

## **Fundamentals of Plant Science**

**By Marihelen Glass and Rick Parker, Delmar, Cengage Learning, hard bound, 682 pages, \$95.00, ISBN: 978-1-4180-0081-3**

This textbook has undertaken the task (as most plant science texts do) of covering nearly every topic related to terrestrial plants in some detail. The book contains sections concerning Plants and Nature (uses, ecology, biomes); Form and Structure (leaf, stem, root, flower anatomy, cells and growth into tissues, wood); Function and Control (soil, water, photosynthesis and respiration, energy conversions, limitations to and stresses on growth, plant hormones); Evolution and Diversity (sexual reproduction, inheritance, genetic engineering, vascular plants); Plants and Society (ag history and crops, growing vegetables, small fruits, fruits and nuts, flowers and foliage, forage and sod, medicinal and cultural); and Modern Agriculture and World Food (past, current and future of production). A subliminal subtext of appreciation for plants and their contributions to the world is apparent throughout. The range of the topics is extensive, and explanations of many sub-topics are found, ranging from understanding different cuts of wood to detailed steps in DNA replication to properly storing harvested vegetables. The wide range of topics would make it difficult to apply this text to any one discipline within agriculture or plant biology.

Each chapter begins with a list of objective and key terms. Within the text, the terms are highlighted and can be found defined in the glossary in the back of the book. Occasional “human interest” stories and sidebars are interspersed throughout, helping to relate the information to a real world context. Graphics within the text are clean and simple, and some tables are included. Too many pictures are dark, however, and may not be the best representation of the idea. Chapters end with summary points, suggested questions for review and readings, and potential internet search terms. Within each chapter, the text is clearly written and works to keep the reader's attention. Few words are wasted and each line is full of information. Transition between topics, however, is often uneven. The book does not contain many time-dependant statistics, meaning that printed information will not become outdated in a few years. Any student in an introductory plant science-based course should find this text easy to understand, informative, and interesting.

The assembly of this book is largely reminiscent of an assortment of helpful encyclopedia articles. This collection of concepts is both a strength and a weakness. This book would be largely unsuitable as

or more than needed for the only text in an introductory plant biology, crop science, agronomy, or horticulture course, but would be an excellent reference for students who have had these courses and need a go-to source for information. Almost every topic that a student of plants in agriculture would study during a college career (ecology, anatomy, genetics, environmental relationships, physiology, specific crops and their growth etc.) is covered in an introductory manner, often covering more than just the basic level. This book could be on the shelf of any agriculture or plant biology student, or instructor for that matter, that needs a basic reference for or review of most plant science concepts.

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## **Breeds of Cattle, 2nd Edition**

**By Herman R. Purdy, R. John Dawes, and Robert Hough, TRS Publishing, Springfield, Missouri, hard cover, 400 pages, \$110.00, ISBN-10:0-9799378-0-9**

At first glance, *Breeds of Cattle*, 2nd edition, appears to be a coffee-table book. As it sat on my desk, nearly every visitor to the office who had more than a moment's wait time picked it up and paged through it. My initial assessment was quickly dispelled the moment I began reading the book. I was surprised and delighted by the information it contains, both its depth and its breadth.

It is a very thorough compilation of breeds of cattle, both beef and dairy. Included is an interesting, but relatively concise introduction to cattle breeding, which is followed throughout the book by information about the history of the individual breeds and, at the end, a short description of the ancestry of today's cattle breeds. An individual with a serious interest in the history and details of a particular breed would have a good start. And, are thereafter well-directed for the next step in their quest for information. In particular, it is useful that the name of American and International breed associations and associated contact information is offered for each breed.

