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FOOD AND NUTRITION AT RISK IN AMERICA: FOOD INSECURITY, BIOTECHNOLOGY, FOOD SAFETY, AND BIOTERRORISM

Sari Edelstein, PhD, RD
Department of Nutrition
Simmons College

Bonnie L. Gerald, PhD, DTR
Department of Nutrition and Food Systems
University of Southern Mississippi

Tamara M. Crutchley Bushell, PhD
Department of Microbiology
University of Alabama at Birmingham

Craig Gundersen, PhD
Human Development and Family Studies Department
Iowa State University

With Preface by: Alison Harmon, PhD, RD, LN
Health and Human Development
Montana State University

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DEDICATION

To my husband, Marc, and my children, Staci, Jodi, and Sebastien.
Sari Edelstein

To my husband Mike, my parents Peter and Charlotte Hackes, and my brother Lee Miller.
Bonnie Gerald

To my husband, Christian.
Tamara M. Crutchley Bushell

To my wife, Lisa, and my children, Diego, Faith, and Van.
Craig Gundersen

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FOREWORD

Food seems simple. It is a necessary part of our lives every single day. When abundant, it is easy to take food for granted, but occasionally we are reminded of its importance and its costs. Questions related to food safety, security, and the implications of new technologies are complex ones. Students of food and nutrition, food science, and public health need to be skilled at considering complex questions. Is our food safe? This is a question that is on the minds of many consumers today. Food safety exists on several levels. Is our food free of pathogens? Is our food free of components that increase our risk for chronic disease? Does our food provide adequate amounts of essential nutrients and contain additional compounds that prevent disease and promote health?

Food dangers arise when food is scarce or when not everyone has safe or socially acceptable ways to access food. We need to strive for food security as families, communities, as a nation, and as a global society. There are different approaches to achieving global food security. Should every small village or community be self-reliant, producing food with limited inputs on a small scale? Or should we specialize and trade for foodstuffs, centralizing and industrializing food production and relying on inexpensive fuel to transport it? These strategies are both employed in the world today, as are many scenarios that fall somewhere in between.

The challenge for those in our food and healthcare systems is in determining where to strike a balance for maximum food safety and food security. When news reports tell of product recalls or foodborne illness outbreaks related to the industrial food system, many consumers start looking for food produced closer to home, by people they know. When midwinter limits the variety of local foods or when convenience is perceived as a necessity, consumers are in turn drawn toward the globally and industrially supplied supermarket.

It is easy to appreciate both the freshness and flavor of local food and the variety and convenience of industrial food. Students and professionals alike will be able to critically evaluate the advantages of

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each in view of their costs. The industrial food system, for example, has done much to ensure that we have an abundant and affordable supply of food, thus improving the quality of our lives. Which gains have been worth their costs (i.e., costs for the environment; costs for agricultural communities, culture, and traditions; and costs for our long-term public health)?

Understanding food issues entails understanding trade-offs on both personal and societal levels. When does having immediate food safety compromise our long-term health? Does selecting particular vegetable varieties that are durable for transportation compromise the nutrient density and flavor of the food? What intrinsic qualities of food are lost when they are mass produced? How has the mass production of a few crop varieties in monocultures threatened long-term food security, which is dependent on ecological diversity? How have our agricultural advances made the food system vulnerable to interruption by terrorists? When are sustainability, food safety, and food security at odds?

One of the roles for those charged with responsibilities for our food supply and nutritional status is helping individual clients as well as broader populations understand how to make good food choices. Having choices related to food is a blessing when we understand the power they hold. Our food choices determine, in part, how healthy we will be as individuals. They also can affect our communities and the surrounding landscape. Ultimately our food choices will shape the future food system, its safety, and security. What do we value about food? How do our choices enact those values? Food is not so simple after all. This text will be a tool to help educators train future food and nutrition professionals to critically consider complex questions about food safety, food security, food technology, and the food system as a whole. For those already at work in the field, this book will serve as a valuable reference concerning this most critical issue.

Alison Harmon, PhD, RD, LN
Health and Human Development
Montana State University