grain or its end-use properties. Numerous factors, both abiotic and biotic, affect grain quality and crop management strategies required to produce high quality wheat grain differ by market class and production region. This book consists of a series of general descriptions of a broad range of topics related to wheat grain production and utilization. It is intended for use, at the university level, as a reference tool for students, professors, researchers, and consultants with an interest in essentially any aspect of wheat production that may impact the end-use quality of the harvested product.

The book consists of 10 chapters, each of which addresses a different aspect of grain quality or end use. Numerous tables and figures, extracted from a wide array of references, are included to emphasize concepts described in the text. It begins with a general overview of issues related to grain utilization, growth and development of the wheat plant, and cropping systems used for wheat production. The second chapter describes specific grain characteristics, ranging from level of fungal contamination to various milling and baking qualities, that impact utilization of wheat grain. An abbreviated discussion of the influence of variety selection on milling and baking parameters is presented in Chapter 3, with emphasis on data generated from studies involving genotypes adapted to the United Kingdom. A more global perspective of the impact of environmental factors, such as soil type, precipitation levels, and temperature patterns, on end-use quality of wheat grain is presented in Chapter 4. The fifth chapter provides a general overview of issues concerning crop establishment including seedbed preparation, optimal sowing date, seeding rate determination, and options for sowing. A thorough discussion of the micro- and macronutrient requirements of wheat is presented in Chapter 6, with particular emphasis on the role of nitrogen in wheat production and the impacts of N on end-use quality of wheat grain. Chapter 7 presents a general discussion of the major biotic factors that hinder wheat production on a global scale. Brief discussions of common methods used for disease, weed and pest control are listed, and a general description of the impact of each problem on grain quality is provided. Specific details concerning the magnitude of the impact of each disease, weed, or insect in distinct production regions are not included. Factors associated with harvest considerations and postharvest management of grain to maintain quality are discussed in Chapter 8. Thorough discussions of the impacts of drying method, grain purity, and storage conditions on grain quality are included. The option of using wheat as a forage crop is discussed in Chapter 9 with emphasis on forage quality, grazing options, and straw utilization. The final chapter describes nontraditional uses of wheat grain for ethanol, starch, and gluten production.

The unifying theme of this book involves interfacing various production parameters, including variety selection, environmental conditions, crop management, and grain storage, with end-use quality factors and utilization options for wheat grain. The interactions between wheat production and environment are emphasized, and examples of relevant research results from many different wheat production regions around the world are included. However, a comprehensive comparison of management strategies required to produce high quality wheat grain in distinct environments is not provided. Issues are discussed in general terms to encompass typical scenarios that impact wheat production from a global perspective. This book may not be suitable for use in introductory courses since the depth to which terms and concepts are explained is highly variable. If the reader is unfamiliar with routine procedures associated with end-use quality assessment or wheat production, supplemental reading will be required for clarification.

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Wheat is a vital food and feed source worldwide, and the value of this crop is often determined by the quality of the...