BOOK REVIEW

Principles of Irrigation (second edition)

Irrigation Association Education Foundation (IAEF), VA, USA. 2010. Paperback, 364 pp. Member $60; Non-member $70 & Academia $36. ISBN-13: 978-1-935324-27-0; ISBN-10: 1-935324-27-6

Modern agriculture is intermittently associated with the technological developments and upgrading of irrigation systems. From the days of surface irrigation to the current and extensive boom of sprinkler irrigation systems to the cutting edge developments in micro irrigation systems, a successful irrigation system has always been a factor essential for high crop yield and bigger profit margins for producers. However, locating a simple and handy volume dealing with and teaching the basics of irrigation systems and management has always been a big challenge. The available titles are either heavily tilted toward applied physics and engineering designs, or too generic covering only very basic irrigation systems in brief and focused heavily on water-related politics, economics, and social, environmental, and ecological issues.

A proper balance of irrigation management principles, good management practices, and engineering aspects of the technology could not be easily found. However, the current volume *Principles of Irrigation* (second edition) published by the Irrigation Association Education Foundation (IAEF) is an excellent production covering both the theory and application of irrigation principles in simple terms. The current volume thereby bridges the wide gap between general irrigation principle related books and those volumes that are extensively focused toward irrigation engineering physics.

The well laid out volume is represented by ten different chapters. Chapter 1 deals with irrigation systems for landscape/turf and agriculture; Chapter 2 is about soils, plants, and water; Chapter 3 is on precipitation rates; Chapter 4 on efficiency and uniformity concepts; Chapter 5 is on the topic of irrigation scheduling; Chapter 6 is about control valves, specialty valves, controllers, and backflow prevention; Chapter 7 discusses pipes and fittings; Chapter 8 discusses hydraulics principles as applied in irrigation systems; Chapter 9 is on irrigation pumps; and the last chapter deals with wire sizing and electric principles. The volume is also characterized by the presence of an extensive but student-friendly glossary of terms and terminologies dealing with irrigation science, technology, and management. In addition, the volume also includes extensive tables, supplementary materials, and mathematical equations necessary for doing important calculations in irrigation management. Last, but not least, is the inclusion of a section under an appendix entitled Answers to Practice Questions. This is extremely helpful from the student perspective as it provides key answers to all the sample questions that have been listed at the end of individual chapters. In addition, each chapter also has a dedicated bibliography for advanced students.

The IAEF authorities deserve special thanks for doing an awesome job. They have nicely packaged all necessary and essential information, facts, and figures important for irrigation management in a single volume. The price of the volume is also affordable compared to other competing titles available in the market. However, no other volume deserves so much credit as this one due to the simplicity with which individual chapters have been presented. Each chapter has several key diagrams, figures, and equations in addition to the text that help in laying out the basic concepts in simple terms. Several numerical examples and simple day to day experiences have been presented to provide the students with a strong foundation regarding irrigation management. However, the entire volume

Published in Crop Sci 52:1966–1967 (2012).
doi: 10.2135/cropsci2012.12.0001br

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is mostly dedicated to sprinkler systems management and other forms of irrigation practices (such as surface irrigation, micro irrigation, etc.) have only been touched on in the introductory chapter. In future editions it would be nice to have coverage on the principles and management of other irrigation systems for a more comprehensive coverage of the subject.

The book is illustrated with several images and diagrams that will enable the students to capture the key concepts of the principles of basic physics and engineering designs as applied in irrigation systems. The students will get an in-depth understanding of the guiding principles behind the sprinkler systems of irrigation and its application in irrigation scheduling and maintenance, and troubleshooting of different problems associated with the day to day operation of the sprinkler systems. This volume will be suitable to both undergraduate and well as post-graduate students majoring in irrigation science and technology, agronomy, agrology, field crops management, irrigation management, sustainable agriculture, soil sciences, crop management, general agriculture, field management, management of irrigated crops, sprinkler systems, as well as general and introductory agriculture courses and curricula.

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