cesses are critical for understanding the combined effects of plant stresses; (vi) the interaction of plant architecture, or spatial arrangement of the leaf canopy, and pests and how plant architecture can be manipulated to improve pest tolerance; (vii) understanding the relationship between moisture stress, perhaps the most common form of abiotic stress, and insect pest injury; (viii) plant responses to herbivory and the importance of understanding herbivory if plant breeders and managers are to continue strides toward maximizing crop yields; (ix) contrasting plant responses to herbivory in wild and domesticated habitats; (x) the concept that the effects of plant pests are ultimately manifested as reduced leaf area, leaf area index (LAI), radiation interception (RI), and radiation use efficiency (RUE), all of which could be more easily assessed and evaluated using remote sensing technologies; and (xi) the approaches for quantifying the effects of weed interference on crop yield.

This book presents a valuable review of many topics relating to biotic stress and yield loss. Each of the chapter authors has included an extensive list or key references that will be very helpful to students and faculty alike. More importantly, this book demonstrates the value of linking authors from disparate disciplines to address a topic that ultimately must be approached holistically to enhance progress in this area. The attentive reader will gain new insights into the relationships of abiotic and biotic plant stresses; their interactions; their impacts on crop growth, phenology and yield; and approaches to consider, as well as things to avoid, when designing research projects.

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A critical aspect of predicting future environment change and understanding ecosystem response is a quantification of terrestrial global productivity. This book presents chapters written by various authors to address a broad spectrum of information relevant to developing an inventory of ecosystem primary and net productivity. The book is divided into three sections. The first section contains seven chapters discussing component processes that influence plant productivity including the fundamental processes of photosynthesis, respiration, and plant development. The second section contains individual chapters that discuss approaches to resolving the overall questions of terrestrial productivity. The final chapter, written by the editors of the book, is quite useful in summarizing the key aspects highlighted in the book requiring high-priority research. Topics discussed included accumulation of root mass, biome radiation use efficiency, evaluation of area of biomes, and carbon residence time in biomass.

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Several of the chapters in the first section dealing with photosynthesis and respiration written by docchi and J. Amthor give very nice overviews of factors that influence each process and how these can be influenced by global climate change. These are supported by a chapter on the influence of CO2 and N on productivity processes written by B. Hungate, and B. Drake. The scope of these chapters is necessarily broad, sacrificing somewhat on depth. Chapters that review available information to estimate the productivity of each of nine ecosystems. This section accounts for nearly half of the book. The final section contains six chapters that discuss approaches for understanding and predicting future environment change. This book helps to highlight the truly limited amount of experimental data across ecosystems currently available that allow accurate projections of changes in terrestrial productivity under climate change.

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