Features

182
Viewpoint: Soil conservation
Institutions of the future
Harold F. Breimyer offers some predictions about soil conservation programs

184
The Civilian Conservation Corps: Demonstrating the value of soil conservation
Douglas Helms relates how CCC efforts served as the basis for a national soil conservation program

189
Agriculture in the South: Conservation’s challenge
Robert G. Healy and Robert E. Sojka trace the progress of agriculture in the South and what the consequences have been for natural resources

195
Agricultural technology and conservation in the Southern High Plains
O. R. Jones, P. W. Unger, and D. W. Fryrear assess the impacts of agricultural technology on the region’s land and water resources

199
Conservation tillage: Revolution or evolution
Peter J. Nowak and Peter F. Korschning present some new facts about how many farmers really practice conservation tillage

202
Geographic information systems for natural resource management
Stephen J. Walsh explains how geographic information system aided managers in a nonpoint-source pollution analysis

206
Improving soils with livestock manure
John M. Sweeten and Aubra C. Mathers review what is known about manure’s effects on soil characteristics

211
The dynamics of organic matter in grassland soils
D. W. Anderson and David C. Coleman describe the need to maintain organic matter in semiarid regions

217
Commentary: Conservation easements: A credit crisis compromise
Duane Sand contends that easements can achieve conservation goals and ease farm credit problems

218
Commentary: The 1985 farm bill: A turning point for soil conservation
Ken Cook analyzes support for a conservation reserve and sodbuster policy

Departments

178
Pen points

221
In the news

226
Upcoming

228
Books, etc.

256
The SCSA view

Research reports

231
Determining soil aggregate stability with a rapid rotary sieve
Donald W. Fryrear

233
Using simulation to assess the impacts of conservation tillage on movement of sediment and phosphorus into Lake Erie

237
Modeling the cumulative effects of forest practices on downstream aquatic ecosystems
G. O. Klock

242
Use of Landsat multispectral scanning data for soil surveys on the Arizona rangeland
R. D. Roudabush, R. C. Herriman, R. L. Barmore, G. W. Schellenenger

246
Economics of winter cover crops as a source of nitrogen for no-till corn
W. W. Frye, W. G. Smith, R. J. Williams

249
Revegetation of mined land: Influence of topsoil depth and mulching method
G. E. Schuman, E. M. Taylor, Jr., F. Rauzi, B. A. Pinchak

252
Differential farmland assessment and land use planning

256
The SCSA view


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.

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Nonpoint water pollution: A “10”

The special JSWC issue, “Nonpoint Water Pollution,” scores a 10 in my book. It contains information for all levels of SCSA’s professional membership and clearly states the challenges ahead in this elusive, sensitive subject area.

Having spent 12 years in formulating and implementing a nonpoint-source pollution abatement program in Ohio gives me license to offer a few insights not mentioned in the issue. The article “The Conservation District Role in Nonpoint Pollution Control” [p. 621] leaves the impression that NACD [National Association of Conservation Districts] and SCS [Soil Conservation Service] were the prime movers behind districts’ involvement in nonpoint pollution. Maryland in 1967, Ohio in 1969, and Iowa in the early 1970s moved independently with their districts in addressing nonpoint pollution. Maryland initiated urban sediment control action, Ohio initiated action on both agricultural pollution (sediment, chemical, animal waste) and urban sediment control, and Iowa created a comprehensive agricultural erosion control program. These states and conservation districts in them received little attention from NACD or the Washington level of SCS, although we in Ohio and others had sought their attention. Ultimately, of course, NACD and SCS got on the bandwagon and contributed to many other states’ efforts.

The dollars and sense can be easily illustrated. Diversification into forage-grain-livestock set ups with the help of mobile fencing will slash production costs: preparing seed beds, fertilizers, pesticides, harvesting, storage, handling, manure. Including forages in rotations will save soil and water, build soil, stop pollution, and create a more sanitary product. Being diversified will give farmers broader marketing options and a buffer against weather, crop, and market conditions. A $100-per-acre improvement in the bottom line is not hard to pencil.

