

Plants And Microclimate A Quantitative Approach To Environmental Plant Physiology

Environmental Risk Assessment of Soil Contamination
Forests and Global Change
The Vegetation of Poland
Tree-crop Interactions
An Introduction to Environmental Biophysics
Under the Weather
Alpine Plant Life
Quantitative Plant Ecology
The Physiology of Flowering Plants
Vegetation-Climate Interaction
Natural Climate Variability on Decade-to-Century Time Scales
Vegetation Ecology
Terrestrial Biosphere-Atmosphere Fluxes
Soybean Ecology of Desert Systems
Chemical Dictionary of Economic Plants
Plant Physics
Plant Physiological Ecology
Abiotic and Biotic Stress in Plants
Plant Propagation Concepts and Laboratory Exercises
Plant Responses to Drought Stress
Factors of Soil Formation
Plants and Microclimate South Asia Edition
Plants and Microclimate
Remote Sensing of Vegetation
Crop Ecology
Microclimate and Local Climate
Microbiology of Aerial Plant surfaces
Photosynthesis and Production in a Changing Environment
Physiology of the Plant Root System
Crop Ecology
Functional Biology of Plants
Plant Physiology: Theory and Applications
Plant Engineering
Plant Biomechanics
Coastal Plant Communities of Latin America
Techniques in Bioproductivity and Photosynthesis
Crop Modeling and Decision Support
Plant Breeding from Laboratories to Fields
Plants and Habitats

Environmental Risk Assessment of Soil Contamination

A detailed introduction to agricultural ecology with emphasis on productivity and systems concepts.

Forests and Global Change

"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.

The Vegetation of Poland

A framework for quantifying the various effects of tree-crop interactions. Mexed cropping of annuals and woody perennials: an analytical approach to productivity and management. Mulch and shade model for optimum alley-cropping design

depending on soil fertility. Principles of resource capture and utilization of light and water. Microclimatic modifications in agroforestry. The water balance of mixed tree-crop systems. Biological factors affecting form and function in woody-non-woody plant mixtures. Tree-soil-crop interactions on slopes. Root distribution of trees and crops: competition and/or complementarity. Woody-non-woody plant mixtures: some afterthoughts.

Tree-crop Interactions

Includes a DVD Containing All Figures and Supplemental Images in PowerPoint This new edition of Plant Propagation Concepts and Laboratory Exercises presents a robust view of modern plant propagation practices such as vegetable grafting and micropropagation. Along with foundation knowledge in anatomy and plant physiology, the book takes a look into the future and how cutting edge research may impact plant propagation practices. The book emphasizes the principles of plant propagation applied in both temperate and tropical environments. In addition to presenting the fundamentals, the book features protocols and practices that students can apply in both laboratory and field experiences. The book shows readers how to choose the best methods for plant propagation including proper media and containers as well as performing techniques such as budding, cutting, layering, grafting, and cloning. It also discusses how to recognize and cope with various propagation challenges. Also included are concept chapters highlighting key information, laboratory exercises, anticipated laboratory results, stimulating questions, and a DVD containing all the figures in the book as well as some supplemental images.

An Introduction to Environmental Biophysics

This edition provides a comprehensive overview of the rapidly advancing field of plant physiology, supplemented with experimental exercises.

Under the Weather

Throughout history man has utilised the bounty of plants using them as a source for food, feed, beverages, drugs and medicine, flavours, perfumes, dyes, gums, resins, fibres, timbers and numerous other applications. Modern biotechnology is centralised and devoted to the further exploitation of plant products and an example is capsicum, one of the ingredients in chilli's, that induces endorphin release in the body (a reason why many people love spicy foods) that is now added to painkillers. This book is a compilation that lists the many essential and invaluable plant substances man has found invaluable throughout his life. Where necessary the chemical structures of the plant products are included and starting with the product rather than the plant name it provides easy access to information on an extensive range of plant products - of

use in many industries. A full bibliography of the books consulted during the compilation is included as well as two indexes (the plant species and common name) and a listing of the entry names of products and their synonyms. Each entry includes: Name of Plant Product Synonyms Chemical Classification Occurrence Description and Composition Comments (where applicable) Where necessary the chemical structures of the plant products are also included.

