

Nrcs General Manual 440

National Range and Pasture Handbook
Crop Modeling and Decision Support
Evaluation of Soil and Rock Properties
Design and Operation of Farm Irrigation Systems
Elements of Soil Conservation
Soil Taxonomy
Soil Survey Manual (New Revised Ed.)
Ponds - Planning, Design, Construction (Agriculture Handbook 590)
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A Framework for Assessing Effects of the Food System
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Farm Size and the Organization of U.S. Crop Farming
Hydraulic Design of Stilling Basins and Energy Dissipators
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Livestock's Long Shadow
National Forestry Handbook
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National Range and Pasture Handbook

"Wetlands" has become a hot word in the current environmental debate. But what does it signify? In 1991, proposed changes in the legal definitions of wetlands stirred controversy and focused attention on the scientific and economic aspects of their management. This volume explores how to define wetlands. The committee--whose members were drawn from academia, government, business, and the environmental community--builds a rational, scientific basis for delineating wetlands in the landscape and offers recommendations for further action. Wetlands also discusses the diverse hydrological and ecological functions of wetlands, and makes recommendations concerning so-called controversial areas such as permafrost wetlands, riparian ecosystems, irregularly flooded sites, and agricultural wetlands. It presents criteria for identifying wetlands and explores the problems of applying those criteria when there are seasonal changes in water levels. This comprehensive and practical volume will be of interest to

environmental scientists and advocates, hydrologists, policymakers, regulators, faculty, researchers, and students of environmental studies.

Crop Modeling and Decision Support

Evaluation of Soil and Rock Properties

Design and Operation of Farm Irrigation Systems

Elements of Soil Conservation

The publication *Keys to Soil Taxonomy* serves two purposes. It provides the taxonomic keys necessary for the classification of soils in a form that can be used easily in the field. It also acquaints users of the taxonomic system with recent changes in the system. The eleventh edition of the *Keys to Soil Taxonomy* incorporates all changes approved since the publication of the second edition of *Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys* (1999). One of the most significant changes in the eleventh edition is the addition of the suborders *Wassents* and *Wassists* for subaqueous Entisols and Histosols.

Soil Taxonomy

"Crop Modeling and Decision Support" presents 36

papers selected from the International Symposium on Crop Modeling and Decision Support (ISCMDS-2008), held at Nanjing of China from 19th to 22nd in April, 2008. Many of these papers show the recent advances in modeling crop and soil processes, crop productivity, plant architecture and climate change; the rests describe the developments in model-based decision support systems (DSS), model applications, and integration of crop models with other information technologies. The book is intended for researchers, teachers, engineers, and graduate students on crop modeling and decision support. Dr. Weixing Cao is a professor at Nanjing Agricultural University, China.

Soil Survey Manual (New Revised Ed.)

Using Science to Improve the BLM Wild Horse and Burro Program: A Way Forward reviews the science that underpins the Bureau of Land Management's oversight of free-ranging horses and burros on federal public lands in the western United States, concluding that constructive changes could be implemented. The Wild Horse and Burro Program has not used scientifically rigorous methods to estimate the population sizes of horses and burros, to model the effects of management actions on the animals, or to assess the availability and use of forage on rangelands. Evidence suggests that horse populations are growing by 15 to 20 percent each year, a level that is unsustainable for maintaining healthy horse populations as well as healthy ecosystems. Promising fertility-control methods are available to help limit this population growth, however. In addition, science-

based methods exist for improving population estimates, predicting the effects of management practices in order to maintain genetically diverse, healthy populations, and estimating the productivity of rangelands. Greater transparency in how science-based methods are used to inform management decisions may help increase public confidence in the Wild Horse and Burro Program.

Ponds - Planning, Design, Construction (Agriculture Handbook 590)

Cropland has been shifting to larger farms. The shifts have been large, centered on a doubling of farm size over 20-25 years, and they have been ubiquitous across States and commodities. But the shifts have also been complex, with land and production shifting primarily from mid-size commercial farming operations to larger farms, while the count of very small farms increases. Larger crop farms still realize better financial returns, on average, and they are able to make more intensive use of their labor and capital resources, indicating that the trends are likely to continue. The report relies on comprehensive farm-level data to detail changes in farm size and other attributes of farm structure, and to evaluate the key driving forces, including technologies, farm organization and business relationships, land attributes, and government policies.

