted in fisheries science, environmental chemistry and toxicology, ecosystem studies, environmental policy.
- Horn Point Laboratory (HPL) is located on the Choptank River, a tributary of the Chesapeake Bay on Maryland's Eastern Shore. HPL faculty members conduct research on the biology, chemistry, physics, and ecology of organisms and ecosystems from wetlands and estuarine waters of the Bay to the continental shelf and open waters of the world's oceans. In keeping with the interdisciplinary character of UMCES, the HPL faculty are involved in a broad spectrum of research programs in the environmental sciences; biological and physical oceanography, estuarine and wetland ecology, coastal eutrophication, plant and animal physiology and population biology, and aquaculture. The mix of research activities blends experimental, observational, and theoretical approaches to understand and predict variability and trends in nature

Education: Education is a vital part of the UMCES mission and the Center fully participates in the University System of Maryland (USM) education effort. Though UMCES does not grant degrees, each year the Center's faculty serve as major professors, mentors, instructors, and advisors for graduate, undergraduate, and K-12 students.

More than 270 M.S. and Ph.D. candidates have received their degrees under the direct supervision of UMCES' scientists. Since the Center does not have degree-granting authority within the USM, these students have been formally enrolled in graduate programs operated by other institutions. The majority of students come to UMCES via the graduate program in Marine-Estuarine-Environmental Sciences (MEES) which operates on most of the degree-granting USM campuses. The MEES program emphasizes an interdisciplinary approach to environmental studies and encompasses physical, chemical, and biological disciplines. Once enrolled, and once course requirements have been met, students perform thesis research at one of the three UMCES laboratories with a Center faculty member as major professor. UMCES faculty members teach 80% of all course offerings in the MEES program. Teaching across the geographically dispersed UMCES laboratories and the 13 USM institutions has been greatly facilitated by the Interactive Video Network (IVN) which provides real-time, interactive delivery of courses and seminars.

At each of the three UMCES laboratories, environmental education has become a regional resource that annually provides services to over 12,000 K-12 students, teachers, and citizens. The programs are designed to meet the needs of the communities offering the opportunity to learn about environmental resources of the Chesapeake Bay and its watershed. They also assist school districts in complying with Maryland's environmental education bylaw. Activities cover a broad spectrum of learning experiences from camping and canoeing to conservation and wildlife ecology. UMCES views environmental education as an integral way to encourage citizen involvement in the Chesapeake Bay restoration and in environmental efforts worldwide.

Note: The Institute for Ecological Economics (IEE) was established to fill the growing need to integrate the study and management of "nature's household" (ecology) and "humankind's household" (economics). Ecological economics is the name that has been given to the effort to transcend traditional disciplinary boundaries in order to

address the interrelationships between ecological and economic systems in a broad and comprehensive way. IEE was established in 1991 by the Center for Environmental Science, a research campus of the University of Maryland, and is a component of the University of Maryland's systemwide Coastal and Environmental Policy Program. IEE is currently organizing an Envisioning a Sustainable and Desirable America future search conference.

School Of Public Affairs, University of Maryland
http://www.puaf.umd.edu/

About the Institute for Philosophy and Public Policy: The Institute for Philosophy and Public Policy, a part of the School of Public Affairs at the University of Maryland, was established in 1976 to conduct research into the values and concepts that underlie public policy. Most studies concerned with public policy are empirical: they assess costs, describe constituencies, and gather data with the goal of making predictions. Though the Institute frames its research questions by looking carefully at empirical data, its own work is primarily conceptual and normative. It investigates the structure of arguments and the nature of values relevant to the formation, justification, and criticism of public policy. Through its publications and its Web site, the Institute seeks to clarify and contribute to public discussion.

In 1998 the Institute, in conjunction with the Department of Government and Politics, the Department of Philosophy, and the School of Public Affairs, formed the Committee on Politics, Philosophy, and Public Policy, an interdisciplinary graduate specialization and research consortium at the University of Maryland. Under the auspices of the Committee, Institute scholars teach with other faculty in a proseminar for graduate students from various disciplines, focusing on such topics as theories of justice, institutional and constitutional design, the nature of democracy, and rational choice theory. They also participate in a biweekly workshop in which faculty, visitors, and graduate students present their research. In several departments of the University, Institute scholars have long taught graduate and undergraduate courses in philosophy of law, political philosophy, and bioethics.

