



This is “Nutrition and Society: Food Politics and Perspectives”, chapter 14 from the book [An Introduction to Nutrition \(index.html\)](#) (v. 1.0).

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Chapter 14

Nutrition and Society: Food Politics and Perspectives

Big Idea

Sustainability promotes nutrition today and protects natural resources for tomorrow.

As discussed in previous chapters, sustainability is a word that's often talked about in the realm of food and nutrition. The term relates to the goal of achieving a world that meets the needs of its present inhabitants while preserving resources for future generations. As awareness about sustainability has increased among the media and the public, both agricultural producers and consumers have made more of an effort to consider how the choices they make today will impact the planet tomorrow.



Raising free-range chickens that feed out in the open is one example of a sustainable agricultural practice.

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However, defining sustainability can be difficult because the term means different things to different groups. For most, sustainable agriculture can best be described as an umbrella term that encompasses food production and consumption practices that do not harm the environment, that do support agricultural communities, and that are healthy for the consumer. Sustainable Table. "Introduction to Sustainability." Accessed October 10, 2011.

<http://www.sustainabletable.org/intro/>. From factory farms to smaller-scale ranches and granges, sustainable farming practices are being implemented more and more as the long-term viability of the current production system has been called into question.

Yet, the concept of sustainability is not new to agricultural science, practice, or even policy. It has evolved throughout modern history as a way to achieve self-reliance. It is also a vehicle for maintaining rural communities and supporting the concept of conservation and protection of the land. Ecological Agriculture Projects. "A History of Sustainable Agriculture." © 1990 Rod MacRae. <http://eap.mcgill.ca/>

AASA 1.htm. In 1990, the US federal government defined sustainable agriculture in a piece of legislation known as the Farm Bill. The practice was described as an integrated system of plant and animal production that satisfies human needs for food, along with fiber for fabric and other uses. The Farm Bill further defines sustainable agriculture as a practice that enhances environmental quality and also the natural resource base upon which the agricultural economy depends. Sustainable agriculture also makes the most efficient use of nonrenewable resources, sustains the economic viability of farm operations, and supports the quality of life for farmers and society as a whole. Gold, M.V. "Sustainable Agriculture: Definitions and Terms." US Department of Agriculture, National Agricultural Library. *Special Reference Briefs Series* no. SRB 99-02 (September 1999, August 2007). <http://www.nal.usda.gov/afsic/pubs/terms/srb9902.shtml#toc1>.

In other words, the practice of sustainable agriculture strives to eschew conventional farming methods, including the cultivation of single crops and row crops continuously over many seasons, the dependency on agribusiness, and the rearing of livestock in concentrated, confined systems. Gold, M.V. "Sustainable Agriculture: Definitions and Terms." US Department of Agriculture, National Agricultural Library. *Special Reference Briefs Series* no. SRB 99-02 (September 1999, August 2007). <http://www.nal.usda.gov/afsic/pubs/terms/srb9902.shtml#toc1>. Instead, sustainability includes a focus on biodiversity among both crops and livestock; conservation and preservation to replenish the soil, air, and water; animal welfare; and fair treatment and wages for farm workers. Sustainable Table. "What Is Sustainable Agriculture?" Accessed October 10, 2011. <http://www.sustainabletable.org/intro/whatis/>. Sustainable agriculture also encourages the health of consumers by rejecting extensive use of pesticides and fertilizers and promoting the consumption of organic, locally produced food. Although many farmers and food companies work to implement these practices, some use the idea of sustainability to attract consumers without completely committing to the concept. "Greenwashing" is a derisive term (similar to "whitewashing") for a corporation or industry falsely utilizing a proenvironmental image or message to expand its market base.