This is a disaster, and the article on districts as well as the panel discussion [p. 37] both fail to give any direction on this count. There was considerable support originally by states and districts to have funding for federal nonpoint pollution abatement channeled through the congressional Public Works Committee, not Agriculture, in concert with point-source pollution control funding. The Public Works Committee expressed a desire to consider funding for nonpoint control efforts because its funding for pollution abatement facilities was addressing point sources only. Municipal sewage treatment facilities were receiving a 75 percent federal subsidy. However, the federal agricultural agencies and NACD refused to pursue funding through the Public Works Committee, that is, EPA [U.S. Environmental Protection Agency]. They chose instead to pursue a token funding level through USDA [U.S. Department of Agriculture]. The result was essentially no money, interagency squabbling, and no assistance to states and conservation districts. This action no doubt will prove detrimental to nonpoint pollution programs for at least another decade or two. It was not a logical budget item for USDA, nor was Congress going to increase USDA’s budget sufficiently for this new effort at the expense of existing programs. It was and remains today an environmental program, and it should be funded as such.

Three additional points that may seem trite but are highly significant in nonpoint pollution control efforts are the following: (1) Federal funds can be spent more effectively and efficiently through state and local governments. (2) Cost-sharing with public funds must provide a means for recovery of the public’s investment if practices are not maintained or replaced by equal or better practices. Many states and conservation districts already require such a commitment, without landowner objection. Why not the federal government? (3) A successful nonpoint program must have state backup enforcement capacity that is used only as a last resort. Unfortunately, EPA welched on its original requirement of enforcement capability in 208 plans in 1978. That requirement ought to be reinstated as an aid to state and local efforts. Agriculture is ready to accept a well-structured and fair nonpoint pollution abatement program.

As professional and practicing conservationists, a major portion of our goals could be attained through an efficient, practical nonpoint pollution abatement program.

Floyd Heft
Division of Soil and Water Conservation (retired)
Columbus, Ohio

It is a terrific special issue on nonpoint [water pollution]. Bully for you.

Terry Hershey
Houston, Texas

I am reading the January-February 1988 issue of the JSWC with great interest. The panel discussion “Nonpoint-Source Water Pollution” expresses how farmers don’t like to be told, incentives aren’t immediate enough, political action takes forever, and that a precise step-by-step plan after all the information is in is not immediately necessary. Here is a contribution. Incentives are felt the most in the pocketbook. You know well my idea of “quick-and-easy mobile fencing” as the economic link to profitable soil conservation. My thinking has matured since first beginning this project. I am saying the same thing, but coming at the solution from a more basic premise. The theme is “diversification of individual farm units.” The key to profitable diversification is mechanized fencing.

The dollars and sense can be easily illustrated.

Diversification of forage-grain-livestock set ups with the help of mobile fencing will slash production costs: preparing seed beds, fertilizers, pesticides, harvesting, storage, handling, manure. Including forages in rotations will save soil and water, build soil, stop pollution, and create a more sanitary product. Being diversified will give farmers broader marketing options and a buffer against weather, crop, and market conditions. A $100-per-acre improvement in the bottom line is not hard to pencil.

This bold stroke of tilting American agriculture toward diversification will do more than any amount of plans and incentives of this, that, and the other description to achieve the goals desired, be they practical, idealistic, or dramatic.

Agricultural economists should all put their pencils to calculating the savings and benefits to show agribusiness the results of dovetailing resource uses through diversified individual farm units. A concerted effort by agricultural schools, extension agents, SCS, conservation districts, and SCSA would turn the practices of land destruction and pollution 180 degrees toward soil conservation, stopping pollution, and preserving our precious resources, plus boosting the full pocketbook.

I appreciate the professional integrity that must be maintained. But I truly
think efforts toward soil and water conservation won't get anywhere until the means and incentives are made clear.

Robert S. Hulburt, M.D.
Chicago, Illinois

The nonpoint source panel may have reached a consensus, if only an oblique one, that conservation regulations are the missing gear in the transmission that impels American agriculture. That says something for metamorphosis when you consider that at least four of the nine panel members were schooled (professionally) to abhor land practice regulations. Probably five years ago, had even a panel of 100 members been assembled, not one would have harbored a regulatory conviction or at least held the belief that a regulatory agenda was worth the political suffering predicted for it.

