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Cover: Horses graze on lush range in the foothills of the Sierra Nevada, Kern County, California. Soil Conservation Service photo by Ron Nichols.
To be on your team?

We were schooled in the fine points of professional behavior. We left conviction that answers to technical questions within our field of expertise are discovered mainly through the application of our analytical skills.

Yields and profitability were declining on many farms. The switch to monoculture, embracing economies of scale. For a time, farmland rehabilitation programs were considered anathema. Was this thinking influenced by the "bigger is better" theory! This system seems to work in the area of resource management, but let us not lose sight of the fact that we are dealing with natural resources. To this end, SWCS seeks through the Journal of Soil and Water Conservation and other programs to emphasize the interdependence of natural resources and thereby to educate people so that they can use and enjoy these resources forever.

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The Soil and Water Conservation Society
is a multidisciplinary organization dedicated to promoting the science and art of good land and water use worldwide, with emphasis on the conservation of soil, water, and related natural resources, including all forms of beneficial plant and animal life. To this end, SWCS seeks through the Journal of Soil and Water Conservation and other programs to emphasize the interdependence of natural resources and thereby to educate people so that they can use and enjoy these resources forever.

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Sensible pesticide application

Concern about environmental contamination has motivated the development of Environmentally Responsible Pesticide Application Techniques (ERPA). This is the control of pests with the least amount of pesticide to reduce environmental impacts. An ecofallow study showed that, by applying the pesticide with 130-μm drops and 1 gallon per acre of water, four to six times more pesticide was deposited on the target plants, two-inch high barley in stubble, as compared to conventional application techniques. In theory, this reduces the amount of pesticide required and the environmental impact of it. Other studies have shown increased herbicide efficacy, with 130-μm-drop application, by two to four times. This makes ecofallow economically justifiable with its ability to reduce soil degradation and erosion.

These findings have significant ramifications for herbicide applications. Water volumes can be reduced 10-fold, allowing farmers to spray at less cost. Low amounts of carrier allow fields to be sprayed with lighter and higher speed spraying equipment, which, in turn, allows for larger numbers of acres to be sprayed per hour. In some cases this may eliminate the need for a water truck and another person. The 130-μm drops must be applied with a shrouded sprayer that keeps the drops on target and stops drift even in windy conditions. They also keep drift off the operator. At least five different shrouded sprayer models are currently available in the industry.

The ERPA research project is aimed at achieving control with the least amount of herbicide applied more safely and at the appropriate time. If adopted by the industry, this methodology would reduce the chemical load on the biosphere yet, in fallow situations, retain stubble to reduce wind and water erosion. ERPA application technology is new, not yet generally accepted by herbicide companies, and suffers from a lack of continuing research funding that precludes ultimate development to a recommendable state.

Farmers have encouraged this research because of their environmental concerns. Many farmers are concerned with the ultimate cost and environmental damage resulting from current methods but believe that crop protection agents are essential in maintaining economically viable operations. When a new technology has economic justification and is environmentally positive, they want to adopt it.

R. Barry Rogers
Saskatoon, Saskatchewan

Objectivity needed

One commonly heard argument for benefit-cost analysis is that while benefit-cost comparisons never should be the sole determinant of policy the computational exercise does introduce some needed objectivity. And yet in the process of calculating a benefit or cost number, all too often the analyst slips in one or more assumptions that drive the results. Conclusions that at first appear “scientific” and “objective” are really no better or worse than those made the old-fashioned way: with experience and judgment.

I am reminded of this by the article by Ribaudo and associates [JSWC, “The Economic Efficiency of Voluntary Soil Conservation Programs,” January-February, 1989, pages 40-43]. Off-site benefits of erosion reduction were assumed to be proportional to reductions in annual soil loss or “...some parameter related to soil erosion, such as sediment discharged to waterways.” Given this assumption and the fact, as they note, that “the opportunity for erosion reduction was much greater on land eroding at higher rates,” it is not surprising that benefits per acre were found to be much higher at higher rates of erosion.

But their key assumption of proportionality is hardly a universal truth. Other analyses by Gianessi and colleagues [JSWC, “Nonpoint-source Pollution: Are Cropland Controls the Answer?” July-August, 1986, pages 215-218] support the more conventional assumption of diminishing returns: At high (and very low) erosion rates, damages (and benefits of reducing damages) are not proportional. Therefore, it is quite possible that in many regions targeting towards heavily eroded land would produce little or no benefits.

