

FROM FARM TO FORK: WHAT THE EXPERTS SAY ABOUT MODERN FOOD PRODUCTION

A growing interest by consumers in “fresh”, “whole”, “organic”, and “natural” foods, as well as in food production practices that are less harmful to the environment, is changing the way Americans look at food and make food choices. Conversely, foods that are “processed” have been criticized in the media, and some opinion leaders have advised consumers to limit or avoid these foods. However, modern food technology and food processing has allowed for the development of a safer, more plentiful, and more sustainable food supply than ever before, and both fresh and processed foods can be safe, nutritious, and environmentally responsible choices.

Food Insight interviewed six experts in the fields of food and agricultural production, nutrition, and food safety, and we asked them to weigh in on some of these growing trends, including whether processed or mass-produced foods are any less safe or nutritious than those grown on small, local, or organic farms. In addition, two food science experts who authored articles in food science publications on modern food technology add context to these issues.

It turns out that foods produced in large-scale amounts and/or using modern food technology are as safe and nutritious as their local and organic counterparts. The following expert quotes address four broad food and food production themes: Food Safety, Modern Food Technology, Growing Our Own Food, and The “Business” of Safe Farming.

Food Safety

With the increase in food recalls in recent years, food safety has become a top concern for U.S. consumers and manufacturers, as well as the federal government, which has made food safety a top priority. The globalization of our food supply, our better ability to detect food safety issues, and increased production to meet global demand all lead to a higher incidence of food recalls. Yet, some individuals believe that our food supply is less safe as a result. However, advances in food production have made the food supply safer than it was fifty years ago. All members of the food supply chain, including farmers, manufacturers, distributors and retailers, are deeply invested in ensuring the safety of the food supply, as the following expert quotes attest:

- “I think today the safety of the food supply is really excellent. We do hear about more of the foodborne [illness] outbreaks and issues that relate to recalls, but we have to recognize that we live in a 24/7 world and clearly, when something occurs, the information gets out to people very, very quickly. We do have good safety assurance programs in place. People do a really good job.”
- *Robert Gravani, Ph.D., Professor of Food Science, Cornell University*
- “The safety of food in the United States is better than any other place in the world. We have the most stringent regulations of the world. In addition, we have the most transparent food supply in the world. When incidences occur in other places in the world, the consumers do not know about it. Yet here in the United States, when there’s an outbreak, we all know about it.”
- *Roger Clemens, DrPH., Professor, School of Pharmacy, University of Southern California*
- “We have the system that is in some ways the envy of many other countries because of its great ability to detect.”
- *Martha Roberts, PhD, University of Florida Institute of Food and Agricultural Sciences*

Modern Food Technology

Most of the food we eat today has undergone some form of food processing. Yet, the term “processed” has become a catch-all phrase for foods viewed as having a lower nutritional value. However, healthful and nutritious foods are also often processed. For example, pasteurization has been performed on our milk for decades and is accepted due to its well-established safety benefits. However, other newer food processes or technologies, such as food irradiation, have not been embraced as quickly, mainly due to lack of awareness. The term “food irradiation” may sound scary, but it actually makes our fresh produce safer by destroying the bacteria that can make us sick. The following quotes offer helpful perspectives on how the use of modern food technology can improve the quality, availability, and safety of our food supply:

- “We can now have food that is fresh almost any time of the year, thanks to various technologies developed by food scientists.”
- Roger Clemens, DrPH, Professor, School of Pharmacy, University of Southern California
- “Processing is giving [food] a treatment that will make it more shelf-stable or give it a longer life. And that is usually done by cooking, heating, or killing the microorganisms that make it spoil or unsafe. And when you do that, then you’re really making the food safer.”
- Aurora Saulo, PhD, Extension Specialist in Food Technology, University of Hawaii at Manoa
- “With a population of 6 billion and a tremendous growth factor still in place, we are going to be sorely challenged to produce enough food to keep people alive. Modern technology allows us to get food onto the market safely, at a reasonable cost, and in an abundance that will actually deliver calories and quality food to the individual.”
- Mark McLellan, PhD, Dean for Research, University of Florida Institute of Food and Agricultural Sciences
- “Food technology is not a pejorative term. Why is it that consumers and many health professionals in the developed world treat it that way while all other technologies are viewed as a boon to humankind?”
- Fergus Clydesdale, PhD, Distinguished Professor and Director, Food Science Policy Alliance, Department of Food Science, University of Massachusetts at Amherst, “Food Technology: Equal Partner for a Healthy Future”, *Food Technology*, August 2009
- “All these science-based tools have transformed the U.S. food system into one of the most technologically advanced and productive in the world, and our citizens have become accustomed to the safest and least expensive food supply anywhere. And all that was achieved by using fewer resources, while minimizing environmental impact.”
- John Floros, PhD, Professor & Head, Department of Food Science, Penn State University, University Park, “Getting Real About Our Modern Food System”, *Food Technology ePerspective* (online), September 1, 2009
- “Our food processing, packaging, and distribution industries have made huge strides toward minimizing food losses, and today, virtually 100% of the food produced at the farm now finds its way to consumers’ tables. This is very different than much of the rest of the world, where as much as 50% or more of the food produced at the farm never gets to the people because it is lost to insects, microorganisms, humidity, or other factors.”
- John Floros, PhD, Professor & Head, Department of Food Science, Penn State University, University Park, “Getting Real About Our Modern Food System”, *Food Technology ePerspective* (online), September 1, 2009
- “Why not take advantage of technology to engage in providing cheap, delicious, nutritious food, so that you can accomplish many other things besides growing your own food?”
Connie Weaver, PhD, Head, Department of Foods and Nutrition, Purdue University