Without the mandatory conservation gear, agriculture’s transmission has no capability other than to treat all topography as if it were level and all soil as if it were prairie-deep, and to treat all water as if purification through the water-cycle was dedication enough. We don’t build tractors with one gear and we shouldn’t build agricultural policy around one gear either.

Each day the realization grows (among conservationists) that what the government should control is not the volume of the harvest...that is for a prudent market and skilled producers to say, but rather where and how the harvest is conducted...that is where the future is entitled to have a say. Conservation speaks to the questions of where and how and to these only. When and why are questions for economists to foul up at their leisure.

If coincidently by insisting on reduced soil and water damage that also reduces crop surpluses and asserts a better promise for economic analysis, land pricing, and technology development then we will have killed numerous birds with one stone. Five years ago agriculture had nothing to compare the predicted economic pain and political suffering of regulation with. Now it has! And clearly the pain of regulation pales in the blizzard of the current agricultural depression. It seems to me any farmer, or farmer’s representative, or any pitty-flaunting urban legislator who in the future speaks fear of conservation regulations has a very abnormal concept of pain.

As to the agenda for conservation regulation, unfortunately number 1 on the hit charts is the ballad of farm bankruptcy. Despite this political diversion, conservationists should be committed to putting regulations in place by 1990. Emphasis should be placed on persuading statehouses, not squandered on converting or appeasing a sword-and-shield administration (although the administration’s negative attitude toward commodity subsidies does not conflict with conservation strategy). I would like to see the next SCSA panel—and I hope there is one—convened on the premise that with regard to mandatory conservation regulations we can dispense with the question of whether and move to where and how.

Dale Marsh
Madison, Wisconsin

Good farming is...

Like Daniel M. Rosswurm, Robert Rodale, and others (see “Merger is a Must,” JSWC, November-December 1984, p. 346), I support the need to rethink our approaches to soil conservation and how it can be integrated into agriculture. Something is awry if Ken Cook can state (same issue, p. 368): “It would not be an exaggeration to say that without conservation tillage the soil conservation movement would be looking and feeling quite decrepit in 1985, even at the tender age of 50.”

In trying to identify some signposts to the way forward, it seems to me that five points are important, among others: 1. Accelerated soil erosion is a predictable and ecological consequence of inappropriate land use, not a cause of land degradation per se. We seem to have

Where flows the Snake?

On page 49 of the January-February 1985 issue of the JSWC, the map shows the Snake River draining into the Missouri. Not so! It drains into the Columbia and forms part of the border between Oregon and Idaho as it does so.

‘Tis bad enough that some Californians talk about taking our Columbia River water; let’s not get mid-westerners into the act, too.

W. E. Bullard
Portland, Oregon

Where flows the Snake?

March-April 1985 179
been spending a disproportionate amount of time and energy in tackling erosion as a primary cause of the problem and paying too little attention to ameliorating the land use conditions that have allowed this ecological readjustment process to be set in motion. This new viewpoint about erosion allows us to break out of strait-jacketed thinking about "soil conservation," and explore more courageously, together with farmers, how best (and most acceptably) to marry the ideas of agriculture and conservation.

2. Estimates of world food needs in coming years made by FAO [U.N. Food and Agriculture Organization] indicate that the bulk of the required increases will have to come from higher productivity per unit area of lands already in use, rather than from more expansion into hitherto uncultivated lands. This implies intensification in the use of land (often anathema to dedicated "soil conservers"). But here is our greatest technical challenge: How best can we intensify the use of land, without destroying it as we have so often managed to do in the past? Some pretty radical changes will be needed if we are to achieve this.

3. Maintaining and strengthening the auto-recuperation capacity of soils—which resides primarily in their organic matter and organic processes—is clearly an essential part of the needed strategy, both to promote soil formation from the top down and to maximize the rate of recuperation of productive capacity after damage to the soil.

4. Maintenance and/or lasting improvement in the biological, physical, chemical, and hydrological characteristics of soils throughout their effective rooting depths will be crucial to success.

