

Book Reviews

Modern Dairy Technology: Vol. 1. Advances in Milk Processing. 2nd Edn. Edited by R. K. Robinson. Chapman & Hall, 1994. 485 pp. ISBN 0-412-53520-3. Price £39.95.

The second edition of *Modern Dairy Technology: Vol. 1* is sufficiently updated from the first edition (1986) to warrant its title and includes an additional chapter by O. Skov on protection against fire and explosion in spray driers. As the title suggests the book is intended to be a reference for the practical dairy technologist with an emphasis on manufacturing principles and the effects of processing on product differentiation and quality. Scientific aspects are discussed in a general, readable manner, as a basis for understanding manufacturing principles. References and additional reading lists are, in general, sufficiently complete and appropriately selective.

This first volume of a two volume set describes three general subject areas: (1) The processing of liquid milk including heat treatment and membrane processing; (2) manufacturing technology of cream, butter, and both concentrated and dried milk products; and (3) processing and utilization of milk components including caseins, whey proteins and lactose. In addition to these subjects, the final chapter, 'Automation in the dairy', by W. M. Kirkland, is an introduction to plant automation, process languages, and process control from an operations point of view.

The first of nine chapters, 'Heat treatment of milk' by M. J. Lewis considers raw milk quality, the general theory of the effect of heat on microorganisms, pasteurization technology, and both continuous (ultra-high temperature) and in-container sterilization of milk. Quality aspects discussed include microbiological, sensory and nutritional. 'Membrane processing of milk' (A. S. Grandison & F. A. Glover) is discussed in Chapter 6. The general principles of the principal membrane processes (reverse osmosis, ultrafiltration, microfiltration and electrodialysis) and their applications to milk processing are clearly presented. However, some of the information on membrane applications is out of date and now invalid (e.g. some information on cheddar manufacture from ultrafiltered milk needs to be modified in the light of more recent information) and other recent developments have been omitted. The references listed for this chapter also suggest that the information is somewhat dated.

Chapters 2 and 3 on cream processing (C. Towler) and butter and dairy spreads (R. A. Wilbey), respectively, provide an overview of cream separation, cream

products, and dairy spreads. The chapter on spreads is particularly useful, providing much recent information on low fat spreads and butter fat/vegetable fat blends. I think other information on manufacture and utilization of other butter products (e.g. ghee), butter fat fractions and other butter fat ingredients such as flavours should also have been included. Knipschildt and Andersen in Chapter 4 have provided a concise but quite complete review of concentration and drying of milk, infant formula, buttermilk and whey, preceded by a discussion of unit operations in evaporation and drying.

A review on whey processing and utilization in Chapter 7 by J. G. Zadow contains much useful information and is generally up to date. Discussion of whey protein utilization includes many products including isolates enriched with α -lactalbumin or β -lactoglobulin but barely more than mentions recent developments in highly concentrated (>95%) whey protein isolates. Products derived from lactose are considered in much detail. C. R. Southward reviews the manufacture and utilization of caseinates in Chapter 8. Coverage is complete relating functional properties of caseinates to specific food and industrial products.

My overall evaluation of this book is very positive. The second edition of *Modern Dairy Technology: Vol. 1*, is a worthwhile update which will prove useful to dairy processors and those dairy scientists with an interest in practical dairy technology.

Art Hill

Technological Advances in Improved and Alternative Sources of Lipids. Edited by B. S. Kamel & Y. Kakuda, Blackie Academic & Professional, Glasgow. 1993. xiv 397 pp. Cost £69.00. ISBN 0-7514-00017.

This book describes some of the modern developments in the science and technology of edible oils with emphasis on the sources and nutritional quality of edible oils and fats.

After a short introduction, nutritional aspects and biotechnological advances in sources of edible oils are discussed. This is followed by chapters covering plant sources with emphasis on commodities other than the major commercial oil crops including herbaceous crops, tropical fruits, nuts, fruit and vegetable by-products, palm and forest products. Chapters covering microorganisms, animal and marine sources, oxidised oils and enzymes in lipid technology complete the book.

The main sections give very useful information about