

## Arora Irrigation

This edited volume focuses on the characterization, reclamation, bioremediation, and phytoremediation of salt affected soils and waterlogged sodic soils. Innovative technologies in managing marginal salt affected lands merit immediate attention in the light of climate change and its impact on crop productivity and environment. The decision-making process related to reclamation and management of vast areas of salt affected soils encompasses consideration of economic viability, environmental sustainability, and social acceptability of different approaches. The chapters in this book highlight the significant environmental and social impacts of different ameliorative techniques used to manage salt affected soils. Readers will discover new knowledge on the distribution, reactions, changes in bio-chemical properties and microbial ecology of salt affected soils through case studies exploring Indian soils. The contributions presented by experts shed new light on techniques such as the restoration of degraded lands by growing halophyte plant species, diversification of crops and introduction of microbes for remediation of salt infested soils, and the use of fluorescent pseudomonads for enhancing crop yields.

This book presents a variety of policy adoption methods, irrigation scheduling, and design procedures in micro irrigation engineering for horticultural crops. The chapters range from policy interventions to applications of systems for different crops and under different land conditions. Compiling valuable information and research, the book is divided into three main sections: Policy Options: Drip Irrigation Among Adopters Irrigation Scheduling of Horticultural Crops Design of Drip Irrigation Systems The editors present valuable research and information on micro irrigation methods in an effort to focus on innovation and evolving new paradigms for efficient utilization of water resources. The adoption of micro irrigation systems can be a panacea for irrigation related problems and can help to increase the yield and area under cultivation, especially for small farmers without abundant technological resources. Micro Irrigation Engineering for Horticultural Crops: Policy Options, Scheduling, and Design will be valuable for agricultural engineering students, irrigation engineers, and scientists/professors in engineering.

Maize is one of the versatile emerging crops with wider adaptability under varied agro-climatic conditions. Globally, maize is known as queen of cereals because it has the highest genetic yield potential among the cereals. It is cultivated on nearly 150 m/ha in about 160 countries having wider diversity of soil, climate, biodiversity and management practices that contributes 36 % (782 m/t) in the global grain production. The United States of America (USA) is the largest producer of maize contributes nearly 35 % of the total production in the world. It is the driver of the US economy. This book talks about the improvement, production, protection and post harvest technology of the maize crop. Note: T & F does not sell or distribute the Hardback in India, Pakistan, Nepal, Bhutan, Bangladesh and Sri Lanka.

The power sector has undergone a liberalization process both in industrialized and developing countries, involving market regimes, as well as ownership structure. These processes have called for new and innovative concepts, affecting both the operation of existing hydropower plants and transmission facilities, as well as the development and implementation of new projects. At the same time a sharper focus is being placed on environmental considerations. In this context it is important to emphasize the obvious benefits of hydropower as a clean, renewable and sustainable energy source. It is however also relevant to focus on the impact on the local environment during the planning and operation of hydropower plants. New knowledge and methods have been developed that make it possible to mitigate the local undesirable effects of such projects. Development and operation of modern power systems require sophisticated technology. Continuous research and development in this field is therefore crucial to maintaining hydropower as a competitive and environmentally well-accepted form of power generation.

The purpose of this book is to provide a resource for students and researchers that includes current application of a multi-criteria, decision-making theory in various fields such as: environment, healthcare and engineering. In addition, practical application are shown for students manually. In real life problems there are many critical parameters (criteria) that can directly or indirectly affect the consequences of different decisions. Application of a multi-criteria, decision-making theory is basically the use of computational methods that incorporate several criteria and order of preference in evaluating and selecting the best option among many alternatives based on the desired outcome.

This volume is the twelfth in the series 'Land Reforms in India'. It focuses on the multi-dimensional aspects of the agrarian problem, examining it from the angle of public policy. A distinguishing feature of this collection is its holistic approach towards viewing farm sector distress, instead of looking for isolated causes and solutions. The essays, based on the research and analyses conducted by academics from different parts of the country, examine the reasons for the growing agrarian crisis and increasing incidences of farmers' suicides in specific regions of the country. They take into account regional discrepancies in agricultural growth and implementation of policies in specific areas. In doing that, they also bring to light the various types of farm sector distress, which, in turn, leads to a better understanding of the whole situation. The compilation also attempts to define a systematic policy line.