Sustainability depends not only on agricultural producers, but also on consumers. The average person can do a number of things to consume a more sustainable diet, from eating less meat to purchasing fruits and vegetables grown on nearby farms. For example, produce sold in the Midwest typically travels an average of more than fifteen hundred miles from farm to supermarket. However, increasing the consumption of more locally-grown produce by 10 percent would save thousands of gallons in fossil fuel each year. Heller, M. C., G. A. Keoleian. "US Food System Factsheet." Center for Sustainable Systems, University of Michigan. *CSS Factsheets*, no. CSS01-06 (2001). <http://www.css.snre.umich.edu/publication/css-factsheets-us-food-system>.

You Decide

How will you adapt your lifestyle and dietary choices to help promote sustainable agricultural practices?

Some consumers are choosing to make smarter nutritional choices, eat healthier foods, and enjoy fresh, locally grown products. They read the labels on products in their local stores, make more home-cooked meals using whole-food ingredients, and pay attention to the decisions that legislators and other officials make regarding food production and consumption. Will you be one of them? How you can adjust your dietary selections to benefit not only your body and mind but also to help sustain the planet for future generations?

Video 14.1

Green Careers: Sustainable Agriculture

[\(click to see video\)](#)

This video focuses on the role of a farm manager on a small farm that follows sustainable agricultural practices.

14.1 Historical Perspectives on Food

LEARNING OBJECTIVE

1. Contrast ancient perspectives on food and nutrition with more modern explanatory systems.

Throughout history, our relationship with food has been influenced by changing practices and perspectives. From the invention of agriculture to the birth of refrigeration, technological advances have also affected what we eat and how we feel about our food. Therefore, it can be helpful to examine theories and customs related to diet and nutrition across different civilizations and time periods.

Civilizations and Time Periods

Diet and cuisine have undergone enormous changes from ancient times to today. The basic diet of the ancient era consisted of cereals, legumes, oil, and wine. These staples were supplemented by vegetables and meat or fish, along with other items, such as honey and salt. During the Middle Ages, poor people consumed meager diets that consisted of small game supplemented with either barley, oat, or rye, while the wealthy had regular access to meat and fish, along with wheat. Our Food Recipes. “European Medieval Food.” © 2011–2012. <http://www.our-food-recipes.com/medieval-food.html>. During the Industrial Revolution, diets became more varied, partly because of the development of refrigeration and other forms of food preservation. In the contemporary era, many people have access to a wide variety of food that is grown locally or shipped from far-off places.



Flatbread made from barley or wheat was a staple in the traditional diet during the ancient era.

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Hunters and Gatherers

Human beings lived as hunters and gatherers until the invention of agriculture. Following a nomadic lifestyle, early people hunted, fished, and gathered fruit and wild berries, depending on their location and the availability of wild plants and wild game. To aid their constant quest for food, humans developed weapons and tools,

including spears, nets, traps, fishing tackle, and the bow and arrow. Our Food Recipes. "Pre Historic Food." © 2011–2012. <http://www.our-food-recipes.com/pre-historic-food.html>.

The Beginning of Agriculture

About ten thousand years ago, people began to cultivate crops and domesticate livestock in Mesopotamia, an area of the world that is known today as the Middle East. Agriculture flourished in this region due to the fertile floodplain between the Euphrates and Tigris Rivers, and early crops included wheat, barley, and dates. The development of agriculture not only enriched the diet of these early people, it also led to the birth of civilization as farmers began to settle into sizable, stable communities. Bioworld. "History of Agriculture." Accessed October 10, 2011. <http://www.bioworldusa.com/agriculture/history-agriculture>.

One of the most fertile regions of the ancient world was located along the Nile River Valley in ancient Egypt. The rich soil yielded several harvests per year. Common crops were barley, wheat, lentils, peas, and cabbage, along with grapes, which were used to make wine. Even poor Egyptians ate a reasonably healthy diet that included fish, vegetables, and fruit. However, meat was primarily a privilege of the rich. Popular seasonings of this era included salt, pepper, cumin, coriander, sesame, fennel, and dill. Experience Ancient Egypt. "Ancient Egyptian Food: The Pharaonic Diet." © 2009–2011. <http://www.experience-ancient-egypt.com/ancient-egyptian-food.html>.

