

CONTENTS

Features

248 Viewpoint: A conservation commitment to the future

SCSA President Robert C. Baum calls for adequate funding of soil conservation programs

250 Whither goest conservation?

R. G. Downes discusses the deteriorating relationship between man and his environment

255 Eroding the base of civilization

Lester R. Brown assesses the condition of cropland worldwide



261 Archaeology: Lessons on future soil use

Gerald W. Olson unearths land use lessons from artifacts in the soil

265 Brush control impacts on rangeland wildlife

Jerry L. Holechek presents management techniques for integrating wildlife values with rangeland productivity

270 Urban erosion control: The conservation district role in Wisconsin

Donald G. Last describes efforts to focus conservation district expertise on urban erosion problems



275 Commentary: RPA planning: Is the system the solution?

Luke Popovich traces forestry planning down a winding path of controversy

Departments

246 Pen points

278 In the news

283 Upcoming

284 Books, etc.

Research reports

287 Management of blowing snow on sagebrush rangelands

David L. Sturges and Ronald D. Tabler

292 An approach to environmental impact assessment for local government

Steven P. French

297 Watershed impact on stream water quality: A technique for regional assessment

Miles M. Smart, Terry W. Barney, and John R. Jones

300 Verification of the slope factor in the universal soil equation for low slopes

C. E. Murphree and C. K. Mutchler

302 Runoff curve numbers for Northern Plains rangelands

Clayton L. Hanson, Earl L. Neff, John T. Doyle, and Theodore L. Gilbert

305 Radar study of a vegetated pediment

M. Leonard Bryan

Cover
Plowing with buffaloes in Indonesia, one of many nations with impaired agricultural productivity due to serious soil erosion. See page 255. United Nations Food and Agriculture Organization photograph.

The Soil Conservation Society of America is dedicated to promoting the science and art of good land use, with emphasis on conservation of soil, water, air, and related natural resources, including all forms of beneficial plant and animal life. To this end, SCSA seeks through the *Journal of Soil and Water Conservation* and other programs to educate people so that mankind can use and enjoy these natural resources forever.

OFFICERS

President
Robert C. Baum, Salem, Oreg.
President-elect
Chris J. Johannsen, Davis, Calif.
Vice-president
Floyd E. Heft, Columbus, Ohio
Second Vice-president
Roland R. Willis, Stillwater, Okla.
Treasurer
H. Lynn Horak, Des Moines, Iowa

COUNCIL

Elmer E. Offerman, Storrs, Conn.
Maurice G. Cook, Raleigh, N.C.
Carl V. Thompson, Alexandria, La.
Donald E. Van Meter, Muncie, Ind.
Thomas J. Thiel, Peoria, Ill.
Norris P. Swanson, Lincoln, Nebr.
Earl Burnett, Temple, Tex.
Amos I. Garrison, Boise, Idaho
David R. Cressman, Kitchener, Ont.
John R. Henry, Locust Grove, Va.
Andy I. Tucker, Chandler, Okla.

STAFF

Editorial Director
Larry D. Davis
Editor
Max Schnepf
Assistant Editors
James L. Sanders
John Walter
Production Assistant
Betty J. Taylor

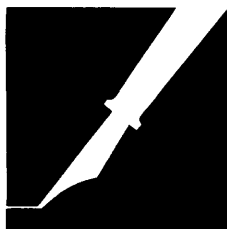
Advertising Representative
Fox Associates, Inc.
200 East Ontario Street
Chicago, Illinois 60611
(312) 649-1650

EDITORIAL BOARD

A. D. Latonell (chm), Richmond Hill, Ont.
Blair T. Bower, Arlington, Va.
James E. Box, Jr., Watkinsville, Ga.
Donn G. DeCoursey, Oxford, Miss.
B. L. Harris, College Station, Tex.
Robert W. Harris, Wilsonville, Oreg.
R. J. Hildreth, Oak Brook, Ill.
Gunnar C. Isberg, Minneapolis, Minn.
Edward A. Johnson, Washington, D.C.
William R. Oschwald, Urbana, Ill.
Gerald E. Schuman, Cheyenne, Wyo.
J. Herbert Snyder, Davis, Calif.
John F. Timmons, Ames, Iowa
J. Melvin Williams, Portland, Oreg.
Warren Zitzmann, Washington, D.C.