Debates about public expenditure in the agricultural sector have reopened in many developing and emerging economies because of high budget deficits and changes in public opinion. As a result, agricultural policy in many of these countries is beginning to take a more market-oriented approach to agrarian problems, most notably through the introduction of contract farming. This book explores the policy issues around contract farming and its transformative potential and addresses the lack of empirical research on this topic by focusing on South Asia: principally India, Bangladesh and Nepal. The book first addresses the effects of contract farming (vertical coordination) on productivity, food security indicators (yield, consumption expenditures, prices), employment and input usage. Then it draws lessons from the South Asian case studies on the impact of institutional changes, like contract farming, on income and food security of smallholder households. The core of the book includes case study chapters on several commodities that are produced under contract farming, including vegetables and fisheries in Bangladesh, low-value crops in Nepal and coffee in India. Other chapters also explore contracts, storage, input usage and technical efficiency in these cases. This book serves as an essential guide to academics, researchers, students, legislative liaisons and think tank groups interested in agrarian issues, agricultural economics and agricultural policy in emerging economies and particularly in South Asia.

Agronomic crops have provided food, beverages, fodder, fuel, medicine and industrial raw materials since the beginning of human civilization. More recently, agronomic crops have been cultivated using scientific rather than traditional methods. However, in the current era of climate change, agronomic crops are suffering from different environmental stresses that result in substantial yield loss. To meet the food demands of the ever-increasing global population, new

technologies and management practices are being adopted to boost yields and maintain productivity under both normal and adverse conditions. Further, in the context of sustainable agronomic crop production, scientists are adopting new approaches, such as varietal development, soil management, nutrient and water management, and pest management. Researchers have also made remarkable advances in developing stress tolerance in crops. However, the search for appropriate solutions for optimal production to meet the increasing food demand is still ongoing. Although there are several publications on the recent advances in these areas, there are few comprehensive resources available covering all of the recent topics. This timely book examines all aspects of production technologies, management practices and stress tolerance of agronomic crops.

Nitrogen fertilizers are the inescapable necessity to enhance agricultural production and to sustain food security. However, their inefficient use accrues from inherent limitations of the crop plants as well as the manner in which N fertilizers are formulated, applied and managed. Excessive accumulation of N in the environment leads to soil acidification, pollution of groundwater and eutrophication of surface water, posing a public health problem as well as ecosystem imbalance. Moreover, the ozone layer depletion and greenhouse effects of NO<sub>x</sub> gases have global implications. *Agricultural Nitrogen Use: Environmental Implications* provides a comprehensive, interdisciplinary description of problems related to the efficient use of nitrogen in agriculture, in the overall context of the nitrogen cycle, its environmental and human health implications, as well as various approaches to improve N use efficiency. The book is presented in six sections: N Use, Flows and Cycling in Agricultural Systems; N Use Efficiency in Crop Ecosystems; Management Options and Strategies for Enhancing N Use Efficiency; Plant Physiological and Molecular Aspects of Enhancing N Use Efficiency; Role of Legumes and Biofertilizers in Agricultural N Economy; and Environmental and Human Health Implications.

The book presents firsthand material from the authors on design of hydraulic canals. The book discusses elements of design based on principles of hydraulic flow through canals. It covers optimization of design based on usage requirements and economic constraints. The book includes explicit design equations and design procedures along with design examples for varied cases. With its comprehensive coverage of the principles of hydraulic canal design, this book will prove useful to students, researchers and practicing engineers. End-of-chapter pedagogical elements make it ideal for use in graduate courses on hydraulic structures offered by most civil engineering departments across the world.

*Rainwater Management: Theory and Practice* is a comprehensive treatise on water management based on water harvesting techniques for management of storage water for irrigation purpose & irrigation water management. This book, primarily designed to cater to the needs of undergraduate and postgraduate students of agricultural engineering, agricultural and soil & water engineering, research scholars, professionals and policy planners associated with rainwater management, dryland farming and irrigation water management. It covers major topics on water harvesting and design of water harvesting structures and recycling of harvested rainwater aspects. Entire content has been divided into the 22 chapters with solved examples and case studies. A sincere attempt has been made to compile and present the text in quickly understandable term, well drawn diagrams, understanding the rainwater management and livelihood security aspects of dryland and irrigated farmers. This book could be a text book for undergraduate and postgraduate students, a reference tool for professional and good teaching material for teachers in the field of rainwater management and irrigation management under dryland ecosystem and also for the scientists working in the field of rainwater and Irrigation water management.

