

Workgroup, Background Papers, and Acknowledgments

Workgroup

Seven technical workgroups comprised of pre-eminent physical, biological, and social scientists from the public and private sectors provided and/or reviewed much of the technical information for this study. OTA greatly appreciates the time and effort of each member of these workgroups.

Animal Technology Workgroup

Eugene C. Allen
Professor and Associate Dean
College of Agriculture
University of Minnesota
St. Paul, MN

Howard L. Bachrach
Consultant
ARS-USDA
Plum Island Animal Disease Center
Greenport, NY

John B. Campbell
Professor
North Platte Agricultural Experiment Station
North Platte, NE

Stanley E. Curtis
Professor
Department of Animal Science
University of Illinois
Urbana, IL

James R. Fischer
Associate Director
Agricultural Experiment Station
Michigan State University
East Lansing, MI

William Hansel
Liberty Hyde Bailey Professor of
Animal Physiology
Department of Physiology
New York State College of Veterinary Medicine
Cornell University
Ithaca, NY

Bennie I. Osburn
professor of Pathology
Associate Dean of Research
School of Veterinary Medicine
University of California
Davis, CA

Wilson G. Pond
Research Leader
ARS-USDA
Roman L. Hruska U.S. Meat Animal Research
Center
Clay Center, NE

Plant Technology Workgroup

Joseph A. Berry
Staff Member
Plant Biology Department
Carnegie Institution of Washington
Stanford, CA

J.A. Browning
Chairman
Department of Plant Sciences
Texas A&M University
College Station, TX

Robert T. Fraley
Manager
Plant Molecular Biology Group
Monsanto Agriculture Products Co.
St. Louis, MO

George G. Kennedy
Associate Professor
Department of Entomology
North Carolina State University
Raleigh, NC

Chester G. McWhorter
Chief, Southern Weed Science Laboratory
Agricultural Research Service
Delta State Research Center
U.S. Department of Agriculture
Stoneville, MS

Louis G. Nickell
Vice President of Research and Development
Velsicol Chemical Co.
Chicago, IL

Soil and Water Technology Workgroup

Martin Alexander
Professor of Soil Microbiology
Department of Agronomy
Cornell University
Ithaca, NY

Larry L. Boersma
Professor of Soil Physics
Department of Soil Science
Oregon State University
Corvallis, OR

Charles H. Davis
Director of Chemical Division
National Fertilizer Development Center
Tennessee Valley Authority
Muscle Shoals, AL

George R. Foster
Hydraulic Engineer
National Soil Erosion Lab
ARS-USDA
Purdue University
West Lafayette, IN

Charles A. Francis
Professor
Department of Agronomy
University of Nebraska
Lincoln, NE

Richard R. Harwood
Program Officer
Winrock International
Arlington, VA

Economics and Policy Workgroup

Boyd M. Buxton
Research Leader
ERS-USDA
Department of Agriculture and
Applied Economics
University of Minnesota
St. Paul, MN

Stephen C. Cooke
Economist
Department of Agriculture and
Applied Economics
University of Minnesota
St. Paul, MN

B.R. Eddleman
Professor
Department of Agricultural Economics
Mississippi State University
Mississippi State, MS

S.R. Johnson
Professor of Economics and Administrator
Center for Agricultural Rural Development
Iowa State University
Ames, IA

Ronald D. Knutson
Professor
Department of Agricultural Economics
Texas A&M University
College Station, TX

James W. Richardson
Associate Professor
Department of Agricultural Economics
Texas A&M University
College Station, TX

Wesley B. Sundquist
Professor
Department of Agriculture and
Applied Economics
University of Minnesota
St. Paul, MN

Agricultural Finance and
Credit Policy Workgroup

Peter J. Barry
Professor
Department of Agricultural Economics
University of Illinois
Urbana, IL

John R. Brake
Professor
Department of Agricultural Economics
Cornell University
Ithaca, NY