Research: The Institute examines topics of current interest as well as those that promise to be important in public policy debates in the coming decades. Research is conducted by individual resident scholars and by interdisciplinary working groups composed of philosophers, political scientists, sociologists, and historians. This diversity permits a comprehensive examination of the complex issues that the Institute explores.

Natural Environments, Human Communities: The Institute has conducted a sustained review of the approaches taken by ecological science and economics to environmental protection. In a variety of projects, Institute scholars have argued that environmental policy raises important and difficult questions in politics, ethics, and aesthetics that are too often misconstrued as narrowly scientific or technical. They have also explored issues common to environmental protection, on the one hand, and the preservation or restoration of human cultures and communities, on the other. What does it mean to "restore" an ecosystem or a city, when it is neither possible nor desirable to return it to a prior historical state? Can we be faithful to the past without attempting to replicate it? In their efforts to make these questions more concrete, Institute scholars have worked closely with organizers of ecological and urban restoration projects, looking at their implicit criteria of success and exploring the conflicts and trade-offs they face.

The Institute has also looked at the social and political context of environmental decision making. As part of their ongoing research into civil society and the role of expertise in the

formulation of public policy, Institute scholars have studied the devolution of environmental regulatory authority from federal agencies to local jurisdictions or stakeholder groups. This research examines the legitimacy of trends toward negotiated regulations, decentralization of decision making, and transference from the private to the public sector of various organizational strategies intended to secure greater effectiveness, flexibility, and accountability.

In other studies, Institute scholars have considered how advances in biotechnology may be altering conceptions of nature, undermining familiar distinctions between the natural and the cultural, the wild and the domestic. One series of essays explores the patenting of genes and other products of nature as human inventions. Another considers aesthetic and ethical problems that arise when biotechnology "perfects" nature, for example, in devising flowers that will not fade and fish that can withstand disease and pollution. Biotechnology as applied to agriculture has posed questions concerning food safety and labeling, which the Institute is studying in a project on the implementation of the Food Quality Safety Act.

Center For Agricultural And Natural Resource Policy- University of Maryland
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Bruce L. Gardner, Director

About the Center: The Center for Agricultural and Natural Resource Policy is located in the Department of Agricultural and Resource Economics at the University of Maryland, College Park. The Center's purpose is to facilitate policy-relevant applied research and outreach by faculty in the Department and elsewhere in the College of Agriculture and Natural Resources. In pursuit of this purpose, the Center brings visiting scholars to Maryland, sponsors conferences, administers a program of competitive research grants for applied policy topics, and helps coordinate cooperative efforts among faculty members. The primary focus is on policy issues in the state of Maryland, but with interest also in national and international issues.

Conferences And Workshops
Third Annual Agricultural Outlook and Policy Conference—Conference Proceedings

- Farm Risk Management—First Annual Mid-Atlantic/New England Conference for Crop Insurance Agents.
- Pfiesteria: Where Do We Go From Here? Economics of Policy Options for Nutrient Management and Dinoflagellates—Conference Proceedings
- First Annual Agricultural Outlook and Policy Conference—Proceedings
- Second Annual Agricultural Outlook and Policy Conference—Proceedings
- Deer Management and Policy Options in Maryland—Conference Proceedings

Outreach

- Department of Agricultural and Resource Economics, Center for Agricultural and Natural Resource Policy. The Working Papers Series can be found at: http://www.arec.umd.edu/policy/Working-Papers/working%20papers.htm

- Policy Analysis Reports can be found at: **http://www.arec.umd.edu/policy/Policy-Analysis-Reports/policy-analysis-reports.htm**

University of Maryland, Cooperative Extension Service

Related MCE Publication Categories:

- Forestry and Wildlife Management
- Maryland Sea Grant
- Nutrient Manager
- Soils
- Water Resources and the Chesapeake Bay

University of Maryland Web Sites:

- Bay Issues and You -Useful tips for the conscientious homeowner.
- Maryland Sea Grant - Chesapeake Bay and fish issues.
- Nutrient Management Program
  Links to nutrient planning services in Maryland.
- Water Quality and Agronomy

Further links and resources can be found at:
http://www.agnr.umd.edu/ces/natrescources.html

UMCES programs' other resources and links:
http://www.co.cees.edu/umces/otherpts.html

Chesapeake Bay Information Network (CBIN)

- A network of research institutions, universities, and government agencies involved in distributing research and information on the Chesapeake Bay and it's watershed.