Alpine Plant Life

Published ecological information on Latin American coasts is scarce, despite the growing need for a comprehensive examination of coastal processes on a global scale. This book brings together details on benthic marine algae, seagrasses, salt marsh, mangrove, and dune plant communities throughout Latin America. Researchers and graduate students in plant ecology, marine biology, and environmental management will benefit from the valuable information in this book. Distribution and community ecology Modern research approaches Coastal management possibilities

Quantitative Plant Ecology

Microbiology of Aerial Plant Surfaces is composed of papers presented at a meeting held at the University of Leeds in September, 1975. The content covers progress in work on the aerial surfaces of plants during the years 1970-1975. Organized into 31 chapters, the book begins with the aspects of the structure and development of the aerial surfaces of higher plants. It then elucidates some effects of fungicides and other agrochemicals on the microbiology of the aerial surfaces of plants; effects of air pollution on the structure and function of plant-surface microbial ecosystems; and the aerial microclimate around plant surfaces. Some other topics discussed include the taxonomy of bacteria on the aerial parts of plants; fungi on the aerial surfaces of higher plants; and distribution of yeasts and yeast-like organisms on aerial surfaces of developing apples and grapes. Furthermore, the book explains the saprophytes on plant surfaces in maritime areas and antagonism between fungal saprophytes and pathogens on aerial plant surfaces.

The Physiology of Flowering Plants

Functional Biology of Plants provides students and researchers with a clearly written, well structured whole plant physiology text. Early in the text, it provides essential information on molecular and cellular processes so that the reader can understand how they are integrated into the development and function of the plant at whole-plant level. Thus, this beautifully illustrated book, presents a modern, applied integration of whole plant and molecular approaches to the study of plants. It is divided into four parts: Part 1: Genes and Cells, looks at the origins of plants, cell structure, biochemical processes and genes and development. Part 2: The Functioning Plant, describes the structure and function of roots, stems,

leaves, flowers and seed and fruit development. Part 3: Interactions and Adaptations, examines environmental and biotic stresses and how plants adapt and acclimatise to these conditions. Part 4: Future Directions, illustrates the great importance of plant research by looking at some well chosen, topical examples such as GM crops, biomass and bio-fuels, loss of plant biodiversity and the question of how to feed the planet. Throughout the book there are text boxes to illustrate particular aspects of how humans make use of plants, and a comprehensive glossary proves invaluable to those coming to the subject from other areas of life science.

Vegetation-Climate Interaction

Nearly one-third of the land area on our planet is classified as arid or desert. Therefore, an understanding of the dynamics of such arid ecosystems is essential to managing those systems in a way that sustains human populations. This second edition of Ecology of Desert Systems provides a clear, extensive guide to the complex interactions involved in these areas. This book details the relationships between abiotic and biotic environments of desert ecosystems, demonstrating to readers how these interactions drive ecological processes. These include plant growth and animal reproductive success, the spatial and temporal distribution of vegetation and animals, and the influence of invasive species and anthropogenic climate change specific to arid systems. Drawing on the extensive experience of its expert authors, Ecology of Desert Systems is an essential guide to arid ecosystems for students looking for an overview of the field, researchers keen to learn how their work fits in to the overall picture, and those involved with environmental management of desert areas. Highlights the complexity of global desert systems in a clear, concise way Reviews the most current issues facing researchers in the field, including the spread of invasive species due to globalized trade, the impact of industrial mining, and climate change Updated and extended to include information on invasive species management, industrial mining impacts, and the current and future role of climate change in desert systems

Natural Climate Variability on Decade-to-Century Time Scales

This book provides a comprehensive overview of the multiple strategies that plants have developed to cope with drought, one of the most severe environmental stresses. Experts in the field present 17 chapters, each of which focuses on a basic concept as well as the latest findings. The following major aspects are covered in the book: · Morphological and anatomical adaptations · Physiological responses · Biochemical and molecular responses · Ecophysiological responses · Responses to drought under field conditions The contributions will serve as an invaluable source of information for researchers and advanced students in the fields of plant sciences, agriculture, ecophysiology, biochemistry and molecular biology.

Vegetation Ecology

Undernourishment in some areas and abundance in others, accelerated climate changes, food distribution and security challenges, fluctuating economic and political stability and oversaturation in information - this is the world we are living in today. It seems that there is no time for the basic science plant research; instead of years of dedicated investigation, scientists are forced to wrap up their know-how in a project-oriented deliverables as fast as possible. The main strength of this book is the new knowledge about plant engineering that could be transferred into the applied science and, later on, to the industry. However, we should not forget that all great discoveries begin with the fundamental research, the wealth of good ideas and the dedicated scientific work.