David A. Lins
Associate Professor
Department of Agricultural Economics
University of Illinois
Urbana, IL

Ronald Meekhof
Agricultural Economist
Economic Research Service
U.S. Department of Agriculture
Washington, DC

John Penson
Professor
Department of Agricultural Economics
Texas A&M University
College Station, TX

Rural Community Workshop

Frederick H. Buttel
Associate Professor
Department of Rural Sociology
Cornell University
Ithaca, NY

Cornelia Butler Flora
Professor
Department of Sociology, Anthropology, and
Social Work
Kansas State University
Manhattan, KS

Dean MacCannell
Professor
Department of Applied Behavioral Sciences
University of California
Davis, CA

Louis E. Swanson
Assistant Professor
Department of Sociology
University of Kentucky
Lexington, KY

J.C. van Es
Professor
Department of Agricultural Economics
University of Illinois
Urbana, IL

Agricultural Research and Extension Policy Workgroup

George Hyatt
Past Director
Cooperative Extension Service
North Carolina State University
Raleigh, NC

Ronald D. Knutson
Professor
Department of Agricultural Economics
Texas A&M University
College Station, TX

Roy L. Lovvorn
Retired
North Carolina State University and U.S.
Department of Agriculture
Raleigh, NC

Fred C. White
Professor
Department of Agricultural Economics
University of Georgia
Athens, GA

Background Papers

This report was possible because of the valuable information and analyses contained in the background reports commissioned by OTA. These papers were reviewed and critiqued by the workgroups, advisory panel, and outside reviewers. The papers are available in a separate five-part volume through the National Technical Information Service. *

Part A: The Emerging Technologies

Alexander, Martin, "Biological Nitrogen Fixation," paper prepared for the Office of Technology Assessment, 1985.

Allen, Eugene C., "Regulation of Growth and Development," paper prepared for the Office of Technology Assessment, 1985.

Bachrach, Howard L., "Genetic Engineering in Animals," paper prepared for the Office of Technology Assessment, 1985.

Battelle Columbus Laboratories, "Communication and Information Management," paper prepared for the Office of Technology Assessment, 1985.

Battelle Columbus Laboratories, "Crop Separation, Cleaning, and Processing," paper prepared for the Office of Technology Assessment, 1985.

Battelle Columbus Laboratories, "Engine and Fuels," paper prepared for the Office of Technology Assessment, 1985.

Battelle Columbus Laboratories, "Labor Saving Technology," paper prepared for the Office of Technology Assessment, 1985.

Battelle Columbus Laboratories, "Land Management," paper prepared for the Office of Technology Assessment, 1985.

Battelle Columbus Laboratories, "Monitoring and Control—Animal Agriculture," paper prepared for the Office of Technology Assessment, 1985.

*Request for "Technology, Public Policy, and the Changing Structure of American Agriculture, Volume II: Background Papers" should be directed to: National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Rd., Springfield, VA 22161 (703) 487-4650.