Information presented for each breed differs in scope and depth although it follows a common structure throughout the book. The book is arranged by breed in alphabetical order with the longer section on beef breeds followed by the dairy breeds. A brief (to intermediate) history is offered for each breed, as well as phenotype information. The phenotype information is often quite detailed and includes

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weight of mature bulls and cows, as well as steer-slaughter weight, and information on the head, neck and shoulders, back, body, and hindquarters, and hair. Each breed description includes historical pictures of the breed, as well as full-page modern-day images of a bull and a cow. These images are particularly powerful in underscoring the conformation details offered in the text. If there was anything lacking in this book it would be a chart that compares the primary characteristics of the breeds.

Usually I review books within the context of what faculty might consider for student-textbook adoption. Although this book does not appear to be explicitly designed for that purpose and, weighing approximately eight pounds, would certainly be a challenge to carry around campus, it would be an excellent reference for a beginning class on beef cattle, and is certainly very appropriate as a reference tool for faculty and to be made available to students (e.g., at the library). It is concise, yet informative and could easily be read in its entirety with a couple of dedicated evenings.

In summary, it is rare to be delighted by a book reviewed within the context of its potential to contribute to education in agriculture. This is a rare book in that context. *Breeds of Cattle*, 2nd edition, is a book that will also find its way to a broader audience and is one we can be proud of to represent one of our industry's sectors.

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### **Soils, Land, and Life**

**By S.W. Buol, 2008, Prentice Hall, 320 pages, soft cover, \$ 60.00, ISBN -13: 9780131914810, ISBN-10: 0131914812**

As more of the human population lives in urban areas, land for food production has become less available. In this case, understanding the soil as a part of the land is becoming critical for efforts to maximize food production, while conserving resources and managing the environment for sustainability. Soil also represents the core of the complexity of natural resources as related to social, political, and economic realities which influence future food security.

The book offers a general concept of soil relationship to land and people. It is highly readable and engaging to the reader through simple explanations on principles of soil science. It reviews water, temperature, nutrient, and nutrient cycles and discusses their dynamics in soil (Chapters 2, 3, 4, and 5). These chapters introduce the reader to the qualitative context in chemical transformations and an arithmetical fashion in the physics of water in the soil and landscapes, but no mathematics involved beyond adding, subtracting, multiplying and dividing. The

book is actually a welcome addition to the previous reading materials related to soil, agriculture, environment and natural resources.

Chapter 6 describes how soils have various unique features. Several interesting titles are used in this chapter to attract the reader's attention, namely: "Cold Beer But No Popcorn for Permafrost;" "Too Dry To Take Root for Arid Lands;" "Too Much Salt: High Blood Pressure for Saline soils;" "Too Much Alkali: Soft Soap Treatment for Sodic soils;" "That Bitter Taste: Aluminum Toxicity for Acid soils;" "Embalmed Plant Remains: Peat and Muck;" "Cat Clay: Acid Sulfate Soils;" and "Too Much Water: Hydric Soils." The explanations on each soil type are easy to understand and provide stimulating discussions.

Chapter 7 focuses on soil management, such as conservation and water management for the hill-slope land, erosion control, and other related practices. In this chapter, the author provided great photos showing various spatial conditions of soils and landscapes around the world. He also mentioned no two land areas are identically alike, but certain basic principles may be implemented widely. This chapter contains an important message from the author: "Although human can alter some landscape feature to reduce undesirable effects of water and wind on the land surface, extreme sporadic and catastrophic events beyond the control of humans naturally occur and drastically alter the shape of the land and the properties of the soil."

Chapter 8 attempts to describe human activities that change soil properties, such as water, temperature, and nutrients. It provides examples of traditional management practices, namely chitemente in Zambia and manure gathering in Western Europe. In addition, this chapter explores the benefits and challenges to the utilization of technology in growing crops.

Chapter 9, "What It Takes to Do Our Job" is a quite useful chapter as it covers biophysical approaches to improve land by farming and fertilizing the soil. This chapter, in conjunction with chapter 8, "Activities on the Land," gives a very complete description of practices that can change the land or soil conditions.