Soil Quality and Soil Erosion

This report by the Nat. Science and Tech. Council's

U.S. Climate Change Science Program (CCSP) is part of a series of 21 reports aimed at providing current assessments of climate change science to inform public debate, policy, and operational decisions. These reports are also intended to help the CCSP develop future program research priorities. The CCSP's guiding vision is to provide the Nation and the global community with the science-based knowledge needed to manage the risks and capture the opportunities associated with climate and related environmental changes. This report assesses the effects of climate change on U.S. land resources, water resources, agriculture, and biodiversity. It was developed with broad scientific input. Illus.

Firemon

As members of the public becomes more conscious of the food they consume and its content, higher standards are expected in the preparation of such food. The updated seventh edition of Nutrient Requirements of Beef Cattle explores the impact of cattle's biological, production, and environmental diversities, as well as variations on nutrient utilization and requirements. More enhanced than previous editions, this edition expands on the descriptions of cattle and their nutritional requirements taking management and environmental conditions into consideration. The book clearly communicates the current state of beef cattle nutrient requirements and animal variation by visually presenting related data via computer-generated models. Nutrient Requirements of Beef Cattle expounds on the effects

of beef cattle body condition on the state of compensatory growth, takes an in-depth look at the variations in cattle type, and documents the important effects of the environment and stress on food intake. This volume also uses new data on the development of a fetus during pregnancy to prescribe nutrient requirements of gestating cattle more precisely. By focusing on factors such as product quality and environmental awareness, Nutrient Requirements of Beef Cattle presents standards and advisements for acceptable nutrients in a complete and conventional manner that promotes a more practical understanding and application.

Environmental Quality Incentives Program--part 515, 440-V-CPM

The purpose of this manual is to document methodology and to serve as a reference for the laboratory analyst. The standard methods described in this SSIR No. 42, Soil Survey Laboratory Methods Manual, Version 4.0 replaces as a methods reference all earlier versions of the SSIR No. 42 (1989, 1992, and 1996, respectively) and SSIR No. 1, Procedures for Collecting Soil Samples and Methods of Analysis for Soil Survey (1972, 1982, and 1984). All SSL methods are performed with methodologies appropriate for the specific purpose. The SSL SOP's are standard methods, peer-recognized methods, SSL-developed methods, and/or specified methods in soil taxonomy (Soil Survey Staff, 1999). An earlier version of this manual (1996) also served as the primary document from which a companion manual, Soil

Survey Laboratory Information Manual (SSIR No. 45, 1995), was developed. The SSIR No. 45 describes in greater detail the application of SSL data. Trade names are used in the manual solely for the purpose of providing specific information. Mention of a trade name does not constitute a guarantee of the product by USDA nor does it imply an endorsement by USDA.

National Management Measures to Control Nonpoint Source Pollution from Hydromodification

Proven strategies for controlling reservoir sediment
All the state-of-the-art tools you need to extend water reservoir life by controlling sediment are packed into this hands-on resource. It helps you plan, design and manage both existing and proposed reservoirs and their associates watersheds. You'll learn to manage sediment for sustainable development. . .analyze suspended and deposited sediment. . .and estimate and measure erosion rates. Packed with clear illustrations and how-to examples, the book give you the know-how to: master sediment transport processes in reservoirs apply mathematical and physical models to analyze sediment processes route inflowing sediment through or around reservoir storage pools use turbid density currents to control sedimentation empty and scour sediments from a reservoir by means of hydraulic flushing and much more

Proceedings of the Wisconsin Fertilizer, Aglime and Pest Management

Conference

Field and laboratory data are critical to the understanding of the properties and genesis of a single pedon, as well as to the understanding of fundamental soil relationships based on many observations of a large number of soils. Key to the advancement of this body of knowledge has been the cumulative effort of several generations of scientists in developing methods, designing and developing analytical databases, and investigating soil relationships based on these data. Methods development result from a broad knowledge of soils, encompassing topical areas of pedology, geomorphology, micromorphology, physics, chemistry, mineralogy, biology, and field and laboratory sample collection and preparation. The purpose of this manual, the "Soil Survey Field and Laboratory Methods Manual, Soil Survey Investigations Report (SSIR) No. 51," is to (1) serve as a standard reference in the description of site and soils sampling strategies and assessment techniques and (2) provide..