The JSWC (ISSN 0022-4561) is published six times a year in January, March, May, July, September, and November. Copyright © 1981 by SCSA. SCSA assumes no responsibility for statements and opinions expressed by contributors. Subscription is by membership in SCSA or by subscription. Membership dues: \$30.00 a year (\$35.00 outside the U.S. and Canada). Institutional and individual subscriptions: \$22.00 a year (\$25.00 outside the U.S. and Canada). Address mail to SCSA, 7515 N.E. Ankeny Rd., Ankeny, IA 50021. Phone: (515) 289-2331. Second class postage paid at Ankeny and Des Moines, Iowa. Postmaster, send form 3579 to JSWC, 7515 N.E. Ankeny Rd., Ankeny, IA 50021.





PEN POINTS

An inappropriate "viewpoint"

Is the JSWC running short of "viewpoints?" Guy Kelnhofer's editorial, "Inland Navigation and the Environmentalists" (July-August 1981, pp. 184-185), is...both inadequate and inappropriate for publication in our JSWC. Kelnhofer fails to relate waterway transportation growth to our concerns for soil and water conservation, and thus he has little to say to us. Furthermore, his arguments are so general and isolated from specific waterway projects that we have no way of evaluating his attack on unnamed environmental groups. Viewpoints in the past have featured both pro and con perspectives on an issue. Such

an approach would have been preferable for the issue of waterway development. Our Society is proud of its holistic approach to problem-solving. Our JSWC should not be the vehicle for others to attack "certain environmental groups."

My interest in who opposes waterway development and why has been aroused. Please give equal time to the "certain environmental groups" that Kelnhofer speaks of. A recent newspaper article on the Tennessee-Tombigbee waterway gave me the impression that concerns for environmental damage of waterway development are not coming from persons "ideologically committed to resist all forms of industrial growth" as Kelnhofer implies.

William H. Doucette, Jr.
Raleigh, North Carolina

STOP LEAKS! PONDS, TANKS, POOLS.

New, improved, all mineral "INFILCHECK SEALANTS" seek out leaks in earth reservoirs, redwood tanks, concrete, masonry, drainage lines—*most any water storage structure!* Full, part full, or empty. Makes tough, enduring, flexible seal through depth or wall or deep into soil as it seeps out with leaking water. Non-toxic to fish or people. New "INFILCHECK" gives greater effectiveness & coverage at lower costs—10¢ to 12¢ per square foot average. Material cost for large area ponds, \$2,200 per acre (6¢ per square foot). Freight prepaid. Do-it-yourself. Just mix sealant-powder with water. In use for over 27 years. Send for FREE LITERATURE.

SEALITE, INC. (Dept. JSW)
375 Preda Street, San Leandro, Calif. 94577
Telephone: (415) 568-1017

Halting farmland conversion

In the last issue of the JSWC and in others I have noted despair over the loss of prime farmland to housing and business developments.

Let me suggest a possible solution to this problem, a solution that I really do not like but probably the only one or type of one that will effectively stop the destruction of farmland.

What we need is legislation that would place a per acre fine on destroying farmland. A fine of perhaps \$5,000

per acre could be assessed on any land taken out of crop production and put into homes or any other development that destroyed the capacity of the land to produce a crop. This money would then be used to purchase low-class, nonfarmable land in the county and divide it for business and home locations, on the basis of perhaps 50, 60, or maybe 70 percent of the original purchase price. This would inhibit the destruction of farmland and promote the placement of dwellings and businesses on marginal land. The amount of the fine for the destruction of farmland could vary on the classification of the land down to zero on class five land perhaps.