Explore new concepts for maximizing crop yields! *Intensive Cropping: Efficient Use of Water, Nutrients, and Tillage* is a compilation of current information on the interdependence of and synergies among water, nutrients, and energy in regard to increasing crop performance. This book explains the need for intensive cropping and explores the technologies and practices necessary for proper management of water, nutrients, and energy. With *Intensive Cropping* you will learn how to improve the quantity of the world's most important crops using methods that will minimize harm to the environment. This essential guide is a state-of-the-art account of the concepts and practices concerning the integrated use of water, nutrients, and energy in intensive cropping. *Intensive Cropping* combines basic and applied aspects of soil-water, nutrients, and energy management to help you optimize your crop yields and maximize the efficiency of intensively farmed regions. In *Intensive Cropping*, you will explore the need for extreme farming and related concerns and concepts, including: reducing runoff, deep seepage, and evaporation losses supplementing irrigation with surface and ground water understanding the process of water uptake and its effects on root dynamics and water use reducing leaching, erosion, and gaseous losses in your fields using combinations of organic manures, crop residues, chemical fertilizers, and biofertilizers for soil maintenance implementing conventional and emerging tillage systems, such as conservation tillage for improving soil quality examining case studies of contrasting edaphic requirements of rice-wheat systems *Intensive Cropping* brings you up-to-date on recent advances in the field, supported by relevant experimental observations on environmentally safe and effective ways to increase crop performance. By examining this new research on increasing crop production, you will be able to successfully increase crop yields in various climates and support the growing global demand for such resources.

This book offers a state-of-the-art overview of on abiotic stresses in terms of the challenges; scope and opportunities; coping strategies for adaptation and mitigation using novel tools for building resilience in agricultural crops and livestock; as well as for policy implementation. Divided into four major parts: advances and prospects for understanding stress environments; adaptation and mitigation options; crop-based mitigation strategies; and mitigation options in animal husbandry, the book focuses on problem-solving approaches and techniques that are essential for the medium to long-term sustainability of agricultural production systems The synthesis and integration of knowledge and experiences of specialists from different disciplines offers new perspectives in the versatile field of abiotic stress management, and as

such is useful for various stakeholders, including agricultural students, scientists, environmentalists, policymakers, and social scientists.

These atlases are designed to help students to learn and understand the different geographical and historical regions in an interesting manner. These books include practice maps and map-based questions for each chapter. This helps develop mapping skills in students. Explanatory notes at the end of each map help strengthen proficiency in map work and map markings. These books are based on the latest CBSE syllabus and the CCE scheme.

Issues in Agribusiness and Agricultural Economics: 2012 Edition is a ScholarlyEditions™ eBook that delivers timely, authoritative, and comprehensive information about Agricultural Economics. The editors have built Issues in Agribusiness and Agricultural Economics: 2012 Edition on the vast information databases of ScholarlyNews.™ You can expect the information about Agricultural Economics in this eBook to be deeper than what you can access anywhere else, as well as consistently reliable, authoritative, informed, and relevant. The content of Issues in Agribusiness and Agricultural Economics: 2012 Edition has been produced by the world's leading scientists, engineers, analysts, research institutions, and companies. All of the content is from peer-reviewed sources, and all of it is written, assembled, and edited by the editors at ScholarlyEditions™ and available exclusively from us. You now have a source you can cite with authority, confidence, and credibility. More information is available at <http://www.ScholarlyEditions.com/>.