Fish and Wildlife Habitat Management

The National Range and Pasture Handbook (NRPH) constitutes Natural Resources Conservation Service (NRCS) basic policy and procedures for assisting farmers, ranchers, groups, organizations, units of government, and others working through conservation districts in planning and applying resource conservation on non-Federal grazing lands

throughout the United States. This handbook, along with other appropriate NRCS technical and policy guidance manuals and handbooks, contains information to assist the NRCS conservationist in providing technical assistance to cooperators in all phases of the planning and application process. The NRPH deals with the policy and procedures for the study, inventory, analysis, treatment, and management of the grazing lands resources.

Using Science to Improve the BLM Wild Horse and Burro Program

This document presents state-of-the-practice information on the evaluation of soil and rock properties for geotechnical design applications. This document addresses the entire range of materials potentially encountered in highway engineering practice, from soft clay to intact rock and variations of materials that fall between these two extremes. Information is presented on parameters measured, evaluation of data quality, and interpretation of properties for conventional soil and rock laboratory testing, as well as in situ devices such as field vane testing, cone penetration testing, dilatometer, pressuremeter, and borehole jack. This document provides the design engineer with information that can be used to develop a rationale for accepting or rejecting data and for resolving inconsistencies between data provided by different laboratories and field tests. This document also includes information on: (1) the use of Geographical Information Systems (GIS) and Personal Data Assistance devices for the

collection and interpretation of subsurface information; (2) quantitative measures for evaluating disturbance of laboratory soil samples; and (3) the use of measurements from geophysical testing techniques to obtain information on the modulus of soil. Also included are chapters on evaluating properties of special soil materials (e.g., loess, cemented sands, peats and organic soils, etc.) and the use of statistical information in evaluating anomalous data and obtaining design values for soil and rock properties. An appendix of three detailed soil and rock property selection examples is provided which illustrate the application of the methods described in the document.

Keys to Soil Taxonomy (Eleventh Edition)

Monitoring and inventory to assess the effects of wildland fire is critical for 1) documenting fire effects, 2) assessing ecosystem damage and benefit, 3) evaluating the success or failure of a burn, and 4) appraising the potential for future treatments. However, monitoring fire effects is often difficult because data collection requires abundant funds, resources, and sampling experience. Often, the reason fire monitoring projects are not implemented is because fire management agencies do not have scientifically based, standardized protocols for inventorying pre- and post-fire conditions that satisfy their monitoring and management objectives. We have developed a comprehensive system, called the Fire Effects Monitoring and Inventory System (FIREMON), which is designed to satisfy fire

management agencies' monitoring and inventory requirements for most ecosystems, fuel types, and geographic areas in the United States. FIREMON consists of standardized sampling methods and manuals, field forms, database, analysis program, and an image analysis guide so that fire managers can 1) design a fire effects monitoring project, 2) collect and store the sampled data, 3) statistically analyze and summarize the data, 4) link the data with satellite imagery, and 5) map the sampled data across the landscape using image processing. FIREMON allows flexible but comprehensive sampling of fire effects so data can be evaluated for significant impacts, shared across agencies, and used to update and refine fire management plans and prescriptions. The key to successful implementation of FIREMON requires the fire manager to succinctly state the objectives of the proposed fire monitoring project and accurately determine the available monitoring or inventory project resources. Using this information, the manager uses a series of FIREMON keys to decide the sampling strategy, methods, and intensity needed to accomplish the objectives with the resources on hand. Next, the necessary sampling equipment is gathered and dispersed to sampling crews. Field crews then collect FIREMON data using the detailed methods described in this FIREMON documentation. Collected data are then entered into a Microsoft(r) Access database. These data can be summarized, analyzed, and evaluated using the set of integrated programs developed specifically for FIREMON. FIREMON has a flexible structure that allows the modification of sampling methods and local code fields to allow the sampling of locally important fire effects evaluation

criteria.