As I stated, I dislike this solution very much, but there is little chance of getting voluntary compliance, and one of these days the need for farmland will become so great that it will be necessary to destroy the homes and buildings that have occupied the farmland so that we can again put it into production.

Richard E. Diggs
General Irrigation Company
Carthage, Missouri

CCC alumni, where are you?

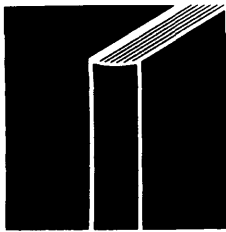
The National Association of Civilian Conservation Corps Alumni (NACCCA) is trying to locate about two million former members and persons who were affiliated with the Civilian Conservation Corps (CCC) during the 1930s and 1940s.

I am sure that many of your readers have often wondered what became of the CCC. You can tell them the CCC lives again in the NACCCA. It is a young and growing organization with chapters in practically every state in the nation, and one of its major objectives is to reinstate a permanent CCC II.

The conservation work performed by the CCC men throughout the nation is still most evident after these many years.

Anyone interested in the organization can write to NACCCA Headquarters, 7900 Sudley Road, Suite 418, Manassas, Virginia 22110, for further information.

Victor Vengrouskie
Silver Spring, Maryland 20902



BOOKS, ETC.

Ecological Planning for Farmlands Preservation: A Source Book for Educators and Planners. By Frederick Steiner. 122 pp., illus., refs., tbs., gloss., bibliog., 1980. Washington State Univ. Coop. Ext., Pullman, Wash. 99163.

Ecological Planning for Farmlands Preservation presents an excellent case study of a rural community's apparently successful efforts to preserve farmland. The booklet should indeed prove helpful to other communities faced with this important land use issue.

The well-written, nicely illustrated booklet describes how a policy was established in Whitman County, Washington, to preserve agricultural land and how the planning necessary to carry out that policy was accomplished.

The description deals not only with the technical aspects of inventories, analyses, and plan design techniques, but also how the community was organized for the planning process. The booklet also contains a useful glossary and bibliography relating to planning for agricultural land preservation.

Given the apparently changing political philosophy of the United States, the booklet contains a particularly interesting account of how a politically conservative, agrarian community came to support a strong, technically sound, areawide planning effort. This account supports the viewpoint that good planning is so basic to the proper development of communities and to the conservation and wise use of natural resources that it can and should be supported by conservatives and liberals alike.

The case study is set within the framework of what is called the "ecological planning method," a method that the booklet implies was the recent discovery and development of such practitioners as Ian McHarg. The method, of course, is nothing more than an adaptation of the classic approach to systems analysis and to the even older principles of urban planning practice. This somewhat narrow presentation of the theoretical framework for the Whitman County planning effort, however, does not detract from the description of a practical and apparently successful application of the planning process in a largely rural setting.

The thoughtful reader will be impressed by the key role in the process played by farsighted leaders of the local agricultural

community. The presence or absence of such individuals is probably far more important to the success or failure of agricultural land preservation than any other single factor.

The booklet should be particularly useful to local elected and appointed officials who may be grappling with the issue of agricultural land preservation in their communities. It should also be heartening to those who must deal with perhaps one of the most important issues affecting the long-term welfare of the nation.—KURT W. BAUER, *Southeastern Wisconsin Regional Planning Commission, Waukesha*, 53187.

The Politics of Land-Use Reform. By Frank J. Popper. 321 pp., refs., bibliog., index, 1981. University of Wisconsin Press, Madison, 53715. \$20.00, cloth; \$7.50, paper.

This readable volume provides valuable commentary on the American land use reform movement of the 1970s. The author, a well-known environmentalist, successfully divorces himself from the bias suggested by his background to provide a balanced, incisive analysis of the causes, scope, successes, and failures of the reform movement.

Frank Popper's observations are based on first-hand studies of land use programs in California, Florida, Maryland, New York, Pennsylvania, and Vermont. Experiences in these six states provide a rich grist for his analysis. But he does not burden readers with separate chronicles of the administrative and political histories of the six programs. Instead, he uses these and other program examples to identify and examine the major forces and features that shaped state land use programs in the 1970s.

