

Introduction

This latest edition of Agriculture Handbook 66 (HB-66) represents a complete revision of the 1986 edition. It has been reorganized and now includes 17 chapters and 138 commodity summaries written by nearly a hundred experts in plant biology and postharvest technology. This version—like the previous editions of HB-66 in 1954, 1968, 1977, and 1986—presents summaries of current storage requirements of fresh fruits, vegetables, cut flowers, and other horticultural crops. However, this highly improved and expanded version also includes information on quality characteristics, maturity indices, grading, packaging, precooling, retail display, chilling sensitivity, ethylene production and sensitivity, respiration rates, physiological disorders, postharvest pathology, quarantine issues, and suitability as fresh-cut product. In addition, a large number of fruits and vegetables were added, as well as sections on food safety, nutritional quality, texture, and fresh-cut produce.

The purpose of storing plant material is to lengthen the time it can be stored and marketed prior to consumption or other use. In doing so, it is critical to provide an environment that minimizes deterioration and maintains microbial safety and quality. The primary intent of HB-66 is to provide guidelines for optimal handling and storage of produce in order to accomplish this.

HB-66 is intended as a general reference, and the recommendations should not be considered absolute, but rather as safe limits at which products can ordinarily be handled and stored. A draft version of the data presented in this volume is available at <http://www.ba.ars.usda.gov/hb66>. Updates to the online data will be made as they become available, and users are encouraged to check periodically for any new information.

Each contribution in this volume was peer reviewed by at least one individual knowledgeable in that particular area or commodity, as well as two editors. This review process helped to ensure that the information in this edition of HB-66 is as accurate and current as possible. The editors would like to express their sincere appreciation to all of the contributors and to the reviewers, who are listed in the Acknowledgments.

The original edition of HB-66, published in 1954, was written by R.C. Wright, D.H. Rose, and T.M. Whiteman, all from USDA Agricultural Research Service (ARS). Then, in 1968, the handbook was revised by J.M. Lutz and R.E. Hardenburg, also from USDA-ARS. A major revision by R.E. Hardenburg, A.E. Watada, and C.Y. Wang, at USDA-ARS Horticultural Crops Quality Laboratory (now Food Quality Laboratory) in Beltsville, MD, was published in 1986. In 1990, 10,000 copies of the 1986 edition were reprinted, of which few remain today. The volume has also been translated into several languages. It was clearly time for an extensive revision, both to bring the content up to date and to increase its availability.

Most temperatures are given in both °C and °F. Nevertheless, a “Temperature Conversion Chart” is included in this volume. Though temperatures are sometimes expressed to the first decimal place due to conversion, this does not mean that this level of accuracy is recommended, necessary, or possible in a commercial situation. Generally, storage temperatures can only be expected to be maintained within ± 1 °C. Also, see the “Metric Conversion Chart” for some common metric conversions. Respiration and ethylene production rates for many fruits and vegetables are also summarized in the sections “Respiration” and “Ethylene Effects.” A “Commodity Cross-Reference” index has been included to

aid in finding the commodity summary for produce called by various names in different cultures and geographical locations.

*“In this work, when it shall be found that much is omitted,
let it not be forgotten that much likewise is performed.”*

Dr. Samuel Johnson, 1775