Growing Our Own Food

Some opinion leaders suggest that buying only locally grown food, or even growing our food in our own backyards, would be better for the environment than purchasing food from large-scale producers that transport food all around the country and the world. However, there is more to consider when determining the environmental impact of producing food than how many miles it traveled to arrive on your plate, and the more environmentally friendly, sustainable choice is not always obvious. Add to this the low probability, due to the lifestyle demands many experience in today's society, of the public deciding to grow their own food, and it's not surprising that our experts say returning to more traditional food production methods is not as easy as it once was:

- “Clearly there is a desire to have [locally grown] food. If you landed in this country several generations ago, you understand that farming was really where the food supply began. Yet, think about this. Do you have a cow in your backyard? Do you have oranges in your backyard? Can you meet all the nutritional needs from the food that you might have in your backyard?”
- *Roger Clemens, DrPH, Professor, School of Pharmacy, University of Southern California*
- “The whole world now is one market. Many of the [foods] we buy in the United States are not grown within 100 miles, or what we call “local.” Many of them are coming from different states. It's because of the difference in climates, soils, and products that can grow very well in those soils. If we eliminate global sources, then we are eliminating choice.”
- *Aurora Saulo, PhD, Extension Specialist in Food Technology, University of Hawaii at Manoa*
- “Most consumers don't have a garden or year-round growing climate and must depend on the supermarket. Fresh produce takes about 21 days to travel from the field to the supermarket...but only hours to get from the field to the processing plant for freezing or canning. As a result, the processed products are often superior in nutrition and flavor to what we call fresh in the supermarket.”
- *Fergus Clydesdale, PhD, Distinguished Professor and Director, Food Science Policy Alliance, Department of Food Science, University of Massachusetts at Amherst*
“Food Technology: Equal Partner for a Healthy Future”, *Food Technology*, August 2009

The “Business” of Safe Farming

The idea that large-scale food production is not as safe as small-scale production does not take into account that there are food safety standards that all producers must follow, regardless of size, and that a farm's reputation is at stake if it takes shortcuts when it comes to food safety. The experts explain how both large and small producers can play a role in supplying our nation and our world with safe and nutritious food:

- “There's no difference between small and large farms if they're applying the same food safety principles. They're the very same. You can't say that a large farm is less safe than a small farm. If they're applying sound food safety principles, they are both producing a safe food.”
- *Martha Roberts, PhD, University of Florida Institute of Food and Agricultural Sciences*
- “Every grower – whether you're a family farmer or a larger farm corporation – is interested in reducing inputs, reducing costs. It's a very basic nature of being efficient. Farmers work very hard to produce a safe and efficient product line.”
- *Mark McLellan, PhD, Dean for Research, University of Florida Institute of Food and Agricultural Sciences*
- “Most of the large farms I know are following very sound practices. They're producing a tremendous amount of food for this country and they're conscientiously trying to follow those practices. A lot of small farmers are likewise trying to follow the same practices. I am just not convinced that just because you're smaller, you're better.”

- Martha Roberts, PhD, University of Florida Institute of Food and Agricultural Sciences

- “The goal is to provide a safe and abundant food supply for everybody...the same standards apply whether you’re a large manufacturer or small manufacturer. All food manufacturers want to make sure they provide a safe product.”

- Roger Clemens, DrPH, Professor, School of Pharmacy, University of Southern California

“Food producers and processors in industrialized and developing nations alike require science and technology to ensure a sustainable supply of safe, nutritious, and affordable food and satisfy a rapidly growing demand. Agriculture, regardless if it is traditional or modern, sustainable or organic, will need more science, not less. And people’s food, be it fast or slow, local or global, whole, natural, fresh or processed, industrial or not, will require more food science and technology, not less.”

- John Floros, PhD, Professor & Head, Department of Food Science, Penn State University, University Park

For more information on modern food production, visit the [Agricultural Practices & Food Technologies page](#) of the International Food Information Council Foundation Web site, www.foodinsight.org.



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