Terrestrial Biosphere-Atmosphere Fluxes

Soybean

In this first comprehensive treatment of plant biomechanics, Karl J. Niklas analyzes plant form and provides a far deeper understanding of how form is a response to basic physical laws. He examines the ways in which these laws constrain the organic expression of form, size, and growth in a variety of plant structures, and in plants as whole organisms, and he draws on the fossil record as well as on studies of extant species to present a genuinely evolutionary view of the response of plants to abiotic as well as biotic constraints. Well aware that some readers will need an introduction to basic biomechanics or to basic botany, Niklas provides both, as well as an extensive glossary, and he has included a number of original drawings and photographs to illustrate major structures and concepts. This volume emphasizes not only methods of biomechanical analysis but also the ways in which it allows one to ask, and answer, a host of interesting questions. As Niklas points out in the first chapter, "From the archaic algae to the most derived multicellular terrestrial plants, from the spectral properties of light-harvesting pigments in chloroplasts to the stacking of leaves in the canopies of trees, the behavior of plants is in large part responsive to and intimately connected with the physical environment. In addition, plants tend to be exquisitely preserved in the fossil record, thereby giving us access to the past." Its biomechanical analyses of various types of plant cells, organs, and whole organisms, and its use of the earliest fossil records of plant life as well as sophisticated current studies of extant species, make this volume a unique and highly integrative contribution to studies of plant form, evolution, ecology, and systematics.

Ecology of Desert Systems

Plants are important for a permanent ecosystem, because in the ecological pyramid plants support all the other living organisms at the base. Very important organization is thought to be the integral process of resource, transport, partitioning,

metabolism, and production, which involves yield, biomass, and productivity in plants. Accordingly, it is important to obtain more information about the knowledge concerning yield, biomass, and productivity in plants. Soybean is one of the main crops largely contributing to our life, which is thought to be connected to our ecosystem through the above-mentioned integral process. This book focuses on the soybean, and reviews and research concerning the yield, biomass, and productivity of soybean are presented herein. This text updates the book published in 2017. Although there are many difficulties, the main aim of this book is to present a basis for the above-mentioned integral processes of resource, transport, partitioning, metabolism, and production, which involves yield, biomass, and productivity in plants (soybean), and to understand what supports this basis and the integral process. It is hoped that this and the preceding book will be essential reads.

Chemical Dictionary of Economic Plants

The majority of the world's people depend research work should be carried out at the local and regional level by locally trained on plants for their livelihood since they grow them for food, fuel, timber, fodder and people. many other uses. A good understanding Following the success of our earlier book of the practical factors which govern the (Techniques in Bioproductivity and Photo synthesis; Pergamon Press, 1985), which productivity of plants through the process of photosynthesis is therefore of paramount was translated into four major languages, importance, especially in the light of cur the editors and contributors have exten rent concern about global climate change sively revised the content and widened the and the response of both crops and natural scope of the text,· so it now bears a title ecosystems. in line with current concern over global The origins of this book lie in a series of climate change. · In particular, we have training courses sponsored by the United added chapters on remote sensing, con Nations Environment Programme (Project trolled-environment studies, chlorophyll No. FP/6108-88-01 (2855); 'Environment fluorescence, metabolite partitioning and changes and the productivity of tropical the use of mass isotopes, all of which grasslands'), with additional support from techniques are increasing in their applica many international and national agencies. tion and importance to this subject area.

Plant Physics

Generations of plant scientists have been fascinated by alpine plant lifean ecosystem that experiences dramatic climatic gradients over a very short distance. This comprehensive book examines a wide range of topics including alpine climate and soils, plant distribution and the treeline phenomenon, plant stress and development, global change at high elevation, and the human impact on alpine vegetation. Geographically, the book covers all parts of the world including the tropics.

Plant Physiological Ecology

Abiotic and Biotic Stress in Plants

This book provides an up-to-date, comprehensive treatment of the variables and processes of microclimate and local climate, including radiation balance and energy balance. It describes and explains the climate within the lower atmosphere and upper soil, the region critical to life on Earth. Topics that are covered include not only the physical processes that affect microclimate, but also biological processes that affect vegetation and animals, including people. A geographic tour of the microclimates of the major ecosystems around the world is included. All major biomes and surface types, including urban areas, are examined, and the effects of climate change on microclimate are described. This book is invaluable for advanced students and researchers in climatology in departments of environmental science, geography, meteorology, agricultural science, and forestry.