The “Three Sisters”

Thousands of years ago, across an area that encompasses Mexico and Central America today, Foundation for the Advancement of Mesoamerican Studies. “Mesoamerica.” Accessed October 10, 2011. <http://www.famsi.org/>. Mesoamerican farmers cultivated three major plants—squash, beans, and maize (also known as corn). Known as the “three sisters,” these crops proved to be both complementary and sustainable. Corn provides a pole for bean vines to climb. The roots of bean vines provide nitrogen that helps corn grow. These vines also stabilize corn stalks by making them less vulnerable to the wind. Shallow-rooted squash vines prevent the evaporation of soil moisture, while their spiny plants discourage predators. Both of these attributes aid the cultivation of all three crops. Renee’s Garden. “Celebrate the Three Sisters,” During the post-Columbian era, Native American groups adopted the practice of interplanting squash, beans, and maize, and now thousands of years later, many small farmers continue to cultivate the “three sisters.”

Meals Determined Social Status

In ancient Rome, differences in social standing affected the diet. For people of all socioeconomic classes, breakfast and lunch were typically light meals that were often consumed in taverns and cafes. However, dinners were eaten at home and were taken much more seriously. Wealthy senators and landowners ate meals with multiple courses, including appetizers, entrees, and desserts. Rich Romans also held extravagant dinner parties, where guests dined on exotic foods, such as roasted ostrich or pheasant. In contrast, people of the lower classes ate mostly bread and cereals. PBS. “Home Life.” *The Roman Empire in the First Century*. © 2006 Devillier Donegan Enterprises. <http://www.pbs.org/empires/romans/empire/home.html>. The average person ate out of clay dishes, while wealthy people used bronze, gold, or silver.

Social status determined the kinds of food that people consumed in many other parts of the world as well. In ancient China, emperors used their wealth and power to hire the best chefs and acquire delicacies, such as honey, to sweeten food. Dishes of the ancient era included steamed Mandarin fish, rice and wheat noodles, and fried prawns. Imperial cuisine also included improved versions of dishes that were consumed by the common people, such as soups and cereals. China.org. “The History of Chinese Imperial Cuisines.” © China Information Center. Accessed December 5, 2011. <http://www.china.org.cn/english/imperial/25995.htm>.

The Medieval Era

The eating habits of most people during the Medieval Era depended mainly on location and financial status. In the feudal system of Europe, the majority of the population could not afford to flavor their food with extravagant spices or sugar. In addition, transporting food was either outrageously expensive or out of the question due to the inability to preserve food for a long period of time. As a result, the common diet consisted of either wheat, meat, or fish, depending on location. The typical diet of the lower classes was based on cereals and grains, porridge, and gruel. These staples were supplemented with seasonal fruits, vegetables, and herbs. Wine, beer, and cider were also common, and were often safer to drink than the unsanitized, untreated water.

The Crusades

During the Medieval Era, soldiers from Europe waged war over religion in the Middle East in military campaigns that came to be known as the Crusades. Upon their return, the crusaders brought back new foods and spices, exposing Europeans of the Middle Ages to unusual flavors. Cooking with exotic spices, such as black pepper, saffron, and ginger, became associated with wealth because they were expensive and had to be imported.

Food Preservation in the Past

During the Medieval and Renaissance eras, most meals consisted of locally grown crops because it was extremely difficult to transport food over long distances. This was mostly due to an inability to preserve food for long periods. At that time, food preservation consisted mostly of drying, salting, and smoking. Pickling, which is also known as brining or corning, was another common practice and involved the use of fermentation to preserve food.

The Modern Era

The modern era began in North America and Europe with the dawn of the Industrial Age. Before that period, people predominantly lived in agrarian communities. Farming played an important role in the development of the United States and Canada. Almost all areas of the country had agrarian economies dictated by the harvesting seasons.

