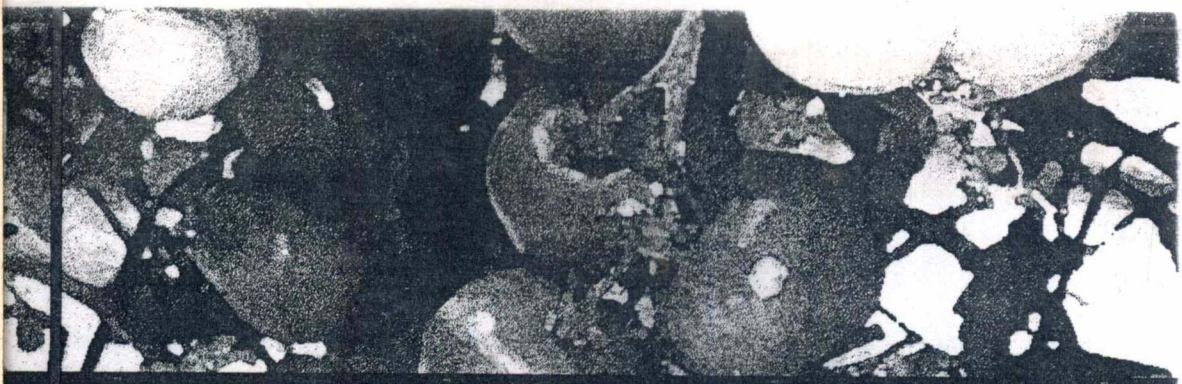

FRUIT & VEGETABLE QUALITY

An Integrated View

Edited by

Robert L. Shewfelt
Bernhard Brückner

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IN May of 1997, more than 50 scientists from 15 countries met in Potsdam, Germany, to discuss the development of a more integrated view of fruit and vegetable quality. The purpose of the conference was to bring together leading scientists from different disciplines, expose them to different perspectives, and develop a framework for future integration. To the surprise of the organizers of the conference, each of the speakers appeared to have an appreciation for the need of integration and presented evidence that their research was incorporating some degree of integration. Despite such promising signs, actual progress will be limited by the lack of any agreement as to where to start or even what the term "integration" really means.

This book represents the vision that emerged from that conference. It is designed for anyone involved in management, production, handling, distribution or processing of fruits and vegetables who believes that improved quality requires integration across business functions and scientific disciplines. It provides concise descriptions of important issues facing postharvest handlers, roadmaps to the literature in specific fields, assessments of current knowledge and research needs, and specific examples of product-based research. It provides a guide to the dynamic developments in integrating projects on fruit and vegetable quality and a range of options to achieve desired effects of better coordination of research across scientific disciplines and to improve postharvest handling to enhance fruit and vegetable quality.

Lack of a common vocabulary for quality, acceptability and related terms as well as a clear need for measures that can be used across traditional disciplinary lines and permit comparison of similar studies were identified as the primary factors limiting integration. The underlying premise of this book is that a greater emphasis on collaborative research that crosses interdisciplinary lines is more likely to lead to improved fruit and vegetable quality than a continued emphasis on rigorous, single-disciplinary studies. *Fruit and Vegetable Quality: An Integrated View* presents 15 unique perspectives on the topic culminating in a final chapter that seeks a common ground for bringing together these perspectives into a unified language that will permit a more integrated approach to fruit and vegetable research and postharvest handling. The book seeks standardization of common terms and mathematical expression while remaining flexible enough to permit innovation in a dynamic field of study.

Section I introduces the aspects of fruits and vegetables that have captivated the attention of consumers and the press around the world—handling and distribution to preserve freshness and ways to breed crops for specific quality characteristics. This section emphasizes those aspects of fruit and vegetable quality that have focused the spotlight on the topic of what is driving postharvest research and provide the rationale for greater integration. Section II provides an appreciation of cultural, environmental, handling and storage techniques that are available to handlers and distributors today. This area is where the greatest improvements of quality have been made to date, but future advances here will probably have limited impact without integration both with crop production and a better understanding of consumer behavior. Section III provides a perspective on fruit and vegetable quality, bringing in the consumer who is the ultimate judge of quality. Section IV provides four perspectives on how studies have been integrated across disciplines in the past, with a concluding chapter that attempts to make projections into the future to provide a basis for a more integrated approach to fruit and vegetable quality. At the beginning and the end of each section, we have assessed the current situation and suggested future avenues of research. The success of this book will rest with its ability to stimulate greater research cooperation across disciplinary perspectives leading to improved quality of fresh fruits and vegetables available to the consumer.

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SECTION ONE

CONTEMPORARY ISSUES

CONTEXT

- Marketing and distribution of fresh fruit and vegetables encompasses a wide range of operations and activities.
- Commercial cultivars, selected for their ability to withstand the rigors of marketing and distribution, tend to lack sufficient quality, particularly flavor.
- Quantitative models that clearly link quality characteristics to economic value or selection traits are not available.

OBJECTIVES

- To present the supply chain as an integrating framework for research on issues of fresh fruit and vegetable quality.
- To describe the potential for improved quality using genetic engineering.
- To relate economic principles of consumer preference to those of plant breeding and selection.