Early on, Popper vividly and dramatically describes the beginnings of the land reform movement. Rampant suburbanization, losses of amenities, misguided and low-quality developments, misshapen growth, and failures of planning and zoning triggered demands for more centralized systems of land use regulation. Primary support for these demands came from environmentalists and from affluent urban and suburban citizens who were seldom owners of the land affected. The principal opposition: developers, owners of potential development sites, citizens fear-

ful of spreading bureaucracy, local officials who viewed regulations as "a usurpation of their home-rule powers," and state officials who wanted no infringement on their own programs. Additional criticism came from liberals who saw land use regulations as "repressing the aspirations of the have-nots of American society."

Much of the initial fervor and support for land use reform dissipated after 1974 as concern rose over business recession, rising unemployment, the need for economic growth, energy shortages, inflation, and public confidence in government. These changes wiped out the prospect for adoption of comprehensive state land use planning programs. But they did not prevent the acceptance of programs designed to deal with specific problems, such as stripmining or wetlands, and at the end of the decade, the land use reform movement remained "alive and well, particularly at the state level."

Two developments are largely responsible for the movement's survival and success. First, its proponents and administrators recognized the potential need for accepting compromises and making concessions; this watered down proposals initially, but gave them a chance for adoption. Second, the movement widened its constituency by abandoning its early emphasis on biological and ecological consequences, stressing instead the role land use reform could play in managing growth and in attaining economic, social, and quality-of-life goals.

Popper notes that the benefits of land use regulation are usually long run and diffused while the costs are concrete and often affect powerful groups. These groups are frequently entrenched and well financed. They usually have far more to lose financially and politically than the supporters of programs have to gain. Well-organized campaigns and lobbying activities have prevented the adoption of many proposed programs. Those programs gaining acceptance have usually involved compromise.

Administrative concessions and problems have kept state agencies from becoming the powerful regulators they were expected to be. Program administration has been complicated by the stacking of boards and commissions with program critics. Problems have arisen with citizen and group conflicts, pressure tactics, and lawsuits. Some programs have been taken over, at least in part, by the groups they

were established to regulate. In practice, no state has pushed controls strongly opposed by local citizens. "It has become obvious that doing so would be administratively impossible and politically disastrous."

Other problems have also emerged as land use agencies have become parts of "the bureaucratic landscape." Delays in processing and requirements for multiple permits have cost developers considerable time and money. Some of these problems are caused by failure on the part of "small government" to provide agencies with sufficient staff and funding to do their jobs. Administrative requirements generally favor large developers, who have numerous projects and staff assistants to fill out forms. These same requirements create major problems for small developers. Elimination of forms, accelerated approvals, and one-stop approval arrangements could help developers, but would often defeat the adequate and open review of programs.

In his economic analysis of land use programs, Popper finds that the programs can affect development markets by (1) delaying or preventing projects, (2) tying developers to long-term plans that discourage their use of new techniques and materials, (3) affecting the availability of financing, and (4) favoring a standardization of project designs. He also finds that the programs have never stopped developments because operators have always been able to accept the regulations, build in nonregulated areas, or operate at an uncontrolled threshold level. Compliance with regulations has probably raised construction costs by 10 percent, an increase passed on to buyers.

Most benefits of the programs have been environmental. Programs have operated both directly and indirectly to prevent unwanted developments and to improve the quality of new developments by raising standards and by forcing developers to do their planning homework better. Programs also have raised the public's level of environmental awareness. Public tolerance of shoddy developments has diminished, while expectations concerning environmental impacts have risen.

