

# Cereal Grain Quality

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# Cereal Grain Quality

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and

P.S. Kettlewell



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# Preface

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Cereal uses range from human food and beverages to animal feeds and industrial products. It is human food and beverages which are the predominant uses covered in this book, since the nutritional quality of cereals for animal feed is described in other publications on animal nutrition, and industrial products are a relatively minor use of cereals. Cereals are the main components of human diets and are crucial to human survival. Three species, wheat, rice and maize, account for the bulk of human food. Barley is the major raw material for beer production and ranks fourth in world production. Other species such as sorghum are regionally important.

This book covers all the major cereal species: wheat, rice, maize, barley, sorghum, millet, oats, rye and triticale. Specific chapters have been devoted to a description of the major end-uses of each of the species and to definition of the qualities required for each of their end uses. The functional and nutritional quality of cereals determines their suitability for specific purposes and may limit the quality of the end-product, influencing greatly the commercial value of grain. An understanding of the factors that determine grain quality is thus important in the maintenance of efficient and sustainable agricultural and food production.

The biochemical constituents of the grain that determine quality have been described in chapters on proteins, carbohydrates and other components. An understanding of the relationships between grain composition and quality is important in selecting grain for specific uses.

The breeding of varieties of cereals to meet the quality requirements for specific end-uses has been included, with accounts of both conventional and molecular approaches using biotechnology. Plant breeding offers the potential of new qualities and even new end-uses for grain in the future.

The quality of grain is determined by the genetic potential of the cereal variety and the environment in which the grain is produced. Quality also depends upon the post-harvest storage and handling of the grain. Specific chapters cover agronomy and post-harvest management of quality.

This book should provide a useful first point of reference for almost any aspect of cereal grain quality. The literature cited will allow the reader to access more detailed information on specific aspects of cereal quality.

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