Advances in Agronomy continues to be recognized as a leading reference and a first-rate source for the latest research in agronomy. As always, the subjects covered are varied and exemplary of the myriad of subject matter dealt with by this long-running serial. Timely and state-of-the-art reviews Distinguished, well recognized authors A venerable and iconic review series Timely publication of submitted reviews

Fertilizers have been used extensively around the globe since the Green Revolution, due to the high subsidies. However, extensive fertilizer use exacerbates soil degradation and causes yield stagnation, and as a result threatens food security and soil sustainability, especially in developing countries. This means that sustainable soil and environmental management are vital to provide food and nutritional security for present and future generations. This has led to the International Union of Soil Science (IUSS) declaring 2015-2024 the International Decade of Soils. This book focuses on the impact of sustainable management of soil and environment on improving the functioning of soil-ecosystems and agronomic productivity, and also discusses food security, nutrient cycling, recent advances in INM technologies, eco-friendly cultivation, agricultural practices to reduce greenhouse gas (GHG) emissions, as well as conservation agriculture and its effects, and strategies for soil sustainability. Offering a comprehensive overview of management in the context of the sustainability of soil and the agroecosystems that it supports, it demonstrates the options available and provides insights into restoring soil health and matching soil nutrient supply with crop demand to ensure nutritional security in an eco-friendly environment.

This book is a printed edition of the Special Issue "Urban Water Cycle Modelling and Management" that was published in Water Of all the confrontations man has engineered with nature, irrigation systems have had the most widespread and far-reaching impact on the natural environment. Over a quarter of a billion hectares of the planet are irrigated and entire countries depend on irrigation for their survival and existence. Considering the importance of irrigation schemes, it is unfortunate that until recently the technology and principles of design applied to their construction has hardly changed in 4,000 years. Modern thinking on irrigation engineering has benefited from a cross-fertilization of ideas from many other fields including social sciences, control theory, political economics and agriculture. However, these influences have been largely ignored by irrigation engineers. Drawing on almost 40 years of experience of irrigation in the developing world, Laycock introduces new ideas on the design of irrigation systems and combines important issues from the disciplines of social conflict, management, and political thinking.

Nanobiotechnology in agriculture is a new knowledge area that offers novel possibilities to achieve high productivity levels at manageable costs during the production and merchandising of crops. This book shows us how we can use the cutting-edge knowledge about agriculture, nanotechnology, and biotechnology to increase the agricultural productivity and shape a sustainable future in order to increase the social welfare in rural areas and preserve the environmental health. Specialists from several countries will provide their feedback on a range of relevant topics such as environment-friendly use of nanofertilisers, nanodevices, nano-food packaging, nanocoating and nanocarriers and their relationship with the modern agriculture.

This exciting handbook is devoted solely to the effects of environmental variables on the physiology of the world's major fruit and nut crops. Its cosmopolitan scope includes chapters on tropical and sub-tropical species written by scientists from several continents. The influence of environmental factors, such as irradiance, temperature, water and salinity on plant physiology and on vegetative and reproductive growth, is comprehensively discussed for each crop. In addition to being a thorough textbook, the organization of this volume makes it an excellent reference tool. Each chapter focuses on a single crop, or a group of genetically or horticulturally related crop, and is appropriately divided into subsections that address individual environmental factors. Some chapters emphasize whole-plant physiology and plant growth and development, while other chapters feature theoretical aspects of plant physiology. Several chapters provide botanical background discussions to enhance understanding of the crop's response to its environment.

With high urbanization rates, advancement in technologies, and changes in consumption behavior of people, wastes generated through the daily activities of individuals and organizations pose many challenges in their management. The articles presented in this edited volume deal with the attempts made by the scientists and practitioners to address contemporary issues in geoenvironmental engineering such as characterization of dredged sediments, geomaterials & waste, valorization of waste, sustainability in waste management and some other geoenvironmental issues that are becoming quite relevant in today's world. This volume is part of the proceedings of the 1st GeoMEast International Congress and Exhibition on Sustainable Civil Infrastructures, Egypt 2017.

This paper reviews policy-related issues discussed in recent conferences that will affect groundwater development and management efforts in South Asia. Emphasis is given to policy issues surrounding emerging groundwater depletion and quality concerns, and issues concerning the equitable development of groundwater for poverty alleviation. The paper outlines the range of services that depend on groundwater resources and outlines the range of services that depend on groundwater resources to provide these services, and the complications stemming from the fragmented approach taken to water management throughout the region. A range of responses dealing with the management of the physical system is identified. In conclusion, the paper

discusses institutional frameworks through which management responses could be implemented, in relation to both the range of approaches theoretically applicable and the existing institutional frameworks in place throughout South Asia

This bibliography contains 550 journal, book, and audiovisual citations from the National Agricultural Library's AGRICOLA database. Each entry includes title, publisher, NAL call number, place and date of publication, volume and issue number, pages, description (audiovisual), and descriptors. Many entries include abstracts. Indexed by subject and author.