Plant Propagation Concepts and Laboratory Exercises

From reviews of the first edition: "well organized . . . Recommended as an introductory text for undergraduates" -- AAAS Science Books and Films "well written and illustrated" -- Bulletin of the American Meteorological Society

Plant Responses to Drought Stress

Combines the species and habitat approaches to plants and vegetation. This book features 700 plant species that are selected as those which are common, conspicuous or useful ecological indicators; species which collectively make up most of the vegetation in Britain and Ireland.

Factors of Soil Formation

An accessible yet rigorous introduction to remote sensing and its application to the study of vegetation for advanced undergraduate and graduate students. The underlying physical and mathematical principles of the techniques discussed are explained in a way readily understood by those without a strong mathematical background.

Plants and Microclimate South Asia Edition

International Series of Monographs in Pure and Applied Biology, Volume 9: The Vegetation of Poland focuses on the plant

geography of Poland, including climate, hydrography, geology, and ecology. The selection first offers information on the historical outline of the development of plant geography and the factors affecting the geographical distribution of plants in Poland. Discussions focus on the development of phytogeographical cartography, floristic and ecological plant geography, and the climate, boundaries, land-relief, hydrography, and geology of Poland. The text then ponders on the influence of man and his economic activities on the vegetation of Poland and the floristic statistics and the elements of the Polish flora. The publication examines the terrestrial and fresh-water plant communities and vegetation of the Polish Baltic. Topics include composition and structure of plant communities and methods of their study, associations of coastal and inland dunes, aquatic and swamp associations, and the most important representatives of the benthic flora of the Polish Baltic. The manuscript is a dependable source of data for botanists and those concerned with the plant resources of nature, including agriculturists, horticulturists, and soil scientists.

Plants and Microclimate

Forests hold a significant proportion of global biodiversity and terrestrial carbon stocks and are at the forefront of human-induced global change. The dynamics and distribution of forest vegetation determines the habitat for other organisms, and regulates the delivery of ecosystem services, including carbon storage. Presenting recent research across temperate and tropical ecosystems, this volume synthesises the numerous ways that forests are responding to global change and includes perspectives on: the role of forests in the global carbon and energy budgets; historical patterns of forest change and diversification; contemporary mechanisms of community assembly and implications of underlying drivers of global change; and the ways in which forests supply ecosystem services that support human lives. The chapters represent case studies drawn from the authors' expertise, highlighting exciting new research and providing information that will be valuable to academics, students, researchers and practitioners with an interest in this field.

Remote Sensing of Vegetation

Masterpiece offers a detailed discussion of the nature of the earth's terrestrial environment, and a method of subdividing and studying it. 1941 edition.

Crop Ecology

Food security and environmental conservation are two of the greatest challenges facing the world today. It is predicted that food production must increase by at least 70% before 2050 to support continued population growth, though the size of the world's agricultural area will remain essentially unchanged. This updated and thoroughly revised second edition provides in-

depth coverage of the impact of environmental conditions and management on crops, resource requirements for productivity and effects on soil resources. The approach is explanatory and integrative, with a firm basis in environmental physics, soils, physiology and morphology. System concepts are explored in detail throughout the book, giving emphasis to quantitative approaches, management strategies and tactics employed by farmers, and associated environmental issues. Drawing on key examples and highlighting the role of science, technology and economic conditions in determining management strategies, this book is suitable for agriculturalists, ecologists and environmental scientists.

Microclimate and Local Climate

This latest edition of The Physiology of Flowering Plants has been completely updated to cover the explosion of interest in plant biology. A whole-plant approach has been used to produce an integrated view of plant function, covering both the fundamentals of whole plant physiology and the latest developments in molecular biology. New developments in molecular techniques are explained within practical applications such as genetically modified plants. The book further examines: • photosynthesis, respiration, plant growth and development • nutrition, water relations, photomorphogenesis and stress physiology • function, with particular attention to adaptations to different habitats. Each chapter is fully referenced with suggestions for complementary reading including references to original research papers. The Physiology of Flowering Plants is an ideal textbook for undergraduate and postgraduate courses in plant biology.

Microbiology of Aerial Plant surfaces

The impact of global climate change on crop production has emerged as a major research priority during the past decade. Understanding abiotic stress factors such as temperature and drought tolerance and biotic stress tolerance traits such as insect pest and pathogen resistance in combination with high yield in plants is of paramount importance to counter climate change related adverse effects on the productivity of crops. In this multi-authored book, we present synthesis of information for developing strategies to combat plant stress. Our effort here is to present a judicious mixture of basic as well as applied research outlooks so as to interest workers in all areas of plant science. We trust that the information covered in this book would bridge the much-researched area of stress in plants with the much-needed information for evolving climate-ready crop cultivars to ensure food security in the future.