Popper concludes that the land use reform movement has been a mild success. It has produced desirable benefits, but it has also reduced the availability of housing, favored large developers, and done lit-

tle to stop exclusionary zoning. Problems have emerged because the movement has run counter to traditional attitudes, the popular view of private property rights, and the widespread expectation that developers and speculators can use land as they wish to make a buck. The movement also has suffered because of the brash arrogance of the early environmentalists and the recent resurgence of political conservatism. New nonregulatory approaches must be emphasized if land use objectives are to be secured at the present time. New program proposals should emphasize land consumerism. Consumers want lower cost land, adequate supplies of land for needed uses, low taxes, fair returns on investment, and policies that will provide growth and jobs.

This book ignores significant aspects of land policy, such as the legal and property rights issues, and it touches only lightly on others, such as options in policy and appropriate levels of administration. But Popper must be commended for what he has done. He has provided an interesting, perceptive, penetrating analysis of the politics of land use reform. He describes the problems and pitfalls groups face when they seek land use legislation, the pressures and obstacles they encounter, the compromises and concessions they must accept in the political accommodation process, the complications that affect the administration of programs once they are accepted, and the sometimes disappointing results that can be expected. Overall, the book provides excellent coverage of an often neglected topic; it is must reading for students of land policy and anyone else interested in the promotion of land use legislation.—**RALEIGH BARLOWE**, *Department of Resource Development, Michigan State University, East Lansing, 48824*.

General

Nitrogen in Relation to Food, Environment, and Energy. By Samuel R. Aldrich. 452 pp., illus., app., 1980. University of Illinois, Urbana, Ill. 61801.

The Ultimate Resource. By Julian L. Simon. 415 pp., illus., refs., app., index, 1981. Princeton University Press, Princeton, N.J. 08540. \$14.50, U.S. only.

Renewable Natural Resources. 56 pp., Report on the National Conference on Renewable Natural Resources, November 30-December 3, 1980. American

Forestry Association, Washington, D.C. 20036. \$4.00 to co-sponsors; \$5.00 to others.

Forests

Forest Cover Types of the United States and Canada. Edited by F. H. Eyre. 148 pp., refs., index, apps., map, 1980. Society of American Foresters, Washington, D.C. 20014.

A History of the Central States Forest Experiment Station, 1927-1965. By Robert W. Merz. 150 pp., illus., bibliog., 1981. U.S. Government Printing Office, Washington, D.C. 20402.

Proceedings of Minnesota Forest Resource Inventory Conferences, May 14 and 16, 1980. 121 pp., illus., 1981. Forest Service General Tech. Rpt. NC-64. North Central Forest Experiment Station, St. Paul, Minn. 55108.

Workshop on Seedling Physiology and Growth Problems in Oak Planting, Columbia, Missouri, November 6-7, 1979, Abstracts. Compiled by Paul S. Johnson and H. E. Garrett. 26 pp., 1981. Forest Service General Tech. Rpt. NC-62. North Central Experiment Station, St. Paul, Minn. 55108.

Primary Forest Products Industry and Timber Use, Michigan 1977. By James E. Blyth, Jack Zollner, and W. Brad Smith. 54 pp., illus., apps., tpls., 1981. Forest Service General Tech. Rpt. NC-55. North Central Experiment Station, St. Paul, Minn. 55108.

A Two-Plane Internally Irrigated Root Observation System for Forest Nursery Stock. By Paul S. Johnson, Charles W. Putnam, and William G. Mares. 6 pp., illus., refs., 1981. Forest Service Res. Paper NC-197. North Central Experiment Station, St. Paul, Minn. 55108.

An Economic and Energy Analysis of Popular Intensive Cultures in the Lake States. By Dietmar Rose, Karen Ferguson, David C. Lothner, and J. Zavitzkowski. 44 pp., illus., apps., 1981. Forest Service Res. Paper NC-196. North Central Experiment Station, St. Paul, Minn. 55108.

Evaluation of a Vest-Pocket Park. By Rachel Kaplan. 12 pp., illus., refs., apps., 1981. Forest Service Res. Paper NC-195. North Central Experiment Station, St. Paul, Minn. 55108.