In the 1800s, society began to change as new machines made it easier to cultivate crops, and to package, ship, and store food. The invention of the seed drill, the steel plow, and the reaper helped to speed up planting and harvesting. Also, food could be transported more economically as a result of developments in rail and

refrigeration. These and other changes ushered in the modern era and affected the production and consumption of food.

Food Preservation in Modern Times

Technological innovations during the 1800s and 1900s also changed the way we cultivate, prepare, and think about food. The invention and refinement of the refrigerator and freezer made it possible for people to store food for much longer periods. This, in turn, allowed for the transportation of food over greater distances. For example, oranges grown in Florida would still be fresh when they arrived in Seattle.

Prior to refrigeration, people relied on a number of different methods to store and preserve food, such as pickling. Other preservation techniques included using sugar or honey, canning, and preparing a confit, which is one of the oldest ways to preserve food and involves salting meat and cooking it in its own fat. To store foods for long periods, people used iceboxes or kept vegetables, such as potatoes, onions, and winter squash, in cellars during the winter months.

The Great Depression

During the Great Depression of the 1930s, the United States faced incredible food shortages and many people went hungry. This was partly because extreme droughts turned parts of the Midwest into a Dust Bowl, where farmers struggled to raise crops. Millions of Americans were unemployed or underemployed and were forced to wait in long breadlines for free food. This was also a period of incredible reforms, as the government worked to provide for and protect the people. Some important changes included **subsidies**¹ and support for suffering farmers.

World War II

Food shortages also occurred during World War II in the 1940s. At that time, people voluntarily made due with less to ensure that soldiers training and fighting overseas had the supplies they needed. To focus on saving at home, government programs included rationing food (particularly meat, butter, and sugar), while the media encouraged families to plant their own fruits and vegetables in “victory” (backyard) gardens.

Contemporary Life

Today, agriculture remains a large part of the economy in many developing nations. In fact, nearly 50 percent of the world’s labor is employed in agriculture. Bioworld.

1. Federal funding given to an agricultural producer to provide assistance and support.

“History of Agriculture.” Accessed October 10, 2011. <http://www.bioworldusa.com/agriculture/history-agriculture>. In the United States however, less than 2 percent of Americans produce food for the rest of the population. Gold, M.V. “Sustainable Agriculture: Definitions and Terms.” US Department of Agriculture, National Agricultural Library. *Special Reference Briefs Series* no. SRB 99-02 (September 1999, August 2007). <http://www.nal.usda.gov/afsic/pubs/terms/srb9902.shtml#toc1>. Also, most farms are no longer small-scale or family-owned. Large-scale agribusiness is typical for both crop cultivation and livestock rearing, including concentrated animal feeding operations. Conventional farming practices can include abuses to animals and the land. Therefore, more and more consumers have begun to seek out organic and locally grown foods from smaller-scale farms that are less harmful to the environment.

Other changes also affect food production and consumption in the modern era. The invention of the microwave in the 1950s spurred the growth of frozen foods and TV dinners. Appliances such as blenders and food processors, toasters, coffee and espresso machines, deep fryers, and indoor grills have all contributed to the convenience of food preparation and the kinds of meals that people enjoy cooking and eating.

Diet Trends Over Time

Today, consumers can choose from a huge variety of dietary choices that were not available in the past. For example, strawberries can be purchased in New York City in wintertime, because they are quickly and easily transported from places where the crop is in season, such as California, Mexico, or South America. In the western world, especially in North America, food products are also relatively cheap. As a result, there is much less disparity between the diets of the lower and upper classes than in the past. It would not be unusual to find the same kind of meat or poultry served for dinner in a wealthy neighborhood as in a poorer community.

KEY TAKEAWAYS

- Perspectives and practices related to food and nutrition have greatly changed from the ancient era to today.
- In the ancient world, location and economic status had a profound effect on what people ate. Also, societies often were based on crop cultivation and livestock rearing, which influenced how people ate, worked, and lived.
- During the Medieval Era, people became more exposed to food from other parts of the world because of the growing ability to ship goods and because of the Crusades, among other factors.
- Technological advances, such as refrigeration and the microwave, have had huge effects on the way food is produced and consumed.