Our concerns about soil management are usually as deep as the top layer, yet it is immediately below this that serious problems of compaction, reduced permeability, and the like are often found as a result of inappropriate tillage activities.

5. It is no coincidence that more vegetative matter per hectare provides both bigger harvests and more protection to the soil. Nor is it a coincidence that better soil conditions throughout the effective depth favors higher vegetal production at the same time as promoting good water infiltration, reduced runoff, better water-holding capacity, and more regular supplies of groundwater to streams and rivers.

With our complex equations and heavy machinery we seem to have buried the old adage that "good farming is good conservation." It is time to bring it up to the surface again and consider its many implications for policies and strategies for future food production, especially in the developing world.

T. F. Shaxon
Brasilia, Brazil

Too many trees?

Observation with which I am familiar invariably suggests a sort of inverse relationship of tree density to erosion: the more nearly complete the tree cover—or any other vegetation—the less the soil loss. Mr. Sauerwein [JSWC, November-December 1984, p. 348] alleges an opposite effect—that surface erosion begins when the pinyon-juniper forest fully occupies the growing space available to it. What is the evidence that this 180-degree departure from the conventional wisdom is real? Has it been validated by controlled research?

James H. Patric
U.S. Forest Service (retired)
Alexandria, Virginia

Organics: Synthetic or natural

Concerning the problem of organic contaminants in sewage sludge [JSWC, November-December 1984, p. 347]: I feel this material should be named synthetic or manufactured organic contaminants since most of these compounds do not occur in nature. The real organic products are beneficial, not harmful.

The best way to avoid carcinogenic and tetratogenic contaminants in sludge is to advance non-harmful insect controls, such as crop rotation, strip cropping, fencerows, and biodegradable sprays, including blend insect spray, soap spray, and bacillus thurengensis. In the house, simple products, such as baking soda, vinegar, and ammonia, should replace many complex, additive-laden products which eventually become a part of sludge. These products are coming into use much faster than they can be tested.

Joseph B. Armstrong
Bardstown, Kentucky

Workers waiting in the wings

In 1919 I promised myself that I would spend what time and money I could with the rural development programs of Oklahoma. Through the years, I have worked with dozens of programs, too many to mention. I have been a conservation district director for 39 years; I helped to create and was a member of the Oklahoma Water Resources Board for 22 years; and I have practiced dentistry in rural Oklahoma for 60 years.

I am not alone in thinking that too few of our citizens realize that there could be a food and water famine in the future. Having come to the conclusion, I believe that the alarm should first come from the White House.

There would be no cities if it were not for rural areas. Because the larger part of the U.S. population is in the cities, people forget or were never informed that the food they consume and the water they drink, plus water clean, comes from rural areas.

Therefore, I would conceive that the message come from the White House and its staff, together with the Congress, and on to the Governors of the states, then from their offices to the precincts.

We have the finest expertise in the world when it comes to our state and federal entities. A nation is only strong when it has an abundance of natural resources, which should be the number one priority. There are many unemployed men, women, and children who, given the opportunity, could work, lift their environment, and live. In the future, there are millions of unemployed men, women, and children who could help as part of their rehabilitation. If these people could be used to work on such a program, the value of these natural resources would be far more greater than the cost. And a stronger, better our land, water, and air.

In addition, there are millions of and into use much faster than they can be tested.

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These three works are written with the same objective: to stimulate public action to protect soil resources. Soil Conservation addresses soil conservation in the United States; Soil at Risk addresses soil conservation in Canada; Soil Erosion addresses soil conservation throughout the world. The three studies vary considerably, however, in their level of sophistication.

The American Farmland Trust (AFT) document reflects the contributions of many individuals knowledgeable about soil conservation, soil conservation policy, and agricultural policy in the United States. Twenty authors contributed 22 technical papers that served as background material for the document. Also, some information from a survey of 700 farmers was incorporated into the book. Soil Conservation also relied heavily on past U.S. Department of Agriculture (USDA) studies of soil conservation programs for information. Advisors to AFT in the preparation of the book included people who knew the strengths and weaknesses of these analyses.

