Technology, Public Policy, and the Changing Structure of American Agriculture

March 1986

NTIS order #PB86-184637
American agriculture is undergoing significant change and stress. Much of the recent change has been attributed to the financial farm crisis caused mainly by declining agricultural exports. However, underlying these financial difficulties are strong technological and structural forces which will cause further changes and adjustments in American agriculture for the remainder of this century.

Congress, concerned about the nature of these adjustments, requested the Office of Technology Assessment (OTA) to analyze the underlying technological, structural, and political forces which impact American agriculture and to determine the industry’s probable future direction. Committees requesting the study include: the Senate Committee on Agriculture, the Senate Small Business Committee (the Subcommittee on the Family Farm), the Joint Economic Committee, the House Committee on Science and Technology, and the House Committee on Agriculture (the Subcommittee on Livestock, Dairy, and Poultry; the Subcommittee on Department Operations, Research, and Foreign Agriculture; and the Subcommittee on Forests, Family Farms, and Energy).

In the course of preparing this report, an interim report entitled A Special Report for the 1985 Farm Bill was transmitted to the requesting committees for their use during the debates and the writing of the Food Security Act of 1985 (1985 Farm Bill). The special report focused on assessment findings that were particularly relevant for issues debated in that legislation.

This report addresses the longer run issues that technology and certain other factors will have on American agriculture during the remainder of this century. It focuses on the relationship of technology to: agricultural production, structural change, rural communities, environment and natural resource base, finance and credit, research and extension, and public policy. The assessment identifies many benefits that new technologies will create, but these benefits will also exact substantial costs in potential adjustment problems. This report is a first step toward understanding these interrelated problems and identifying policies to ameliorate them.

OTA greatly appreciates the contribution of the advisory panel, workgroups, workshop participants, authors of the technical background papers, and the many other advisors and reviewers who assisted OTA from the public and private sector. Their guidance and comments helped develop a comprehensive report. As with all OTA studies, however, the content of this report is the sole responsibility of OTA.

John H. Gibbons
Director
Technology, Public Policy, and the Changing Structure of American Agriculture: Advisory Panel

Frank Baker
Director, International Stockmen’s School
Winrock International Livestock Research and Training Center
Arkansas

James Bonnen
Professor
Department of Agricultural Economics
Michigan State University

William Brown
Chairman of the Board
Pioneer Hi-Bred International, Inc.
Iowa

Frederick Buttel
Associate Professor
Department of Rural Sociology
Cornell University

Willard Cochrane
Consultant
California

Jack Doyle
Director
Agricultural Resources Project
Environmental Policy Institute
Washington, DC

Marcia Dudden
Dudden Farms, Inc.
Iowa

Walter Ehrhardt
Ehrhardt Farms
Maryland

Dean Gillette
Professor
Harvey Mudd College
Claremont College

Roger Granados
Executive Director
La Cooperativa
California

Richard Harwood
Program Officer
Winrock International
Virginia

Charles Kidd
Dean
College of Engineering Science, Technology, and Agriculture
Florida A&M University

Robert Lanphier III
Chairman of the Board
DICKEY-john Corp.
Illinois

Edward Legates
Dean, College of the Agriculture and Life Sciences
North Carolina State University

John Marvel
President and General Manager
Research Division
Monsanto Agriculture products Co.
Missouri

Donella Meadows
Adjunct Professor
Resources Policy Center
Dartmouth College

Don Paarlberg
Consultant
Indiana

Don Reeves
Consultant, Interreligious Taskforce on U.S. Food Policy
Nebraska

Milo Schanzenbach
Schanzenbach Farms
South Dakota

Technology, Public Policy, and the Changing Structure of American Agriculture: OTA Project Staff

Roger C. Herdman, Assistant Director, OTA
Health and Life Sciences Division

Walter E. Parham, Food and Renewable Resources Program Manager

Michael J. Phillips, Project Director

Yao-chi Lu, Senior Analyst

Robert C. Reining, Analyst

Juliette Linzer, Research Assistant

Kathryn M. Van Wyk, Editor and Writer

Administrative Staff

Patricia Durana and Beckie Erickson, Administrative Assistants

Nellie Hammond, Secretary

Carolyn Swarm, Secretary

Through May 1984.