The Effect of Initial Number of Trees Per Acre and Thinning Densities on Timber Yields from Red Pine Plantations in the

Lake States. By Allen L. Lundgren. 25 pp., illus., refs., 1981. Forest Service Res. Paper NC-193. North Central Experiment Station, St. Paul, Minn. 55108.

Minnesota's Aspen Resource. By Pamela J. Jakes. 4 pp., illus., 1981. Forest Service Res. Note NC-268. North Central Experiment Station, St. Paul, Minn. 55108.

Soils

Measurement and Prediction of Erosion and Sediment Yield. 23 pp., illus., refs., tpls., 1981. Science and Education Administration, Chickasha, Okla. 73018.

Soil Disturbance Caused by Clearcutting and Helicopter Yarding in the Idaho Batholith. By James L. Clayton. 7 pp., illus., refs., 1981. Forest Service Res. Note INT-305. Intermountain Forest and Range Experiment Station, Ogden, Utah 84401.

Water

Billions Could be Saved Through Waivers for Coastal Wastewater Treatment Plants. 55 pp., illus., apps., gloss., 1981. GAO Rpt. CED-81-68. U.S. General Accounting Office, Gaithersburg, Md. 20760.

Impact Uncertain from Reorganization of the Water and Power Resources Service. 18 pp., apps., 1981. GAO Rpt. CED-81-80. U.S. General Accounting Office, Gaithersburg, Md. 20760.

Effects of Mountain Home Developments on Surface Water Quality: A Case Study. By Howard L. Gary, Stanley L. Ponce, and Jim D. Dedrick. 6 pp., illus., 1981. Forest Service Res. Note RM-396. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo. 80526.

Fish and Wildlife

Songbird Populations and Clearcut Harvesting of Aspen in Northern Utah. By Norbert V. DeByle. 7 pp., illus., refs., 1981. Forest Service Res. Note INT-302. Intermountain Forest and Range Experiment Station, Ogden, Utah 84401.

A Bibliography of the Lesser Prairie Chicken, 1873-1980. By John A. Crawford and Fred A. Stormer. 8 pp., indexes, 1980. Forest Service General Tech. Rpt. RM-80. Rocky Mountain Forest and Range Experiment Station, Fort Collins, Colo. 80526.

Mule and Black-tailed Deer of North America. Compiled and edited by Olof C. Wallmo. 606 pp., illus., refs., bibliog., apps., index, maps, 1980. University of Nebraska Press, Lincoln, Nebr. 68588. \$29.95.

The Effects of Fire and Other Disturbances on Small Mammals and Their Predators: An Annotated Bibliography. 55 pp., refs., bibliog., indexes, 1981. Forest Service General Tech. Rpt.

INT-106. Intermountain Forest and Range Experiment Station, Ogden, Utah 84401.

Law, Legislation and Politics

Possible Ways to Streamline Existing Federal Energy Mineral Leasing Rules. 48 pp., apps., 1981. EMD-81-44. U.S. General Accounting Office, Gaithersburg, Md. 20760. Bound report, \$3.25; unbound, \$1.00.

The Federal Coastal Programs Review: A Report to the President. 331 pp., refs., tpls., apps., 1981. National Oceanic and Atmospheric Administration, Washington, D.C. 20235.

The Politics of New Town Planning: The Newfields, Ohio, Story. By Frederick Steiner. 266 pp., illus., 1981. Ohio University Press, Athens, Ohio 45701. \$16.95.

To Continue or Halt the Tenn-Tom Waterway? Information to Help the Congress Resolve the Controversy. 138 pp., illus., map, 1981. GAO Rpt. CED-81-89. U.S. General Accounting Office, Gaithersburg, Md. 20760.

Hazardous Waste Sites Pose Investigation, Evaluation, Scientific, and Legal Problems. 65 pp., 1981. GAO CED-81-57. U.S. General Accounting Office, Gaithersburg, Md. 20760.

Natural Areas

Protecting Wetlands: What You Should Know. Illus., 1981. American Littoral Society, Highlands, N.J. 07732.