Effects of Climate Change on Agriculture, Land Resources, Water Resources, and Biodiversity in the United States

Cover crops slow erosion, improve soil, smother weeds, enhance nutrient and moisture availability, help control many pests and bring a host of other benefits to your farm. At the same time, they can reduce costs, increase profits and even create new sources of income. You'll reap dividends on your cover crop investments for years, since their benefits accumulate over the long term. This book will help you find which ones are right for you. Captures farmer and other research results from the past ten years. The authors verified the info. from the 2nd ed., added new results and updated farmer profiles and research data, and added 2 chap. Includes maps and charts, detailed narratives about individual cover crop species, and chap. about aspects of cover cropping.

Wetlands

"The assessment builds on the work of the Livestock, Environment and Development (LEAD) Initiative"--Pref.

Managing Cover Crops Profitably

The National Forestry Handbook (NFH) contains methodology, procedures, and related reference materials that assist NRCS personnel to implement

the policies contained in the National Forestry Manual (NFM) relative to forestry and agroforestry technologies. All references to the Soil Conservation Service or SCS by Public Laws, Memoranda or other documents stated herein have been changed to the Natural Resources Conservation Service or NRCS, respectively. All policies and responsibilities relating to forestry previously assigned to the Soil Conservation Service are carried forward in full to the Natural Resources Conservation Service unless otherwise noted or amended in this handbook.

Keys to Soil Taxonomy (Eleventh Edition)

Only a farmer could delve so deeply into the origins of food, and only a writer of Wendell Berry's caliber could convey it with such conviction and eloquence. Drawn from more than thirty years of work, this collection is essential reading for all who care about what they eat.

The United States Government Internet Manual

This book, specially prepared for soil scientists and engineers, offers comprehensive coverage of basic soil concepts, systematics, mapping and examination procedures for soils. The Manual is universally useful and is the primary reference on principles and technical detail for local, State and Federal contributions to authorized soil surveys. Soil scientists concerned with soil surveys in other countries have used it as well. Teachers have used it

both as a text and as a reference for students.

Bringing It to the Table

How we produce and consume food has a bigger impact on Americans' well-being than any other human activity. The food industry is the largest sector of our economy; food touches everything from our health to the environment, climate change, economic inequality, and the federal budget. From the earliest developments of agriculture, a major goal has been to attain sufficient foods that provide the energy and the nutrients needed for a healthy, active life. Over time, food production, processing, marketing, and consumption have evolved and become highly complex. The challenges of improving the food system in the 21st century will require systemic approaches that take full account of social, economic, ecological, and evolutionary factors. Policy or business interventions involving a segment of the food system often have consequences beyond the original issue the intervention was meant to address. A Framework for Assessing Effects of the Food System develops an analytical framework for assessing effects associated with the ways in which food is grown, processed, distributed, marketed, retailed, and consumed in the United States. The framework will allow users to recognize effects across the full food system, consider all domains and dimensions of effects, account for systems dynamics and complexities, and choose appropriate methods for analysis. This report provides example applications of the framework based on complex questions that are

currently under debate: consumption of a healthy and safe diet, food security, animal welfare, and preserving the environment and its resources. A Framework for Assessing Effects of the Food System describes the U.S. food system and provides a brief history of its evolution into the current system. This report identifies some of the real and potential implications of the current system in terms of its health, environmental, and socioeconomic effects along with a sense for the complexities of the system, potential metrics, and some of the data needs that are required to assess the effects. The overview of the food system and the framework described in this report will be an essential resource for decision makers, researchers, and others to examine the possible impacts of alternative policies or agricultural or food processing practices.