- Battelle Columbus Laboratories, "Monitoring and Control—Plant Agriculture," paper prepared for the Office of Technology Assessment, 1985.
- Battelle Columbus Laboratories, "Telecommunication," paper prepared for the Office of Technology Assessment, 1985.
- Berry, Joseph A., "Enhancement of Photosynthetic Efficiency," paper prepared for the Office of Technology Assessment, 1985.
- Boersma, Larry, "Water and Soil-Water-Plant Relations," paper prepared for the Office of Technology Assessment, 1985.
- Browning, J. A., "Plant Disease and Nematode Control," paper prepared for the Office of Technology Assessment, 1985.
- Campbell, J. B., "Livestock Pest Control," paper prepared for the Office of Technology Assessment, 1985.
- Curtis, Stanley E., "Environment and Animal Behavior," paper prepared for the Office of Technology Assessment, 1985.
- Davis, Charles H., "Chemical Fertilizers," paper prepared for the Office of Technology Assessment, 1985.
- Fischer, James R., "Crop Residue and Animal Waste Use," paper prepared for the Office of Technology Assessment, 1985.
- Foster, George R., "Soil Erosion, Productivity, and Tillage," paper prepared for the Office of Technology Assessment, 1985.
- Fraley, Robert T., "Genetic Engineering in Plants," paper prepared for the Office of Technology Assessment, 1985.
- Francis, Charles A., "Multiple Cropping," paper prepared for the Office of Technology Assessment, 1985.
- Hansel, William, "Animal Reproduction," paper prepared for the Office of Technology Assessment, 1985.
- Kennedy, George G., "Management of Insects and Mites," paper prepared for the Office of Technology Assessment, 1985.
- Liebhardt, William, and Harwood, Richard, "Organic Farming," paper prepared for the Office of Technology Assessment, 1985.
- McWhorter, C. G., and Shaw, W. C., "Present Status and Future Needs in Weed Control," paper prepared for the Office of Technology Assessment, 1985.
- Nickell, Louis G., "Plant Growth Regulators," paper prepared for the Office of Technology Assessment, 1985.
- Osburn, Bennie I., "Animal Disease Control," paper prepared for the Office of Technology Assessment, 1985.
- Pond, Wilson G., "Animal Nutrition," paper prepared for the Office of Technology Assessment, 1985.

Part B: Economics and Policy Analysis

- Buxton, Boyd M., "Economic, Policy, and Technology Factors Affecting Herd Size and Regional Location of U.S. Milk Production," paper prepared for the Office of Technology Assessment, 1985.
- Cochrane, Willard W., "Farm Commodity Policy, Technological Advance and Structural Change," paper prepared for the Policy, Technology, and Structure of Agriculture Workshop, Office of Technology Assessment, 1983.
- Cooke, Stephen C., "Size Economies and Comparative Advantage in the Production of Corn, Soybeans, Wheat, Rice, and Cotton in Various Areas of the United States," paper prepared for the Office of Technology Assessment, 1985.
- Eddleman, B. R., "Economic Effects of Selected Policies and Technology on the Economic Viability of General Crops Farms in the Delta Region of Mississippi," paper prepared for the Office of Technology Assessment, 1985.
- Richardson, James W., "Economic Impacts of Selected Policies and Technology on the Economic Viability of Three Representative Cotton Farms in the Texas Southern High Plains," paper prepared for the Office of Technology Assessment, 1985.
- Richardson, James W., "Economic Impacts of Selected Policies and Technology on the Economic Viability of Three Representative Wheat Farms in the High Plains," paper prepared for the Office of Technology Assessment, 1985.
- Sundquist, W. B., "Economic Impacts of Selected Farm Policies, Income Tax Provisions, and Production Technology on the Economic Viability of Corn-Soybean Farms in East Central Illinois and Irrigated Row Crop Farms in South Central Nebraska," paper prepared for the Office of Technology Assessment, 1985.

Part C: Agricultural Finance and Credit

- Barry, Peter J., "Credit Policy and Structural Issues in Agriculture," paper prepared for the Policy, Technology, and Structure of Agriculture Workshop, office of Technology Assessment, 1983.
- Barry, Peter J., "Regulatory and Performance Issues for Financial Institutions: Their Effects on Technology Adoption and Structural Change in Agriculture," paper prepared for the Office of Technology Assessment, 1985.

Brake, John R., "Short-Term Credit Policies for Dealing With Farm Financial Stress and Their Impacts on Farm Structure and Adoption of New Technology," paper prepared for the Office of Technology Assessment, 1985.

Carman, Hoy F., "Tax Policy, Technology, and the Structure of Agriculture," paper prepared for the Policy, Technology, and Structure of Agriculture Workshop, Office of Technology Assessment, 1983.

Lins, David A., "Overview of Capital and Credit Markets Serving Agriculture: Their Impact on Technology Adoption and Structural Change," paper prepared for the Office of Technology Assessment, 1985.