Chapter 10, "Societal Obligations to Soil, Land, and Life," contains the most interesting discussion, especially about the facts of how agricultural scientists in developing countries react to agricultural development and political situations. Unfortunately, these scientists do not realize that their decisions will impact the sustainability of food production, and more importantly to food security. The author also explains about the art of "managing soil on the right place and time" which is intriguing.

The remaining information on soil orders and conversion factors can be found in appendixes. The

short and simple explanation on each soil order is great and easy to understand for readers who have never been exposed to soil science. This is not new information but at least provides references.

The book has no conclusion section to tie the pieces together and it needs more information on the aspects of economic perspectives. It also misses the opportunity to emphasize the unique potential for a synthesis of soil biology. The most significant shortcoming of the text is its lack of engagement with the recent challenges that bio-fuel demand brings to agricultural development, and that agriculture is not only for growing and producing food. It would seem appropriate if the author also gave consideration to the issue of land for bio-fuel in competition with land for food.

However, it is always good to have a book that is easy to read, well-written, informative, and stimulating. The book will really appeal to all - especially for high school graduates, practitioners in environmental science, non agricultural majors, or others who are simply curious and concerned about our soil.

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### **Design and Assessing Courses and Curricula: A Practical Guide, 3rd Edition**

**By Robert M. Diamond, 2008, Jossey-Bass, soft cover, 487 pages, \$45.00, ISBN: 978-0-470-26134-7**

This book addresses to the questions of both faculty and administrators who are aware of need for change in course and curricula but may be unsure of how to proceed. There is a continuously developing supply of excellent books written about fundamentals of teaching and learning, that is not the focus of this book. This is a practical descriptive handbook for faculty and administrators involved in the improvement of teaching and learning through course and curriculum development. Its goal is to provide a model for designing, implementing, and evaluating courses and curricula. It suggests course design options that are available to help meet the diverse needs of students, and offers guidelines for all parties engaged in the design process. It brings focus to the role of the course in meeting the overarching goals of the curricula. It has been developed based on the extended experience of the author with a range of types and sizes of institutions.

The first six chapters give a frame of reference and background information on current process, thinking and trends in curriculum. The first chapter lays groundwork and gives an overview of the

rationale behind the process and benefits to be expected. Chapters two through four discuss such topics as accreditation and faculty rewards. Chapters five and six introduce the specifics steps in the model and in more detail the characteristics that have made the approach effective.

The second portion of the book moves sequentially through the model of course and curriculum design. Each of the nine chapters carefully describes step-by-step processes. Helpful checklist and list of questions to consider and case studies from different fields of study enrich this section as well as make it useful as an ongoing reference. Three chapters discuss how to get a project under way, the significant and often overlooked interrelationship between goals, courses, and curriculum, and collecting and using data to make quality decisions. The final chapters focus on planned assessment.

The third portion of the book is entitled designing, implementing, and assessing the learning experience. Its seven chapters are designed to assist in making the best possible instructional design decision for the expected students. This section includes chapters contributed by two well know collaborators on topics of current interest such as using technology, distance learning, and addressing diversity. The section closes with a brief chapter on developing a learning-centered syllabus which can serve as starting point on this topic.

The final two chapters, designated part four of the book, acknowledges the on-going nature of course and curriculum change. The author reviews some of the major forces that will impact higher education in the years ahead, reviews the characteristics of a quality curriculum, and concludes with some of his lessons learned along the way about successful innovation and change.

Two potentially very useful segments of the book follow the formal chapters. The first is sixty pages of "Resources" from a side range of sources and authors which may be very helpful examples statements, inventories and other useful published pieces. Lastly, fifteen case studies across a diverse range of curriculums are included.

Even though it does not deal effectively with the specifics of actual implementation of design for teaching and learning, this book can be useful to both the novice in the domain of course and curriculum development to get a foothold in this area and by the more experienced persons as a refresher and resource for specific topics.

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