Cotton
2nd edition
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Cotton has been cultivated and used to make fabrics for at least 7,000 years, and evidence indicates it may have been cultivated in the Middle East as early as 12,000 BCE and used to produce clothing and a number of other products. Cotton, however, is much more than clothing and ear swabs. The farm value of US cotton and cottonseed production is approximately $5 billion. Annual business revenue for cotton products in the US economy exceeds $120 billion, making cotton America’s number one value-added crop. China and India are world leaders in annual cotton production.

Contrary to popular belief, US “paper” currency is not actually made of paper; it’s a blend of 75% cotton and 25% linen. Cotton is a critical component of baseballs. The Wright Brothers used cotton to cover the wings of their aircraft for the first powered flight in 1905. This small assortment of trivia is representative of the breadth of cotton’s use and economic importance of this perennial, yet annually propagated, agronomic crop.

Editors David Fang and Richard Percy have compiled a prestigious list of contributing authors in a series of chapters reviewing the history, improvement and cultivation of this amazing and versatile crop. *Cotton*, 2nd edition, Agronomy Monograph 57, is sure to become the go-to publication for professors, students, and practitioners.

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Jean Steiner  
President, American Society of Agronomy

Carolyn Olson  
President, Soil Science Society of America
Three decades have elapsed since the publication of the first edition of Cotton. During the past 30 years, many changes have occurred in almost every aspect of the cotton industry. New species were discovered. New germplasm repositories were established in some countries, older collections were consolidated, and established germplasm collections in the United States and other countries adopted new methodologies and techniques for better germplasm preservation, characterization, and utilization. Development of genetically modified (transgenic) cotton varieties revolutionized cotton production. Selections assisted by molecular markers and genomic tools are being implemented in both public and private breeding programs. Genome sequences of two diploid species have been released, and two Gossypium hirsutum Upland sequences are becoming available as this book goes to press. A G. barbadense Pima cotton genome sequence is on the horizon. New technologies such as remote sensing and robotics are aiding in the development of precision agricultural practices that will help growers to more effectively and efficiently manage fertilization, irrigation, and pest control operations and grow profitable, sustainable crops. Broad use of transgenic varieties has brought tremendous changes in growing practices and pest management. Newer high speed spinning instruments have been developed that demand longer, stronger and finer fibers. Consequently, genetic improvement in fiber quality has been stressed, and improved harvesting and ginning instruments have been developed to minimize damage to fibers. With improvement in fiber quality has come the realization that further fiber improvement will require a better understanding of fiber development and biology. As a consequence, developmental biology and genetics have become focal points in the cotton research community. All of these advances have been incorporated into this second edition. Eight chapters are new topics, and 15 chapters are completely rewritten. This book consists of four parts. The first part starts with the origin and history of cotton industry, followed by taxonomy and germplasm management of the genus Gossypium, botanical characteristics of cotton plants, fiber biology, and cytology. The next part discusses qualitative and quantitative traits with agronomic importance, breeding methods and strategies, and advances in marker-assisted selection, genome sequences, databases and bioinformatics tools. The third set of chapters describe growing practices and pest management. The fourth part deals with harvesting, postharvest handling of fibers and seeds, and commerce of world cotton industry. We would like to thank the excellent work of the Societies’ Book and Multimedia Publishing Committee Chair, Dr. April Ulery; Books Acquisition Editor, Dr. Nicole Sandler; and Managing Editor, Lisa Al-Amoodi. Their encouragement, patience, and assistance ensured timely publication of this book. Our appreciation also goes to the 50 authors who contributed to this book, and more than 60 experts who critically reviewed the manuscripts.

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