Chesapeake Bay Trust

- Provides financial support for Chesapeake Bay restoration and education projects in Maryland.

Chesapeake Bay Program

- A partnership involving 3 states, the District of Columbia, the Chesapeake Bay Commission, USEPA, and citizen advisory groups charged with protecting and restoring the Chesapeake Bay.

Department of Natural Resources

Coastal Marsh Project

- A partnership between the University of Maryland and NASA to study the surface condition of coastal marshes and any loss, thereof.

Coastal Ocean Processes (CoOP)

- A broad-based U.S. program in coastal oceanography that is funded by the National Science Foundation, the Office of Naval Research and the National Oceanic and Atmospheric Administration.

Sea Grant

- A unique partnership between the nation's universities and the National Oceanic and Atmospheric Administration (NOAA) promoting better understanding and more informed use of our coastal, ocean and Great Lakes resources.

Scientific and Technical Advisory Committee

- Provides independent guidance to the Chesapeake Bay Program on the overall direction, efficacy, and priority of measures to restore and protect the Chesapeake Bay.

NASA Goddard Space Flight Center

- Seeking to expand our knowledge through observations from space.

SeaWIFS Project

- NASA's global ocean color monitoring mission.

NOAA Chesapeake Bay Office's Ocean Data Acquisition System (ODAS)

- Program Description and Data Reports.

National Estuarine Research Reserve System

- A Division of NOAA charged with the establishment and management through Federal-State cooperation of a national system of estuarine research reserves representative of the various regions and estuarine types in the United States.

Environmental Organization Web Directory

- Links to other Environmental Organizations.

Consortium for Oceanographic Research and Education

- Association of U.S. oceanographic research institutions, universities, laboratories and aquariums.

Important Internet Links for Sustainable Agriculture:

- **The World Wide Web Virtual Library**
  - A comprehensive list of internet sites dealing with sustainable development, including organisations, projects and activities, electronic journals, libraries, references and documents, databases, directories or metadatabases. http://www.ulb.ac.be/ceese/meta/sustvl.html

- **National Campaign For Sustainable Agriculture**
  - The National Campaign For Sustainable Agriculture, Inc. is dedicated to educating the public on the importance of a sustainable food and agriculture system that is economically viable, environmentally sound, socially just, and humane. http://www.sustainableagriculture.net/

- **The World Sustainable Agriculture Association**
  - In 1991, a group of concerned and like-minded individuals and organizations, rising above their respective nationalities and religions, committed themselves to the task of trying to reverse these trends. They established the World Sustainable Agriculture Association (WSAA) and agreed to work together to restore harmony between people and nature. http://www.igc.apc.org/wsaala/wsaa.html

Contacts in Sustainable Agriculture

The following list is in no way exhaustive. It is meant as a starting point for information about sustainable agriculture. The web of people goes on from there.

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Bruce Babcock is the director of the Center for Agricultural and Rural Development and professor of economics at Iowa State University. His current research focuses on policy issues related to understanding farmer adoption of transgenic crops and precision agriculture. Contact Information
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Sandra S. Batie. Elton R. Smith Professor in Food & Agricultural Policy.
As the first holder of the Elton R. Smith Professorship in Food and Agricultural Policy, I conduct research addressing, food, agricultural, and environmental policy issues at the state, federal and international level. Recent research projects include examining the influence of agricultural contractual arrangements on producer's financial and environmental performance and corporate environmental management strategies in the agricultural sector. Other research topics include tradeable permits as nonpoint pollution policies. In addition to research, I teach graduate and undergraduate courses and conduct extension programming on food, agricultural and environmental policy.
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George W. Bird, Professor; Nematologist, Ph.D. Cornell University (1966).
Dr. Bird is responsible for research, extension and academic instruction programs in nematology. His research program is focused on an ecosystem approach to Michigan agriculture and soil biology and both undergraduate and graduate education. As the former Director of the USDA Sustainable Agriculture Research and Education Program and Coordinator of the MSU Pest Management Program, he has experience interacting with numerous agricultural initiatives, including plant pest diagnostics.
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Gordon L. Bultena, Professor, Iowa State University. Dr. Bultena has a BA from the University of Northern Iowa; and an MS and Phd from the University of Minnesota. He studies social impacts of new public environmental policies and innovative agricultural technologies and farming practices. He is currently studying potential socioeconomic impacts of Iowa farmers' adoption of agricultural biotechnologies, as well as structural and community impacts of the diffusion of more sustainable farming practices.