Such a plethora of contributions could easily be unmanageable, and the results could have been volumes of data, thoughts, and opinions that failed to be cohesive information. Fortunately, such is not the case. Ken Cook, the principal writer for the book, skillfully wove his and others' knowledge about soil conservation into a readable, useful document. Cook examines what is known about the linkages between soil productivity and erosion and, to a lesser extent, between water quality and soil erosion. A chapter is devoted to identifying the nature and extent of cropland erosion and the distribution of adopted conservation practices. This same chapter also examines the effectiveness of various conservation practices. The third chapter briefly details the nature of today's farming—production trends, inputs used, farm specialization, and the relationship between farm programs and soil conservation.

The next chapter contains a reasonably thorough examination of the past performance of Canada's Soil Conservation programs. AFT has done a service making accessible this crucial information for improved soil conservation policies. The remaining chapters contain the implications for improved policies—at least as perceived by AFT.

The study goes beyond the analysis of the existing situation and develops 33 recommendations for federal conservation program modifications. While all policy participants may not agree with the wisdom of all these recommendations, the motivation and justification for each recommendation is clearly presented. Soil Conservation is an important addition to the reading list of the conservation community.

Soil at Risk is also a book aimed at influencing policymakers. It also contains policy recommendations. But it contrasts sharply with the AFT document in that it contains little analysis of soil erosion problems in Canada or those Canadian institutions that influence conservation behavior.

The book is a report by the Standing Committee on Agriculture, Fisheries, and Forestry to the Senate of Canada. The chairman of the Standing Committee, the Honorable H. O. Sparrow, notes that the committee undertook soil degradation following a small airplane flight over Saskatchewan taken by Mr. Sparrow: "Like many farmers, I knew that salinization was a problem, but until that time I had not realized just how much of the productive land of our breadbasket was threatened by soil degradation." As a result of Mr. Sparrow's concerns, the committee undertook an investigation of the Canadian soil resource. The recent nature of the investigation is somewhat surprising in that Canadian agricultural resources appear to be relatively scarce: less than 10 percent of the land is capable of cultivation and the country's best farmlands lie near the population centers in Ontario and near Vancouver—so nonagricultural competition for croplands is of concern. Furthermore, the average Canadian cropland acre is significantly less productive than the average U.S. cropland acre because of short growing seasons and inhospitable climatic conditions.

Soil at Risk is a report on the committee's findings. It contains, almost exclusively, anecdotal material obtained from interviews with citizens across Canada. It focuses entirely on soil resource conditions, including salinization, acidification, contamination, compaction, mineral mining, and conversion to nonagricultural uses, as well as erosion.

The report is preliminary. Canada has different institutions, different monetary and fiscal policies, and different agricultural conditions than the United States. Yet, the committee appears to consider U.S. conservation institutions as possible models for Canadian conservation efforts. (However, the committee does not demonstrate much knowledge of the nature or success of that experience; they would benefit from reading the AFT book). The differentiation of powers between the provinces and the federal government—where the provinces control education and extension activities, but the federal government controls research funds and contains the traditional "soil conservation agents" (e.g., Prairie Farm Rehabilitation Administration personnel)—does not bode well for adoption of the U.S. system. Similarly, the committee recommends modification of the Canadian quota system of marketing to discourage farmers' use of marginal lands. While this may be an appropriate strategy for soil conservation, there is no analysis of the impact of changing the system, nor is there any consideration of unintended impacts of such a change. The unintended impacts may include changes in property values or in the distribution of revenues from the sale of agricultural commodities. The committee's recommendations do not appear to stem from a comprehensive policy analysis.

But what Soil at Risk attempts is not so much informed policymaking as the addition of soil conservation to the policy agenda. The committee strives, in a preliminary way, to capture enough attention to make soil conservation a priority issue for Canada.

on soil conditions. The authors resort to anecdotal material and indirect evidence of soil degradation problems, such as silt loads in the various world river basins. The evidence is pieced and patched together under several section headings—the causes of soil erosion, the dimensions of the problem, erosion's indirect costs, the economics of conserving soil, the governmental role, and the global balance sheet.

