

*U.S. Dairy Industry at a Crossroad:  
Biotechnology and Policy Choices*

May 1991

OTA-F-470

NTIS order #PB91-198085

**U.S. Dairy  
Industry at a Crossroad:  
Biotechnology and  
Policy Choices**



CONGRESS OF THE UNITED STATES  
OFFICE OF TECHNOLOGY ASSESSMENT

Recommended Citation:

U.S. Congress, Office of Technology Assessment, *U.S. Dairy Industry at a Crossroad: Biotechnology and Policy Choices--Special Report, OTA-F-470* (Washington, DC: U.S. Government Printing Office, May 1991).

For sale by the Superintendent of Documents  
U.S. Government Printing Office, Washington, DC 20402-9325  
(order form can be found in the back of this report)

# Foreword

In the 1990s the U.S. dairy industry will experience a technological revolution that will place the industry at a crossroad. This industry will be the first to experience the biotechnology era in American agriculture. New animal health, reproduction, and food processing technologies are being developed. Advanced scientific techniques will be used to produce transgenic animals. These technologies can be used to increase milk production, improve the efficiency of food processing, develop new milk products, increase herd quality, and improve animal health.

Many of the new technologies may create some controversy. But in the early 1990s, the most pervasive and controversial technology will be bovine somatotropin (bST) produced through recombinant DNA technology. Research has shown that the annual gain in milk output per cow from bST would take 10 to 20 years to achieve using current breeding methods. The technology is presently under review by the Food and Drug Administration. Public concerns have been raised about recombinantly derived bST that include the safety to humans of dairy products produced from bST-supplemented cows, the safety of the technology to the animal, and the economic consequences for many dairy farm operators in this country. Some States have placed a moratorium on the use of this technology, even if approved by FDA, and some large retail food chains have refused to sell milk and dairy products from bST test herds even though FDA has approved their sale.

Congress requested the Office of Technology Assessment to examine the emerging technologies that will potentially be available to the dairy industry in the 1990s. This Report analyzes these technologies with special attention to bST. The analysis includes an assessment of bST, a discussion of other emerging technologies in this decade, and an economic and policy analysis of the impact that these technologies, including bST, will have on the dairy industry.

The report concludes that, based on today's research findings, bST poses no additional risk to consumers and does not produce adverse health effects to cows. However, if approved by FDA, bST will accelerate trends that already put additional economic stress on dairy farm operators in many areas of the country. Other new technologies that may become available during the decade may also have similar impacts as bST and raise similar issues. The industry in the decade of the 1990s will be at a crossroad with important decisions concerning new technologies and public policies.

This report was requested as part of a larger study examining emerging agricultural technologies and related issues for the 1990s. The study was requested by the Senate Committee on Agriculture, Nutrition, and Forestry, the House Committee on Government Operations, and the House Committee on Agriculture. The first report issued from this study was *Agricultural Research and Technology Transfer Policies for the 1990s*. Two remaining reports are in progress. Findings from this report are relevant to specific legislation regarding dairy policy that was debated for the 1990 Farm Bill. The information contained in this report was made available to Congress for that debate.

OTA appreciates the support this effort received from the contributions of many individuals. In particular, we are grateful to workshop participants, contractors, reviewers, and informal advisers who provided invaluable assistance in analyzing the issues on this subject. OTA, however, remains solely responsible for the contents of this report.

a'iL# ' >  
~      JOHN H. GIBBONS      ~  
~      Director      ~

# OTA Project Staff--U.S. Dairy Industry at a Crossroad

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

Walter E. Parham, *Program Manager  
Food and Renewable Resources Program*

**Michael J. Phillips**, *Project Director*

Marie Walsh, *Analyst*

Kathy Hudson, *Analyst*<sup>1</sup>

Susan Wintsch, *Editor*

## *Administrative Staff*

N. Ellis Lewis, *Office Administrator*

Nellie Hammond, *Administrative Secretary*

Carolyn M. Swann, *P.C. Specialist*

## *Consultants/Contractors*

Dale E. Bauman, *Cornell University*

William Hansel, *Louisiana State University*

Susan K. Harlander, *University of Minnesota*

Ronald D. Knutson, *Texas A&M University*

J. Thomas McGuckin, *New Mexico State University*

Bennie I. Osburn, *University of California, Davis*

Derrell S. Peel, *Oklahoma State University*

James W. Richardson, *Texas A&M University*

---

<sup>1</sup>IF, September through December 1990