I do not know how the introduction of the assumption of diminishing returns would affect their numbers or what the right numbers are. I am fairly confident that these “right numbers” are different—perhaps greatly—from those reported in the paper. Most people would agree with their conclusion that “better targeting” will improve benefit-cost ratios and bring about better policies. However, I cannot be sure that their paper aims the U.S. Department of Agriculture in the right direction or, at least, in directions different from those determined by the more qualitative, “less objective” techniques currently in use.

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This book consists of edited papers from a workshop on “Soil and Water Conservation on Steep Lands” held in Puerto Rico in 1987 under the joint sponsorship of the Soil and Water Conservation Society and the World Association of Soil and Water Conservation.

The book is concerned with conservation of both soil and water on steep agricultural lands in developing countries. It is very useful and practical. There are more than 30 papers that present a wealth of information and accumulated knowledge regarding do's, don'ts, and difficulties in conceiving, preparing for, and executing such conservation projects.

The papers frankly report failures and reasons for them, as well as bases for successes. The historical reviews and evaluations of some field projects are particularly valuable. They provide information and insights that need to be considered carefully when donors contemplate involvement in and support for soil and water conservation projects or related activities in developing countries. The specific examples of the benefits of well-conceived and executed in-country training programs, of the need for preproject socioeconomic studies, of the imperative need for full involvement of the farmers concerned in planning as well as execution of projects, of the wastefulness of most overseas training for nationals from developing countries, and numerous other helpful details provide exceedingly useful guidance for donors and individuals who have the wisdom to profit from them when contemplating or planning soil and water conservation projects in developing countries. A forthright statement to the effect that in developing countries mechanical systems of soil conservation farming on steep slopes are seldom practical or economic is especially important. Not only is there a list of criteria that contribute to successes, there is also a list of actions or policies likely to cause failures in soil and water conservation projects.

There is very strong support for the urgings of the World Commission on the Environment and Development that researchers and extension personnel need to be fully conversant with the socioeconomic conditions and agricultural constraints with which farmers must grapple. There is also commendable realism regarding some of the motivations, problems, and attitudes of recipient governments and administrations, as well as in
development assistance agencies. Perhaps there should be a small brochure for both donor and recipient administrators consisting of selected experts from this book.

Realism demands that it be acknowledged that not even “rural development approaches aimed at increasing production and responding to people’s needs” can enable sustainable economic agriculture on excessively difficult steep lands even if population pressure and social conditions force people to attempt farming there. But where sustainable agriculture is possible on steep lands, applications of the knowledge and information in this book can contribute importantly to making the farming of steep lands successful and enduring.—C. F. BENTLEY, Edmonton, Alberta.


*Ramblings on Soil Conservation: An Essay from Kenya* is an unusual addition to soil conservation writings. It is charmingly written. But it is also perceptive and should be read by all soil conservationists concerned with planning or implementing soil conservation programs. The author is a social anthropologist and curator of the African Section of the Ethnographical Museum of Sweden. He has spent much time in Kenya, working for the Swedish International Development Authority (SIDA) on its soil conservation program, particularly on the assessment of its results. Compared with most other soil conservation programs in Africa, the SIDA program in Kenya is one of the most successful. But this is not the usual glowing, uncritical report. Ostberg paints a realistic picture and points out the failings and the weaknesses, as well as the successes. At a time when soil conservationists are realizing that their programs can only be effective when they are based on a deep understanding of the objectives, aspirations, and constraints of the small-scale farmer, this essay is a welcome and useful contribution.—N. W. Hudson, International Center for Soil Conservation Information, Amphill, England.

**General**


*The Challenge of Global Warming.* Edited by Dean Edwin Abrahamson. 356 pp., illus., refs., index, 1989. Island Press, Washington, D.C. 20009. $34.95, cloth; $19.95, paperback.

**Soils**

*Classification, Management and Use Potential of Swell-Shrink Soils.* 267 pp., illus., tabs., index, 1989. A. A. Balkema Publishers, Old Post Road, Brookfield, Vermont 05036. $45.00.

*Minerals in Soil Environments, second edition.* J. B. Dixon and S. B. Weed, editors. 1,264 pp., 1989. SSSA, Book Order Department, 677 South Segoe Road, Madison, Wisconsin 53711. $90.00, plus postage on all orders outside the U.S.

**Land Use**

*Plowing the Urban Fringe.* Edited by Ha. D. Heimstra and Nancy B. Bushwick. FAU/FIU Joint Center, Fort Lauderdale, Florida 33301. $15.00.

**Law, Legislation and Politics**