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Cornelia Butler Flora, Director for the North Central Regional Center for Rural Development at Iowa State University. Dr. Cornelia Flora's research interests include international and domestic development, community, and the sociology of science and technology, particularly as related to agriculture and participatory change. Her current research includes work on the generation of social capital in community development, sustainable agriculture and community and sustainable agriculture and natural resource management, with particular attention to how class, gender, and ethnicity influence and are influenced by technology and policy. She is working with farm families in on-farm monitoring of the impact of changing agricultural practices on quality of life. She has published numerous books, papers, and monographs and is listed, among other directories, in Who's Who in America, Directory of Women Foreign Policy Specialists, Who's Who of American Women, The World Who's Who of Women in Education.

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Thomas L. Dobbs, Professor of Economics, South Dakota State University.
Thomas L. Dobbs earned his B.S. degree in Agricultural Economics at South Dakota State University in 1965, and his Ph.D. in Agricultural Economics at the University of Maryland in 1969. He taught and conducted research in the Division of Agricultural Economics at the University of Wyoming in 1969-74. Following that, he was an Agricultural Economist in the U.S. Foreign Service, with the Agency for International Development, in Pakistan in 1974-76 and in Washington, D.C. in 1976-78. Dr. Dobbs joined the Economics faculty at the South Dakota State University in 1978. He teaches courses in agricultural policy and food and farming systems economics. His research focuses on production economics and public policy aspects of sustainable agriculture. Dobbs' experience includes professional work in several foreign

countries, including extended stays in India and Pakistan. At present (January-June 2000), he is a Fulbright Scholar at the University of Essex in England.

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David E. Ervin, Ph.D. Director, Policy Studies Program, Wallace Institute
David E. Ervin became the Director of the Policy Studies Program in July 1996. Prior to joining the Wallace Institute, he was Professor in the Department of Agricultural and Resource Economics at Oregon State University, where he headed the Department from 1991-1993. He was a visiting senior analyst at the Office of Technology Assessment's Environment Program from 1994-1995. Dr. Ervin also served as Chief of the Resource Policy Branch, Resources and Technology Division, at the U.S. Department of Agriculture's Economic Research Service from 1988-1991, and on the faculty of the University of Missouri-Columbia from 1977-1987. His work has focused on natural resource and environmental economics and policy related to agriculture and rural areas in domestic and international arenas.

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Dennis Keeney, former Director of the Leopold Center for Sustainable Agriculture, Professor Agricultural and Biosystems Engineering. Dr. Keeney is a professor of agronomy and agricultural and biosystems engineering and director of the Leopold Center. He had been with

the Leopold Center since 1988, serving as the Center's first and only director to date. He holds a Ph.D. in soils from Iowa State University, and is past president of the American Society of Agronomy and the Soil Science Society of America. His major research interests are soil chemistry and biochemistry, especially nitrogen, and sources and fate of nitrogen in ground and surface water. He is author or co-author of more than 140 refereed publications.
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Frederick L. Kirschenmann, Director, Leopold Center for Sustainable Agriculture.
He is president of Kirschenmann Family Farms, a 3,500-acre certified organic farm in Windsor, North Dakota, where he also was president (1990-1999) of Farm Verified Organic, a private organic certification agency. He is a leader of the organic/sustainable agriculture movement, and has served on many boards and advisory committees of such organizations. He has completed a five-year term on the U.S. Department of Agriculture's National Organic Standards Board, and has chaired the administrative council for the USDA's North Central Region's Sustainable Agriculture Research and Education (SARE) program. He recently completed work for the North Dakota Commission on the Future of Agriculture, and was a charter member of the Northern Plains Sustainable Agriculture Society in 1979. He has been a member of the board of directors for the Henry A. Wallace Institute for Alternative Agriculture since 1994, and was president in 1997. He earned degrees from Yankton College in South Dakota, Hartford Theological Seminary in Connecticut, and a Ph.D. degree from the University of Chicago, where he earned numerous awards including a Rockefeller Fellowship. He was the first chair of the Department of Religion at Yankton College, and was Dean of the College at Curry College in Boston. He has authored or co-authored numerous articles and book chapters dealing with ethics and agriculture.
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http://www.ag.iastate.edu/centers/leopold/Kirschenmann.html