Outdoor Recreation

Use Patterns and Visitor Characteristics, Attitudes and Preferences in Nine Wilderness and Other Roadless Areas. By Robert C. Lucas. 89 pp., illus., refs., app., 1980. Forest Service Res. Paper INT-253. Intermountain Forest and Range Experiment Station, Ogden, Utah 84401.

One Third of Our Time? An Introduction to Recreation Behavior and Resources. By Michael Chubb and Holly R. Chubb. 742 pp., illus., gloss., bibliog., index, 1981. John Wiley & Sons, Inc., Somerset, N.J. 08873. \$24.95.

Some Recent Products of River Recreation Research. 61 pp., illus., 1981. Forest Service General Tech. Rpt. NC-63. North Central Experiment Station, St. Paul, Minn. 55108.

Pesticides

How to Make Chemical Application Easy and Precise. 23 pp., illus., 1981. Hiniker Company, Box 3407, Mankato, Minn. 56001.

Agriculture

Environmental Protection and Biological Forms of Control of Pest Organisms. By B. Lundholm and M. Stackerud. 171 pp., illus., index, 1980. Ecol. Bull. 31.

The Editorial Service, NFR, Box 23136, S-104 35, Stockholm, Sweden. \$25.00.

Design and Operation of Farm Irrigation Systems. Edited by Marvin E. Jensen. 725 pp., 1981. American Society of Agricultural Engineers, St. Joseph, Mich. 49085. \$44.95.

Irrigation: Challenges of the 80's. Proceedings of the American Society of Agricultural Engineers Second National Irrigation Symposium, October 1980. 252 pp., illus., 1981. ASAE, St. Joseph, Mich. 49085. \$25.00.

Earthcare—Ecological Agriculture in Saskatchewan. 240 pp., 1981. Earthcare, Box 1048, Wynyard, Saskatchewan S0A 4T0. \$12.00, plus 75¢ for mailing.

Crop Production with Conservation in the 80s. Proceedings of the American Society of Agricultural Engineers Conference on Crop Production with Conservation in the 80's, December 1980. 288 pp., illus., 1981. ASAE, St. Joseph, Mich. 49085. \$27.50.

Fertilizers and Soil Amendments. By Roy H. Follett, Larry S. Murphy, and Roy L. Donahue. 557 pp., illus., app., 1981. Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632. \$24.95.

Managing the Farm Business. By Stephen B. Harsh, Larry J. Connor, and Gerald D. Schwab. 384 pp., illus., app., index, 1981. Prentice-Hall, Inc., Englewood Cliffs, N.J. 07632. \$18.95.

Federal Charges for Irrigation Projects Reviewed Do Not Cover Costs. 153 pp., illus., tpls., app., 1981. PAD-81-07. U.S. General Accounting Office, Gaithersburg, Md. 20760.

Effects of Sheep Grazing on a Riparian-Stream Environment. By William S. Platts. 6 pp., illus., 1981. Forest Service Research Note INT-307. Intermountain Forest and Range Experiment Station, Ogden, Utah 84401.

Experimental Designs for Predicting Crop Productivity with Environmental and Economic Inputs for Agrotechnology Transfer. Edited by James A. Silva. 179 pp., illus., 1981. Dept. Paper 49. College of Tropical Agriculture and Human Resources, University of Hawaii, Manoa, Hawaii.

Common-Cents Conservation. 20 pp., illus., 1981. Deere and Company, Moline, Ill. 61265.

Southern Forest Range and Pasture Resources: Proceedings of a Symposium, New Orleans, Louisiana, March 13-14, 1980. Edited by R. Dennis Child and Evert K. Byington. 268 pp., illus., 1981. Winrock International Livestock Research and Training Center, Morrilton, Ark. 72110. \$8.00.

Irrigation—The Hope and the Promise. Proceedings of the Irrigation Technical Conference, Salt Lake City, Utah, February 15-18, 1981. The Irrigation Association, Silver Spring, Md. 20906. \$12.00.