

by John D. Floros

Food Science—Feeding the World

My intent this month is to defend our profession, because food science and technology, particularly food processing, are wrongly blamed for many of the problems that afflict our society today—obesity, diabetes, allergies, etc. Our profession and the food industry are under attack. For example, earlier this year, journalist Michael Pollan, declared in his latest book, “In Defense of Food,” that, “Food has been replaced by nutrients and common sense by confusion ... We are eating a lot of edible food-like substances, which is to say highly processed things that ... are very intricate products of food science ...” He advises everyone to eat like their grandmothers did, choosing real, well-grown, unprocessed foods.

Unfortunately, this naïve notion that lacks scientific and historical perspective is increasingly appealing to consumers and may become a pervasive public belief. At the 2006 IFT Annual Meeting, Dean Cliver, a food safety expert from University of California–Davis, identified a disconnect between public perception and the reality of food processing. “The perception is that raw food is ‘natural’ and any preservation inevitably diminishes nutritional value ... [The claim that] ‘raw is natural’ has triggered a backlash against food technology,” said Cliver.

The misguided belief that raw food is “natural” and therefore good, while preserva-

tion diminishes nutritional value and therefore is bad, is not only simplistic, but a dangerous misperception. After all, as my colleague Greg Ziegler, a Penn State food scientist, points out: “Cassava, the third-largest source of carbohydrates for human food and the largest source in the most-impoverished regions of the world, is poisonous unless processed properly.”

Many of you read in a previous President’s Message my

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position that food science and technology is the world’s oldest scientific discipline. Humans first learned how to cook food, then how to transform, preserve, and store it safely. According to Richard Wrangham, a Harvard University biological anthropologist, about two million years ago, humanity was launched by somebody who discovered cooking. Much later, but still during prehistoric times, cooking was augmented by slaughtering, fermenting, preserving with salt, and other primitive forms of food processing, which allowed groups and communities to form and survive.

Throughout history, we learned that to overcome hunger and disease, food must not only be harvested from a cultivated land, but it must also be processed with sophisticated methods. For example, the

three most important foods in Ancient Greece—bread, olive oil, and wine—were all products of complicated processing that transformed perishable, unpalatable, or hardly edible raw materials into tasty, nutritious, stable, and enjoyable foods.

The benefits of modern food processing and packaging methods are countless. We can practically eliminate food waste and product loss, improve quality, increase food safety,

extend shelf life, preserve sensitive nutrients, remove toxins, and facilitate distribution. In addition, food processing increases seasonal availability of many foods, can add beneficial ingredients such as vitamins, and makes many foods safe to eat by removing microorganisms. Modern food processing can oftentimes improve the quality of life for allergy sufferers, diabetics, and those who cannot consume some common food constituents. Also, we know that processed foods are less susceptible to early spoilage than fresh foods, and better equipped for long-distance transportation from source to consumer.

The story of the American food system is one of the greatest successes of the 20th century. Today, our food is safe, tasty, nutritious, abundant, diverse, convenient,

inexpensive, and easily acquired. Food science contributed greatly to the success of this modern food system by using biology, chemistry, physics, engineering, materials science, biotechnology, genomics, computer science, and many other disciplines to solve complicated problems.

Despite our plethora, one of the most significant challenges facing our world is providing food to people everywhere without compromising our precious natural resources. As much as half of the food grown and harvested in underdeveloped and developing countries never gets consumed, partly because proper handling, processing, packaging, and distribution methods are lacking. The challenge of feeding an expanding world population in a sustainable and environmentally responsible manner cannot be resolved without food science. While we cannot end skeptics’ criticisms of our profession, we can work together to address the common misperceptions. The true evidence is in the extraordinary work we do to benefit society. I could not be more proud than to be a member of a profession whose primary goal is to feed the world through science and technology. **FT**



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