Stephen Lovejoy, Purdue U.
Professor Lovejoy's program focuses upon environmental and agricultural policy including the interaction of agricultural production and natural resources. He has edited two books in the area of natural resource policy, Conserving Soil published by the Soil and Water Conservation Society and Agriculture and Water Quality published by Lynne Rienner Publishers. Dr. Lovejoy has written over 100 articles, bulletins, and monographs, has contributed chapters to 14 books, presented invited lectures at over two dozen conferences, and has served as referee for over a dozen journals from several scientific disciplines. In addition, Dr. Lovejoy has served as Senior Policy Analyst at the U. S. Environmental Protection Agency, as Coordinator of Purdue's Center for Alternative Agricultural Systems, and is presently serving as Associate Director of the Natural Resources and Environmental Science program and as Associate Research Editor for the Journal of Soil and Water Conservation. He has received recognition from the following: an Award of Merit from the Soil and Water Conservation Society, a Bronze Medal for Commendable Service from the U.S. EPA, an Award for Professional Excellence from the American Agricultural Economics Association (AAEA), a Gubernatorial appointment to the Board of Managers for the Indiana Institute on Recycling, and the AAEA Distinguished Extension Award.

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Richard E. Just, UMD, Distinguished Professor
Interests include: Welfare Economics, Risk and Production, and Quantitative Policy Analysis, Technology Adoption, Management of Public Research. Professor Just has made major contributions to agricultural and resource economics including the Just-Pope production function that allows tractable modeling of risk-reducing inputs; practical evaluation of market imperfections in a multi-market environment; measurement of welfare effects of risk; U.S. agricultural supply response to risk; validity of using futures markets as exogenous information for agricultural supply;debt servicing capacity; land markets; and trans-boundary water problems. He has been identified as the most cited author in the academic journals.

J. T. Sims. Professor , U. of Delaware.
Research Interests: Development of improved, environmentally sound management practices for production agriculture. Environmentally efficient use of agricultural, municipal and industrial by-products as soil amendments.
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I. Garth Youngberg, PhD, Executive Director, Henry A. Wallace Center for Agricultural & Environmental Policy at Winrock (retired). I. Garth Youngberg has served as Executive Director of the Henry A. Wallace Institute for Alternative Agriculture since its inception in 1983. Previous to this appointment, he served as the U.S. Department of Agriculture's Organic Farming Coordinator. He began his academic career as an assistant professor at Iowa State University and was Chairperson of the Department of Political Science at Southeast Missouri State University before being tapped in 1979 by the USDA. He holds an undergraduate degree from Western Illinois University and a Ph.D. in political science from the University of Illinois, specializing in agricultural policy. In 1988, he received a MacArthur Foundation Fellowship, the first MacArthur Fellowship to be awarded in the field of agriculture. In 1991, he received the Alumni Achievement Award from the University of Illinois, College of Liberal Arts and Sciences. Dr. Youngberg serves on numerous agricultural and environmental boards and advisory committees.
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Barbara Bellows, Extension Associate, Agricultural and Biological Engineering, Cornell University. Dr. Bellows is an Extension Associate/Agricultural and Environmental Education at Cornell University. She has state-wide responsibilities for coordinating and implementing research and educational programs to enhance the ability of farmers to implement practices to protect water quality. Activities include: developing training materials, implementing comprehensive nutrient management programs for small-scale farm operators, and conducting research designed to develop a P-index for nutrient management planning on farms in New York.

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