Photosynthesis and Production in a Changing Environment

Breeding of crop plants to make them more adapted to human agricultural systems has been on-going during domestication the last 10 000 years. However, only recently with the invention of the Mendelian principles of genetics and

the subsequent development of quantitative genetics during the twentieth century has such genetic crop improvement become based on a general theory. During the last 50 years plant breeding has entered a molecular era based on molecular tools to analyse DNA, RNA and proteins and associate such molecular results with plant phenotype. These marker trait associations develop fast to enable more efficient breeding. However, they still leave a major part of breeding to be performed through selection of phenotypes using quantitative genetic tools. The ten chapters of this book illustrate this development.

Physiology of the Plant Root System

Crop Ecology

This introduction to the features of the atmospheric environment is of particular relevance to plants and describes the physical and physiological principles required for understanding their interaction with the environment.

Functional Biology of Plants

From Galileo, who used the hollow stalks of grass to demonstrate the idea that peripherally located construction materials provide most of the resistance to bending forces, to Leonardo da Vinci, whose illustrations of the parachute are alleged to be based on his study of the dandelion's pappus and the maple tree's samara, many of our greatest physicists, mathematicians, and engineers have learned much from studying plants. A symbiotic relationship between botany and the fields of physics, mathematics, engineering, and chemistry continues today, as is revealed in Plant Physics. The result of a long-term collaboration between plant evolutionary biologist Karl J. Niklas and physicist Hanns-Christof Spatz, Plant Physics presents a detailed account of the principles of classical physics, evolutionary theory, and plant biology in order to explain the complex interrelationships among plant form, function, environment, and evolutionary history. Covering a wide range of topics—from the development and evolution of the basic plant body and the ecology of aquatic unicellular plants to mathematical treatments of light attenuation through tree canopies and the movement of water through plants' roots, stems, and leaves—Plant Physics is destined to inspire students and professionals alike to traverse disciplinary membranes.

Plant Physiology: Theory and Applications

Since the dawn of medical science, people have recognized connections between a change in the weather and the appearance of epidemic disease. With today's technology, some hope that it will be possible to build models for predicting

the emergence and spread of many infectious diseases based on climate and weather forecasts. However, separating the effects of climate from other effects presents a tremendous scientific challenge. Can we use climate and weather forecasts to predict infectious disease outbreaks? Can the field of public health advance from "surveillance and response" to "prediction and prevention?" And perhaps the most important question of all: Can we predict how global warming will affect the emergence and transmission of infectious disease agents around the world? Under the Weather evaluates our current understanding of the linkages among climate, ecosystems, and infectious disease; it then goes a step further and outlines the research needed to improve our understanding of these linkages. The book also examines the potential for using climate forecasts and ecological observations to help predict infectious disease outbreaks, identifies the necessary components for an epidemic early warning system, and reviews lessons learned from the use of climate forecasts in other realms of human activity.

Plant Engineering

An accessible account of the ways in which the world's plant life affects the climate. It covers everything from tiny local microclimates created by plants to their effect on a global scale. If you've ever wondered how vegetation can create clouds, haze and rain, or how plants have an impact on the composition of greenhouse gases, then this book is required reading.

Plant Biomechanics

This volume reflects the current state of scientific knowledge about natural climate variability on decade-to-century time scales. It covers a wide range of relevant subjects, including the characteristics of the atmosphere and ocean environments as well as the methods used to describe and analyze them, such as proxy data and numerical models. They clearly demonstrate the range, persistence, and magnitude of climate variability as represented by many different indicators. Not only do natural climate variations have important socioeconomic effects, but they must be better understood before possible anthropogenic effects (from greenhouse gas emissions, for instance) can be evaluated. A topical essay introduces each of the disciplines represented, providing the nonscientist with a perspective on the field and linking the papers to the larger issues in climate research. In its conclusions section, the book evaluates progress in the different areas and makes recommendations for the direction and conduct of future climate research. This book, while consisting of technical papers, is also accessible to the interested layperson.