Ecological Integrity

Global Integrity Project has brought together leading scientists and thinkers from around the world to examine the combined problems of threatened and unequal human well-being, degradation of the ecosphere, and unsustainable economies. Based on the proposition that healthy, functioning ecosystems are a necessary prerequisite for both economic security and social justice, the project is built around the concept of ecological integrity and its practical implications for policy and management. Ecological Integrity presents a synthesis and findings of the project. Contributors -- including Robert Goodland, James Karr, Orié Loucks, Jack Manno, William Rees,

Mark Sagoff, Robert Ulanowicz, Philippe Crabbe, Laura Westra, David Pimentel, Reed Noss, and others -- examine the key elements of ecological integrity and consider what happens when integrity is lost or compromised. The book: examines historical and philosophical foundations of the concept of ecological integrity explores how integrity can be measured examines the relationships among ecological integrity, human health, and food production looks at economic and ethical issues that need to be considered in protecting ecological integrity offers concrete recommendations for reversing ecological degradation while promoting social and economic justice and welfare .Contributors argue that there is an urgent need for rapid and fundamental change in the ecologically destructive patterns of collective human behavior if society is to survive and thrive in coming decades.Ecological Integrity is a groundbreaking book that integrates environmental science, economics, law, and ethics in problem analysis, synthesis, and solution, and is a vital contribution for anyone concerned with interactions between human and planetary health.

Soil Survey Field and Laboratory Methods Manual - Soil Survey Investigations Report No. 51 (Version 2) Issued 2014

Managing Cover Crops Profitably (3rd Ed.)

The Wisconsin Wetlands Reserve at Ten

Nutrient Requirements of Beef Cattle:

Reservoir Sedimentation Handbook

For many years farmers and ranchers have been building ponds for livestock water and for irrigation. By 1980 more than 2.1 million ponds had been built in the United States by land users on privately owned land. More will be needed in the future. The demand for water has increased tremendously in recent years, and ponds are one of the most reliable and economical sources of water. Ponds are now serving a variety of purposes, including water for livestock and for irrigation, fish production, field and orchard spraying, fire protection, energy conservation, wildlife habitat, recreation, erosion control, and landscape improvement. This handbook describes embankment and excavated ponds and outlines the requirements for building each. The information comes from the field experience and observation of land users, engineers, conservationists, and other specialists.

Stormwater Effects Handbook

Keys to Soil Taxonomy - Twelfth Edition, 2014

Ten-Year Check-Up: Have Federal Agencies Responded to Civil Rights Recommendations? Vol. 3, Etc., September 2003

Ten-year Check-up: An evaluation of the Departments of Agriculture and the Interior, the Environmental Protection Agency, and the Small Business Administration

A Framework for Assessing Effects of the Food System

This work examines the issue of accelerated soil erosion, which has become an increasingly serious concern in the twentieth century. Aspects considered include on-site impact of erosion; application of soil science to problems of non-agricultural uses of soil, such as mineland restoration, urban uses and disposal of urban wastes; soil contamination and pollution by industrial activities; and athletic and recreational uses of soil. Soil Quality and Soil Erosion will be a useful text for soil scientists, agronomists, foresters, and environmental scientists as we enter the next century.

Field Book for Describing and Sampling Soils

A stand-alone working document, *Stormwater Effects Handbook: A Toolbox for Watershed Managers, Scientists, and Engineers* assists scientists and regulators in determining when stormwater runoff causes adverse effects in receiving waters. This complicated task requires an integrated assessment approach that focuses on sampling before, during, and after storms. The Handbook supplies assessment strategies, sample testing and collection methods, and includes illustrative figures and tables. The authors introduce an innovative design that can be tailored to address a wide range of environmental concerns, such as: ecological and human health risk assessments, water quality or biological criteria exceedences, use impairment, source identification, trend analysis, determination of best management practices, stormwater quality monitoring for NPDES Phase I and II permits and applications, and total maximum daily load assessments. They provide case studies to illustrate the effectiveness of this approach and the data that can be compiled. Containing reviews of emerging technologies that hold promise for more effective receiving water evaluations, this book gives you detailed information on selecting methods and carrying out comprehensive evaluations. It includes guidance for the experimental design measurements, as well as standard and advanced statistical methods for data evaluations. Despite the complexity of stormwater management, successful and accurate assessments of their impact are possible by following the integrated approaches described in *Stormwater Effects Handbook: A Toolbox for Watershed Managers, Scientists, and Engineers*.