Brown and Wolf view soil degradation as a threat to world food security. They generalize from anecdotal evidence to all soil resources in their attempt to develop a persuasive case that the world is experiencing a "quiet crisis" in the degradation of the world's soil resources. The author's single-minded pursuit of this goal sometimes leads them to overstate or misstate a situation. For example, they refer to the "incessant growth in demand for agricultural products that contributes to soil erosion...such as [in] the American Midwest [where] many farmers have abandoned ecologically stable long term rotations...." American farmers would be surprised to hear that there has been an incessant growth in demand for their agricultural products. As the AFT book discusses, one of the reasons for U.S. erosion problems relates to U.S. farm programs that have kept prices of agricultural commodities high in face of inadequate world demand.

Brown and Wolf also use a few U.S. case studies to document that erosion can lead to loss of soil productivity. The reader of Soil Erosion, in contrast to the reader of Soil Conservation, is not given information about how fertilizers and other improved inputs can compensate for fertility impacts on eroded soils, nor are they informed about the limits of generalization from these few case studies. Indeed, the authors of Soil Erosion conclude: "It would not be unreasonable to assume that a similar relationship between soil erosion and land productivity exists in other countries, for the basic agronomic relationships remain the same." The ultimate result is assumed to be widespread "declining productivity over the long term and the eventual abandonment of land, if not by this generation then by the next. In the absence of a governmental cost-sharing program similar to those used so effectively in the past, a farmers' only choice is whether to go out of business sooner or later."

Such over simplification of complex issues is not useful. In some regions, erosion will lead to declining productivity that can not be economically offset by the use of other inputs. In other regions, soil erosion's main impact is on water quality and not on soil productivity. Some areas have little soil erosion because of good farming practices, favorable climatic conditions (e.g., gentle, noneroding rain), or the type of agriculture present. In the United States, for example, just 6 percent of total cropland accounts for 43 percent of the sheet and rill erosion. Furthermore, as the AFT book details, U.S. cost-sharing programs have not been used effectively in the past. Worldwide imitation—without modification—of this U.S. institution would not result in much soil conservation.

The lack of attention to the complex nature of the soil erosion problem, the tendency to use superlative descriptions, and occasional inaccuracies will bother the academic reader of Soil Erosion. But with so little attention given to world resource depletion problems and so little genuine research available, the authors are to be commended for generating interest in knowing and doing more about worldwide erosion problems. However, the authors have foregone an opportunity to provide more of a contribution in their section on the role of the government. While documentation and literature on various nations' conservation programs are difficult to locate, they do exist. Comparing and contrasting these programs would have been of considerable interest. Instead, Brown and Wolf advocate that policymakers should assess soil erosion problems and educate their citizens. They include a long discussion of the Kenya program as their only example of possible models for other nations. What could have been their strongest section was instead their weakest.
Together the three documents—Soil Conservation, Soil at Risk, and Soil Erosion—provide an interesting spectrum of soil conservation studies. While they all seek to generate improved public awareness and stimulate public action, only one—Soil Conservation—provides the analysis necessary for informed public choice.—SANDRA B. BATIE, Department of Agricultural Economics, Virginia Polytechnic Institute and State University, Blacksburg, 24061.


In For Love of the Land Neil Sampson meticulously records 50 years of soil conservation activity from the 1930s through the present day. The book is more than the history of the National Association of Conservation Districts, however. It has all the elements of a historical novel, except that it is factual.

Sampson credits Hal Jenkins, who started the history in 1971, and Gordon Zimmerman, who also worked on it prior to his death, for their contributions about the "early years," based on their experience. The combination of the three authors makes for an accurate, interesting tome.

For Love of the Land covers all the political struggles with the Congress and various administrations. It also records agency relationships and thrusts for power as related to the soil conservation programs. Agencies prominently mentioned include the Soil Conservation Service, Extension Service, and Agricultural Stabilization and Conservation Service (and its predecessor agencies). Other agencies, such as the Corps of Engineers, Forest Service, Farmers Home Administration, and U.S. Department of the Interior, are not omitted either. In addition to this record of agency relationships, there are recollections of confrontations and support that NACD had from other organizations, the American Farm Bureau, for example.

