

*New Developments in Biotechnology:
Field-Testing Engineered Organisms:
Genetic and Ecological Issues*

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Foreword

Since the discovery of recombinant DNA technology in the early 1970s much attention has focused on the potential benefits and risks presented by the new abilities of researchers to manipulate DNA. The importance of ecological issues was heightened in 1982 with the proposal by researchers to field test bacteria engineered to reduce crop losses due to frost damage. Additional pressures have come to bear as a result of developments in the economics of American agriculture and with foreign trade imbalances. In this special report OTA analyzes some of the scientific and public opinion issues surrounding the planned introduction of genetically engineered organisms into the environment.

The assessment of *New Developments in Biotechnology* was requested by the House Committee on Energy and Commerce and the House Committee on Science, Space, and Technology. The first publication in the series was *Ownership of Human Tissues and Cells*, and the second was *Public Perceptions of Biotechnology*. Subsequent studies will examine U.S. investment in biotechnology and issues relevant to the patenting of plants, animals, and microorganisms. This third report in the series illustrates a range of options for congressional action in three major areas of public policy related to this application of biotechnology:

- the criteria for review of planned introductions for potential risk,
- the administrative mechanisms for applying such review criteria, and
- the research base supporting planned introductions.

In gathering information for this study, OTA staff made site visits to the research facilities or proposed field test sites of seven companies developing engineered organisms for environmental applications or doing similar research. The site visits were made to California, Pennsylvania, Delaware, Missouri, Hawaii, and Wisconsin. Staff also attended and participated in numerous professional meetings devoted to scientific aspects of the issue.

OTA was assisted in preparing this study by a panel of advisors and reviewers selected for their expertise and diverse points of view on the issues covered in the assessment. Advisory panelists and reviewers were drawn from industry, academia, medicine, professional societies, environmental organizations, public interest groups, and Federal agencies. Written comments were received from 140 individuals on successive drafts of the report.

OTA gratefully acknowledges the contribution of each of these individuals. As with all OTA reports, the responsibility for content is OTA's alone.


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NOTE: OTA appreciates and is grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

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