Trechter, David, and Meekhof, Ronald, "The Role of Federal Credit Assistance Programs in the Process of Technological Change," paper prepared for the Office of Technology Assessment, 1985.

Part D: Rural Communities

Buttel, Frederick H., and Lancelle, Mark, "Emerging Agricultural Technologies, Farm Structural Change, Public Policy, and Rural Communities in the Northeast," paper prepared for the Office of Technology Assessment, 1985.

Flora, Jan L., and Flora, Cornelia Butler, "Emerging Agricultural Technologies, Farm Size, Public Policy, and Rural Communities: The Great Plains and the West," paper prepared for the Office of Technology Assessment, 1985.

McCannell, Dean, and Dolber-Smith, Edward, "Report on the Structure of Agriculture and Impacts of New Technologies on Rural Communities in Arizona, California, Florida, and Texas," paper prepared for the Office of Technology Assessment, 1985.

McCannell, Dean, "Agribusiness and the Small Community," paper prepared for the Policy, Technology, and Structure of Agriculture Workshop, Office of Technology Assessment, 1983.

Skees, Jerry R., and Swanson, Louis E., "Examining Policy and Emerging Technologies Affecting Farm Structure in the South and the Interaction Between Farm Structure and Well-being of Rural Communities," paper prepared for the Office of Technology Assessment, 1985.

van Es, J. C., Chicoine, David L., and Flotow, Mark A., "Agricultural Technologies, Farm Structure, and Rural Communities in the Cornbelt: Policy Choices and Implications for 2000," paper prepared for the Office of Technology Assessment, 1985.

Part E: Agricultural Research and Extension, Agricultural Structure, and Environment and Natural Resources

Hite, James, "Environmental and Natural Resource Impacts of Emerging Technologies in American Agriculture," paper prepared for the Office of Technology Assessment, 1985, based on the Environment and Natural Resources Workshop, Nov. 15-16, 1984.

Hyatt, George, "Agricultural Extension Policy: Its Evolution and Current Issues," paper prepared for the Office of Technology Assessment, 1984.

Knutson, Ronald D., "Agricultural Research and Extension Policy: Contemporary Issues," paper prepared for the Office of Technology Assessment, 1985.

Lovvorn, Roy L., "Agricultural Research Policy: Its Evolution and Current Issues" paper prepared for the Office of Technology Assessment, 1984.

Sporleder, Thomas L., "Agricultural Structure Impacts of Emerging Technologies," paper prepared for the Office of Technology Assessment, 1985, based on the Agricultural Structure Workshop, Nov. 15-16, 1984.

White, Fred C., "Economic Impact of Agricultural Research and Extension," paper prepared for the Office of Technology Assessment, 1984.

Acknowledgements

OTA would like to thank the members of the advisory panel who helped guide the direction of this study and who reviewed drafts of this report. In addition, OTA acknowledges the following individuals for reviewing background papers, reviewing individual report chapters, or providing information to the project staff:

Walt Armbruster
Farm Foundation

Thomas Army
U.S. Department of Agriculture

Lloyd Bender
Bozeman, MT

Raymond Beneke
Iowa State University

David Bezdicek
Washington State University

Larry Bierman
J.R. Simplot Co.

J.L. Bittle
Scripps Clinic and Research Foundation

Robert Bjork
U.S. Department of Agriculture

Michael Boehlje
University of Minnesota

Elise Boulding
Dartmouth College

Dave Brown
U.S. Department of Agriculture

Orrin Burnside
University of Nebraska

Ward Butcher
Washington State University

G.S. Campbell
Washington State University

Hoy Carman
University of California—Davis

John Chapman
Valmont Industries

David Chicoine
University of Illinois

Estel Cobb
U.S. Department of Agriculture

R. James Cook
Washington State University

Nicholas Cross
Cattle Code America

Dave Dame
University of Florida

Machi Dilworth
U.S. Department of Agriculture

Paul Doak
Iowa State University

Mark Drabentstott
Kansas City Federal Reserve Bank

Roger Elmore
University of Nebraska

Robert Emerson
University of Florida

A. Farsaie
University of Maryland

Norman Faultner
Deere and Co.

