

Preface

This book is written for anyone who is curious about plants and wants to better understand the plants we use in our fields and gardens for food, and the plants we love for the beauty they add to our lives. It addresses not only what plants do, but why, to provide insight for our interactions with the plants we cultivate, struggle with, and depend on in the natural environments that are our heritage and our future.

This book is intended for casual readers who want to know how plants actually work, not just how to care for a particular plant in a particular climate, and for students of plant science seeking an understanding of plant structure and function. It is hoped that both groups will be well-served by a simple but accurate overview of the subjects of plant anatomy and plant physiology.

The early chapters of the book are descriptive of roots, stems, leaves, and flowers, and the cells and tissues from which these structures are built. Such organs have much in common from plant to plant, but observing their differences helps us understand plants' adaptations to the often challenging environments in which they developed. The balance of the book describes how plants work: how they extract water and nutrients from the soil, how they use sunlight to create the carbohydrates that are the first link in the food chain, and how they manage to survive and reproduce literally rooted in one spot.

The emphasis of this book is on inclusive explanations, and concepts are illustrated with examples from agricultural and horticultural plants. When used as a text, this material should be supplemented with a hands-on lab where students can observe the anatomical features and physiological processes introduced here. The book is arranged in 14 chapters, a useful length for a one-semester introductory course in plant anatomy and physiology.