This book is intended to fulfil the need for state-of-the-art development on the industrial wastes from different types of industries. Most of the chapters are based upon the ongoing research, how the different types of wastes are most efficiently treated and minimized, technologies of wastes control and abatement, and how they are released to the environment and their associated impact. A few chapters provide updated review summarizing the status and prospects of industrial waste problems from different perspectives. The book is comprehensive and not limited to a partial discussion of industrial waste, so the readers are acquainted with the latest information and development in the area, where different aspects are considered. The user can find both introductory material and more specific material based on interests and problems. For additional questions or comments, the users are encouraged to contact the authors.

Horticultural Reviews presents state-of-the-art reviews on topics in the horticultural sciences. The emphasis is on applied topics including the production of fruits, vegetables, nut crops, and ornamental plants of commercial importance. Published in two volumes, twice each year, these articles perform the valuable function of collecting, comparing, and contrasting the primary journal literature in order to form an overview of the topic. This detailed analysis bridges the gap between the specialized researcher and the broader community of horticultural scientists.

This publication is structured on the main themes of the consultation: the importance of plant nutrition for meeting agricultural product requirements; soil organic matter, biomass, soil microflora and management of integrated plant nutrition systems; renewable supply of plant nutrients from natural sources and plant nutrient transfer to crops; the place and role of local and external sources of plant nutrients in cropping systems and their evaluation; plant nutrient management in farming systems and in watersheds and territories; and priorities for FAO's Integrated Plant Nutrition Systems (IPNS) programme

Biological treatment of wastewater is a low-cost solution for remediation of wastewater. This book focuses on the bioremediation of wastewater, its management, monitoring, role of biofilms on wastewater treatment and energy recovery. It emphasizes on organic, inorganic and micropollutants entering into the environment after conventional wastewater treatment facilities of industrial, agricultural and domestic wastewaters. The occurrence of persistent pollutants poses deleterious effects on human and environmental health. Simple solution for recovery of energy as well as water during biological treatment of wastewater is a viable option. This book provides necessary knowledge and experimental studies on emerging bioremediation processes for reducing water, air and soil pollution.

Water is vital to life, maintenance of ecological balance, economic development, and sustenance of civilization. Planning and management of water resources and its optimal use are a matter of urgency for most countries of the world, and even more so for India with a huge population. Growing population and expanding economic activities exert increasing demands on water for varied needs--domestic, industrial, agricultural, power generation, navigation, recreation, etc. In India, agriculture is the highest user of water. The past three decades have witnessed numerous advances as well as have presented intriguing challenges and exciting opportunities in hydrology and water resources. Compounding them has been the growing environmental consciousness. Nowhere are these challenges more apparent than in India. As we approach the twenty first century, it is entirely fitting to take stock of what has been accomplished and what remains to be accomplished, and what accomplishments are relevant, with particular reference to Indian conditions.

The book gives a vast knowledge about the progress made in Indian on different entomological aspects. the book will serve as a complete source book on research techniques and practices of pests management, advanced genetic and biotechnological researches, new pests management technologies on different crops, pesticidal contamination status in environment. The book has been written for teachers, students, researchers and extension workers engaged in pests management strategies

The first edition of the book entitled 'Vegetable Crops in India' published in 1986 was revised in 1993 with the title 'Vegetable Crops'. Both the previous editions were considered as outstanding publication on the subject and proved valuable to the students, teachers, researchers and extension specialists in horticulture in general and olericulture in particular, in different parts of the world. During the period after the book was revised in 1993, enormous work has been reported on all important vegetable crops and it was considered necessary to published the present revised edition in two volumes.

Including Dams Engineering, Hydrology and Fluid Power Engineering. For the student of B.E./B.Tech. Civil Engg., Institution of Engineers (India) U.P.S.C. Exam & Practising Engineers.

This publication summarizes the proceedings of the first 'Bridging Workshop' held during 11-14 November 2007 at ICARDA headquarters in Aleppo, Syria. The workshop had three types of sessions. The stimulating sessions led by lead scientists/resource persons focused on predefined topics. The country sessions consisted of presentations of case studies from developing-country participants. The final session summarized research challenges and gaps as identified in the previous sessions and workshop discussions.

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