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Nota di contenuto	1. Fundamental Dynamics of the Mixing Process, and Their Implications for Dough Rheological Behaviour, Process Control and Optimization -- 1.1 Theoretical Model to Explain the Doughmaking Process -- 1.2 Application of Fundamental Dough-Mixing Parameters -- 1.3 Fundamental Considerations Concerning Dough Rheological Elements and Dynamic Mixing Parameters -- 1.4 Water-Binding Capacity of Dough Components and Dough Consistency Control -- 1.5 Effects of Dough Additives -- 1.6 Chemical bonding during doughmaking -- 1.7 Typical Formulation and Process Schedules (including Case Studies) for Wheat and Rye Breads employed in Western and Eastern Europe and North America -- 1.8 Measurement and Control Techniques for Raw Materials and Process Variables -- 1.9 Weigher-Mixer Functions and Diverse Types of Mixers and Mixing-Regimes -- 2. Fermentation of Wheat- and Rye-Flour Doughs -- 2.1 Introduction -- 2.2 Industrial Propagation and Production of Yeast for the Baking Industry -- 2.3 Chemical Changes in Yeasted Doughs during Fermentation -- 2.4 Wheat- and Rye-Sours and Sour-Dough Processing -- 2.5 Formulation and Processing Techniques for Specialty-Breads -- 3. The Baking Process -- 3.1 Aims and Requirements of the Baking Process -- 3.2 Elements of the Baking Process and their Control -- 3.3 Energy Sources, Types of Oven and Oven Design -- 3.4 Control Technology and Energy Recovery -- 3.5 Bread Cooling and Setting -- 3.6 Dough and Bread Preservation -- 3.7 A Preview of the 1990s and Changes in

Sommario/riassunto

The author's aim in writing this book is to integrate currently available knowledge concerning the basic scientific and technological aspects of breadmaking processes with the diverse breadmaking methods used to manufacture bread in Europe and on the North American continent today. To date, the main technological advances have been in process mechanization, starting with oven development, then dough-processing or make-up equipment, followed by continuous and batch mixing techniques from the 1950s to the present time. On the engineering side, universal emphasis is now being placed on the application of high technology, in the form of microprocessors, computer-controlled equipment and robotization, the long-term objective being computer integrated manufacture (CIM) with full automation within the large chain bakery groups in the capitalist countries and the state-run collectives of Eastern Europe. The application of these key technologies with biotechnology, as yet only applied to a limited degree in food manufacture, coupled with advances in biochemical and rheological understanding of dough as a biomass for breadmaking, should provide us with more expertise and ability to control the processes with greater efficiency. The application of fermentable substrates and industrial enzymes under strict kinetic control should contribute to improving the flavour characteristics of bread. Current trends towards improving the nutritional contribution of bread to the daily diet are improving the competitive edge of bread as a basic food in the market-place.