Farm Size and the Organization of U.S. Crop Farming

Hydraulic Design of Stilling Basins and Energy Dissipators

The role of irrigation in food and fiber production; Farm resources and system selection; Soil water; Salinity in irrigated agriculture; Water requirements; Drainage requirements and systems; Land shaping requirements; Farm water delivery systems; Farm pumps; Farm water distribution systems; Hydraulics of surface irrigation; Design and operation of gravity or surface systems; Fluid dynamics of sprinkler systems; Design and operation of sprinkler systems; Design and operation of trickle (drip) systems; Evaluating irrigation systems and practices; Irrigation water management.

Soil Survey Laboratory Methods Manual

The publication *Keys to Soil Taxonomy* serves two purposes. It provides the taxonomic keys necessary for the classification of soils in a form that can be used easily in the field. It also acquaints users of the taxonomic system with recent changes in the system. The eleventh edition of the *Keys to Soil Taxonomy* incorporates all changes approved since the publication of the second edition of *Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys* (1999). One of the most significant changes in the eleventh edition is the

addition of the suborders *Wassents* and *Wassists* for subaqueous Entisols and Histosols.

Livestock's Long Shadow

National Forestry Handbook

This publication, *Keys to Soil Taxonomy*, Twelfth Edition, 2014, coincides with the 20th World Congress of Soil Science, to be held on Jeju Island, Korea in June 2014. The *Keys to Soil Taxonomy* serves two purposes. It provides the taxonomic keys necessary for the classification of soils in a form that can be used easily in the field. It also acquaints users of soil taxonomy with recent changes in the classification system. The twelfth edition of the *Keys to Soil Taxonomy* incorporates all changes approved since the publication in 1999 of the second edition of *Soil Taxonomy: A Basic System of Soil Classification for Making and Interpreting Soil Surveys*. The authors of the *Keys to Soil Taxonomy* are identified as the "Soil Survey Staff." This term is meant to include all of the soil classifiers in the National Cooperative Soil Survey program and in the international community who have made significant contributions to the improvement of the taxonomic system.

The Journal of Agriculture of the University of Puerto Rico

Although hundreds of stilling basins and energy-dissipating devices have been designed in conjunction

with spillways, outlet works, and canal structures, it is often necessary to make model studies of individual structures to be certain that these will operate as anticipated. The reason for these repetitive tests is that a factor of uncertainty exists regarding the overall performance characteristics of energy dissipators. The many laboratory studies made on individual structures over a period of years have been made by different personnel, for different groups of designers, each structure having different allowable design limitations. Since no two structures were exactly alike, attempts to generalize the assembled data resulted in sketchy and, at times, inconsistent results having only vague connecting links. Extensive library research into the works of others revealed the fact that the necessary correlation factors are nonexistent. To fill the need for up-to-date hydraulic design information on stilling basins and energy dissipators, a research program on this general subject was begun with a study of the hydraulic jump, observing all phases as it occurs in open channel flow. With a broader understanding of this phenomenon it was then possible to proceed to the more practical aspects of stilling basin design. This monograph generalizes the design of stilling basins, energy dissipators of several kinds and associated appurtenances. General design rules are presented so that the necessary dimensions for a particular structure may be easily and quickly determined, and the selected values checked by others without the need for exceptional judgment or extensive previous experience. Proper use of the material in this monograph will eliminate the need for hydraulic model tests on many individual structures,

particularly the smaller ones. Designs of structures obtained by following the recommendations presented here will be conservative in that they will provide a desirable factor of safety. However, model studies will still prove beneficial to reduce structure sizes further, to account for nonsymmetrical conditions of approach or getaway, or to evaluate other unusual conditions not described herein.

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