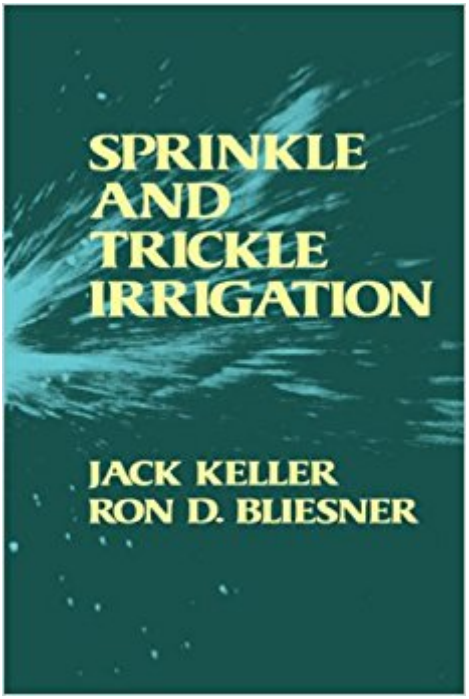
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Sprinkle And Trickle Irrigation



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Synopsis

This book, first published in 1990 and reprinted here, is a comprehensive, state-of-the art reference on the design principles and management techniques of two primary agricultural irrigation methods. The book presents a systematic approach to the optimal design, management and operation of these two systems. Focusing on the synthesis of the entire design process, the authors present the chapters in the sequence used to design systems with the analytical material presented and demonstrated in a concise manner. For the first time in any book, Sprinkle and Trickle Irrigation offers complete design strategies and presentations for all of the major types of sprinkle and trickle systems: - Periodic-move - Center-pivot - Traveling sprinkler - Linear-moving - Set sprinkler - Drip, spray and line-source Sequential sample calculations that involve the steps in the design of typical irrigation systems are used extensively. As the book progresses, these calculations become more comprehensive and are linked together to form complete design packages for the various types of pressurized systems. The book also presents a section on selecting pressurized irrigation systems, a review of soil-plant-water relationships, unique insight into pipeline hydraulics and economics, design specifications for fertilization and frost control, a glossary and an annotated bibliography of ASAE Standards for Pressurized Irrigation Systems. Sprinkle and Trickle Irrigation is an important practical reference for agricultural engineers, irrigation system designers and agricultural managers, as well as a vital text for professors and researchers in agricultural engineering. "Sprinkle and Trickle Irrigation presents beginning-to-end coverage of the processes and computations needed in the planning and design of sprinkle and trickle irrigation systems. The textbook is created for the thinking person who desires more than cookie-cutter recipes or simple, routine "rule-of-thumb" designs. Rather, the authors of Sprinkle and Trickle Irrigation present concise rationale and philosophy behind each computation formula, figure and table. They decouple "recommended" design parameters into underlying components that can be recoupled at the time of the design to apply to specific cases and situations. In the process, the reader gains visualization skills that allow him/her to peer "inside" an irrigation system, both hydraulically, economically, and operationally. Sprinkle and Trickle Irrigation is a classic design text and reference that should be on every practitioner’s desk. The chapters on center-pivot, linear-move and travelling sprinklers go well beyond other current texts. Solid and encompassing economics are infused into all design topics, including application, distribution, and pumping systems. I have lectured out of Sprinkle and Trickle Irrigation for twelve years at the university-senior level. I am confident that all students who completed this design course know not only how to design efficient and effective pressurized irrigation systems, but also know why they use the procedures that they use." Dr. Richard G. Allen,

Professor, University of Idaho

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Customer Reviews

This book has been written by one of the pioneers of organized and quantitative design processes for trickle and sprinkle irrigation systems. Keller takes the reader through mainline and lateral layout, component selection, and pipe and component sizing. All procedures are integrated and expressed both numerically for computer application and graphically for hand calculations.Keller does a very nice job of breaking down the design process and performance evaluation into basic components that can then be readily visualized and quantified by the designer. In applying the design procedures provided in the textbook, one creates a mental image of all parts of a working sprinkle or trickle system, their ties and interactions with one another, and their ties to the climatic demands and soil constraints relevant to irrigation systems.This design book covers mainlines, manifolds, laterals, emitter and head selection, pump selection, friction loss, chemical injection and management, solid set, moveable set, center pivots, linear moves, and a wide assortment of drip systems.The approach and pace of the text and procedures requires that the reader have a background (a college level course is recommended) in fluid mechanics or hydraulics. Knowlege of soils and cultural practices is helpful but not required. The design procedures have a strong mathematical basis so that familarity with various trigonometric and logarithmic functions is necessary.The Keller - Bliesner text is the designer’s first stop for information on design procedures for sprinkle and trickle (drip or microspray) irrigation systems.

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