Jan Flora
Kansas State University

Louise Fortman
University of California-Berkeley

Lloyd Frederick
Agency for International Development

William Fry
Cornell University

Robert Giaquinter
E.I. DuPont Experimental Station

Robert Goldberg
University of California-Los Angeles

Walter Goldschmidt
University of California-Los Angeles

J. Gorham
U.S. Department of Agriculture

Albert Grable
U.S. Department of Agriculture

Mary Nell Greenwood
U.S. Department of Agriculture

W.R. Guthrie
Butler Manufacturing Co.

William Harland
Bureau of the Census

Craig Harris
Michigan State University

Steve Hastings
University of Delaware

Virgil Hays
University of Kentucky

Paul Hedin
U.S. Department of Agriculture

William Heffernan
University of Missouri

Jim Hildreth
Farm Foundation

Fred Hines
U.S. Department of Agriculture

John Hopkin
Texas A&M University

Dixon Hubbard
U.S. Department of Agriculture

Wallace Huffman
Iowa State University

George Irwin
Farm Credit Administration

Ray Jackson
U.S. Water Conservation Laboratory

Richard Jensen
University of Arizona

Richard Just
University of Maryland

Terry Kinney
U.S. Department of Agriculture

Waldemar Klassen
U.S. Department of Agriculture

Terry Klopfenstein
University of Nebraska

John Knepler
DICKKEY-john Corp.

Mark Lancelle
Cornell University

B.A. Larkins
Purdue University

Warren Lee
Ohio State University

Jerry Mannering
purdue University

Tom McClure
Battelle Columbus Laboratories

Robert Miller
North Carolina State University

Page Morgan
Texas A&M University

A.J. Muehling
University of Illinois

Ralph Nave
U.S. Department of Agriculture

Paul Nixon
U.S. Department of Agriculture

John Nye
Purdue University

P.A. Oltenacu
Cornell University

Olga Owens
U.S. Department of Agriculture

Robert Papendick
U.S. Department of Agriculture

Kenneth Parks
Agrico Chemical Co.

Neal Peterson
U.S. Department of Agriculture

Hoyle Puckett
U.S. Department of Agriculture

Graham Purchase
U.S. Department of Agriculture

Philip Raup
University of Minnesota

Steve Rawlins
U.S. Department of Agriculture

Robert Riley
U.S. Department of Agriculture

Charles Rumburg
U.S. Department of Agriculture

Robert Schafer
U.S. Department of Agriculture

Paul Siegel
Virginia Polytechnic Institute

Jerry Skees
University of Kentucky

F.W. Slife
University of Illinois

Charles Smith
U.S. Department of Agriculture

Steve Sonka
University of Illinois

Vernon Sorenson
Michigan State University

Lauren Seth
Des Moines, IA

S.L. Spahr
University of Illinois

Thomas Sporleder
Texas A&M University

Richard Storm
Bureau of the Census

B. Stout
Texas A&M University

Harlee Strauss
American Chemical Society

Howard Teague
U.S. Department of Agriculture

E.D. Threadgill
University of Georgia

Daniel Tompkins
U.S. Department of Agriculture

David Trechter
U.S. Department of Agriculture

F.T. Turpin
Purdue University

David van Doren
Ohio State University

Frederick Weingarten
Office of Technology Assessment

Fred Westbrook
U.S. Department of Agriculture

Holly Wheeler
Applied Futures, Inc.

P.J. Wierenga
New Mexico State University

Kenneth Wilkinson
Pennsylvania State University

Ronald Wimberley
North Carolina State University

W. Fred Woods
U.S. Department of Agriculture

W.R. Woods
Purdue University