

*Water-Related Technologies for Sustainable
Agriculture in U.S. Arid/Semiarid Lands*

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Water-Related Technologies

for Sustainable Agriculture in
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Foreword

Water is a major limiting factor in most areas where Western arid and semiarid agriculture is currently practiced. Increasing water demands from nonagricultural users plus growing problems of ground water depletion, salt buildup in agricultural soils, and water-quality deterioration are causing heightened concern about the sustainability of Western agriculture. A major part of this concern is focused on whether the Federal agricultural system is prepared to meet the changing needs of Western agriculture and whether technology can assist in providing the Nation with Western agricultural production that is sustainable and profitable over the long term.

This report assesses existing and emerging water-related technologies for their ability to support long-term productivity of arid/semiarid agricultural plants and animals in the context of institutional factors, water supply/use relationships, and the characteristics of the renewable natural resource base on which agriculture depends. The study was requested by the House Committee on Agriculture and endorsed by the Senate Committee on Environment and Public Works, Subcommittee on Water Resources. The technologies examined by the study are generally directed toward: 1) improving efficiency of water use, whether for rain-fed (dryland and rangeland) systems or irrigation; 2) improving water management, storage, and distribution for agriculture; and 3) augmenting existing supplies with additional water not previously available. The report also identifies a number of options for congressional action. A background paper containing examples of application of arid/semiarid agricultural technologies in foreign countries has been published separately as part of this assessment.

The Office of Technology Assessment (OTA) greatly appreciates the contributions of the advisory panel, working groups and workshop participants assembled for this study, the authors of the technical papers, and the many other advisors and reviewers who assisted us, including farmers, ranchers, agricultural scientists in government and universities, and experts in the private sector. Their guidance and comments helped develop a comprehensive report. As with all OTA studies, however, the content of the report is the sole responsibility of OTA.

A handwritten signature in black ink, reading "John H. Gibbons". The signature is fluid and cursive, with a large initial "J" and "G".

JOHN H. GIBBONS
Director

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