Coastal Plant Communities of Latin America

Fluxes of trace gases, water and energy - the 'breathing of the biosphere' - are controlled by a large number of interacting

physical, chemical, biological and ecological processes. In this interdisciplinary book, the authors provide the tools to understand and quantitatively analyse fluxes of energy, organic compounds such as terpenes, and trace gases including carbon dioxide, water vapour and methane. It first introduces the fundamental principles affecting the supply and demand for trace gas exchange at the leaf and soil scales: thermodynamics, diffusion, turbulence and physiology. It then builds on these principles to model the exchange of water, carbon dioxide, terpenes and stable isotopes at the ecosystem scale. Detailed mathematical derivations of commonly used relations in biosphere-atmosphere interactions are provided for reference in appendices. An accessible introduction for graduate students and a key resource for researchers in related fields, such as atmospheric science, hydrology, meteorology, climate science, biogeochemistry and ecosystem ecology.

Techniques in Bioproductivity and Photosynthesis

Additional resources for this book can be found at: <http://www.wiley.com/go/vandermaarefranklin/vegetationecology>. www.wiley.com/go/vandermaarefranklin/vegetationecology/a. Vegetation Ecology, 2nd Edition is a comprehensive, integrated account of plant communities and their environments. Written by leading experts in their field from four continents, this second edition of this book: covers the composition, structure, ecology, dynamics, diversity, biotic interactions and distribution of plant communities, with an emphasis on functional adaptations; reviews modern developments in vegetation ecology in a historical perspective; presents a coherent view on vegetation ecology while integrating population ecology, dispersal biology, soil biology, ecosystem ecology and global change studies; tackles applied aspects of vegetation ecology, including management of communities and invasive species; includes new chapters addressing the classification and mapping of vegetation, and the significance of plant functional types. Vegetation Ecology, 2nd Edition is aimed at advanced undergraduates, graduates and researchers and teachers in plant ecology, geography, forestry and nature conservation. Vegetation Ecology takes an integrated, multidisciplinary approach and will be welcomed as an essential reference for plant ecologists the world over.

Crop Modeling and Decision Support

Plant Breeding from Laboratories to Fields

Soil is an irreplaceable resource that sustains life on the planet, challenged by food and energy demands of an increasing population. Therefore, soil contamination constitutes a critical issue to be addressed if we are to secure the life quality of present and future generations. Integrated efforts from researchers and policy makers are required to develop sound risk assessment procedures, remediation strategies and sustainable soil management policies. Environmental Risk Assessment

of Soil Contamination provides a wide depiction of current research in soil contamination and risk assessment, encompassing reviews and case studies on soil pollution by heavy metals and organic pollutants. The book introduces several innovative approaches for soil remediation and risk assessment, including advances in phytoremediation and implementation of metabolomics in soil sciences.

Plants and Habitats

Box 9E. 1 Continued FIGURE 2. The C-S-R triangle model (Grime 1979). The strategies at the three corners are C, competi- winning species; S, stress-tolerating species; R, ruderal species. Particular species can engage in any mixture of these three primary strategies, and the mixture is described by their position within the triangle. comment briefly on some other dimensions that Grime's (1977) triangle (Fig. 2) (see also Sects. 6. 1 are not yet so well understood. and 6. 3 of Chapter 7 on growth and allocation) is a two-dimensional scheme. A C—S axis (Com- tition-winning species to Stress-tolerating spe- Leaf Economics Spectrum cies) reflects adaptation to favorable vs. unfavorable sites for plant growth, and an R- Five traits that are coordinated across species are axis (Ruderal species) reflects adaptation to leaf mass per area (LMA), leaf life- span, leaf N disturbance. concentration, and potential photosynthesis and dark respiration on a mass basis. In the five-trait Trait-Dimensions space, 79% of all variation worldwidelies along a single main axis (Fig. 33 of Chapter 2A on photo- A recent trend in plant strategy thinking has synthesis; Wright et al. 2004). Species with low been trait-dimensions, that is, spectra of varia- LMA tend to have short leaf life-spans, high leaf tion with respect to measurable traits. Compared nutrient concentrations, and high potential rates of mass-based photosynthesis. These species with category schemes, such as Raunkiaer's, trait occur at the "quick-return" end of the leaf e- dimensions have the merit of capturing cont- nomics spectrum.

[ROMANCE](#) [ACTION & ADVENTURE](#) [MYSTERY & THRILLER](#) [BIOGRAPHIES & HISTORY](#) [CHILDREN'S](#) [YOUNG ADULT](#) [FANTASY](#)
[HISTORICAL FICTION](#) [HORROR](#) [LITERARY FICTION](#) [NON-FICTION](#) [SCIENCE FICTION](#)