The period of the 1950s will be one of special interest to many JSWC readers. It marked the presidency of NACD's most colorful and dynamic leader, Waters S. Davis, Jr. Davis grew up on the Gulf Coast of Texas and served as the president of the organization for five years. He had been educated in the East and was a member of the New York Stock Exchange before returning to Texas to manage family ranching interests. He soon became involved in the local soil conservation district and saw the district law as a place for local people to have a role in governmental activities at all levels. Older readers will remember the move to dismantle the Soil Conservation Service in the 1950s. Many credit NACD and Davis especially as the individual who led a successful crusade to place soil conservation on a stable plane for the next 50 years.

The book ends with the 1970s with Davis's last letter to the local Soil Conservation District and with Davis's resignation, which he submitted in 1973. Davis started the widely read "Tuesday Letter" and established a national headquarters for NACD near his ranch at League City, Texas, devoting his own time and considerable financial resources to the organization. While the headquarters are now in Washington, D.C., the League City office remains a focal point for service to the nation's 3,000 conservation districts.

For Love of the Land contains 12 chapters, each of which is adequately described in the table of contents. I found it easy to locate material about specific interests. I tried to find an omission, but the closest I came to criticizing the book would be that it appeared more space was given to NACD's adversary organizations than to those groups who supported the organization along the way, for example, the 31 organizations that cooperated with NACD in the National Resource Conservation Conference. One feature readers searching for history will find beneficial is the year-by-year calendar of events in the appendix.

"Old timers" will find For Love of the Land an interesting account of the past. Those who are younger will want to read it as a means of understanding the experiences in soil conservation. The book certainly relates well how society has and is confronting the problem of soil conservation. Today, governmental support for soil conservation is again being tested. It will be interesting to see if NACD, with the support of local citizens, can again prevail to keep a viable program in place, as it has been for the past 50 years—H. WAYNE Pritchard, Des Moines, Iowa.

Guidelines for Increasing Wildlife on Farms and Ranches, with Ideas for Supplemental Incomes for Rural Families. Edited by F. Robert Henderson. 573 pp., illus., app., 1984. Extension Service, Kansas State University, Manhattan, 66506. $27.00.

No longer must the rancher or farmer be bewildered by the various land management opportunities for agricultural crops and wildlife. Thanks to the Wildlife Resource Committee of the Great Plains Agricultural Council, the information is now available in a highly readable and understandable publication.

About 100 technicians—wildlife and range scientists, managers, soil conservationists, foresters, and others—contributed to this monumental handbook. Great credit must be given to the handbook's editor, F. Robert Henderson, for organizing and editing this unique publication. The handbook was printed in loose-leaf style with a purpose so that new developments occur and supplements are available, they can easily be inserted into the handbook to keep the information up-to-date, or a specific subject can easily be extracted and copied for distribution.

The handbook has four major sections and an appendix. The "Basics of Wildlife Management" covers the benefits of wildlife, original habitats of the Great Plains, and habitats as they are today, by state. "Habitat Management" dwells on the principles, rangeland, farmland, woodland, water, aquatic habitats for waterfowl, and fish ponds. "Guidelines for Increasing Wildlife" provides specific recommendations for different species of fish, waterfowl, game birds, small game, big game, furbearers, and songbirds. "Income Opportunities" deals with approaches for state and federal extension specialists programs for wildlife on private land. The appendix has excellent references on teaching aids, legislation, and technical assistance. Wildlife is a source of enjoyment to a landowner and it has economic value.

More landowners are learning the long-term benefits of becoming conservation practitioners on their land instead of "miners." A steward seeks to live with the land by understanding its capabilities and limitations. But becoming a good land steward is no easy task. Too often one acts in haste—change for the sake of change—rather than self-analysis, study, and thought.

The first step of a farmer or rancher wanting to live in harmony with his or her land and to consider wildlife as a source of enjoyment and/or economic crop is to purchase this excellent handbook. Study the contents as it relates to your acreage, make some tentative decisions, then seek the help of state and federal extension specialists. There are no shortcuts to careful planning, but the lifetime dividends are worthwhile.—ED KOZICKY, Caesar Kleberg Wildlife Research Institute, Texas A&M University, Kingsville, 78363.