DISCUSSION STARTER

1. Compare and contrast the diet of a civilization from the ancient world or the Medieval Era to the food choices of today. In what ways has our diet changed? In what ways has it remained the same?

14.2 The Food Industry

LEARNING OBJECTIVE

1. Explain what is meant by the term “the food industry” and identify the food technologies and innovations that have shaped the current food system.

Agriculture is one of the world’s largest industries. It encompasses trillions of dollars and employs billions of people. In the United States alone, customers spent about \$500 billion annually on food products at grocery stores and supermarkets. Plunkett Research, Ltd. “US Food Industry Overview.” Accessed December 5, 2011, <http://www.plunkettresearch.com/food%20beverage%20grocery%20market%20research/industry%20statistics>. The food industry includes a complex collective of businesses that touches on everything from crop cultivation to manufacturing and processing, from marketing and advertising to distribution and shipment, to food regulation.

The Food System

The food system is a network of farmers and related operations, including food processing, wholesale and distribution, retail, industry technology, and marketing. The milk industry, for example, includes everything from the farm that raises livestock, to the milking facility that extracts the product, to the processing company that pasteurizes milk and packages it into cartons, to the shipping company that delivers the product to stores, to the markets and groceries that stock and sell the product, to the advertising agency that touts the product to consumers. All of these components play a part in a very large system.



These cows are lined up at a milking facility.

© Thinkstock

Food Preservation and Processing

Two important aspects of a food system are preservation and processing. Each provides for or protects consumers in different ways. Food preservation includes the handling or treating of food to prevent or slow down spoilage. Food processing involves transforming raw ingredients into packaged food, from fresh-baked goods

to frozen dinners. Although there are numerous benefits to both, preservation and processing also pose some concerns, in terms of both nutrition and sustainability.

Food Preservation

Food preservation protects consumers from harmful or toxic food. There are different ways to preserve food. Some are ancient methods that have been practiced for generations, such as curing, smoking, pickling, salting, fermenting, canning, and preserving fruit in the form of jam. Others include the use of modern techniques and technology, including drying, vacuum packing, pasteurization, and freezing and refrigeration. Preservation guards against food-borne illnesses, and also protects the flavor, color, moisture content, or nutritive value of food.

Irradiation

Another method of preservation is **irradiation**², which reduces potential pathogens to enhance food safety. This process involves treating food with ionizing radiation, which kills the bacteria and parasites that cause toxicity and disease. Similar technology is used to sterilize surgical instruments to avoid infection. Centers for Disease Control and Prevention. “Food Irradiation.” Accessed October 11, 2005. <http://www.cdc.gov/ncidod/dbmd/diseaseinfo/foodirradiation.htm>. Foods currently approved for irradiation by the FDA include flour, fruits and vegetables, juices, herbs, spices, eggs, and meat and poultry.

Most forms of preservation can affect the quality of food. For example, freezing slightly affects the nutritional content, curing and smoking can introduce carcinogens, and salting greatly increases the sodium. There are also concerns about the effects of using irradiation to preserve food. Studies have shown that this process can change the flavor, texture, color, odor, and nutritional content of food. For example, the yolks of irradiated eggs have less color than nonirradiated eggs.

Food Processing

Food processing includes the methods and techniques used to transform raw ingredients into packaged food. Workers in this industry use harvested crops or slaughtered and butchered livestock to create products that are marketed to the public. There are different ways in which food can be processed, from a one-off product, such as a wedding cake, to a mass-produced product, such as a line of cupcakes packaged and sold in stores.

2. The application of radiation for the purpose of sterilization and the removal of harmful pathogens.

The Pros and Cons of Food Processing

Food processing has a number of important benefits, such as creating products that have a much longer shelf life than raw foods. Also, food processing protects the health of the consumer and allows for easier shipment and the marketing of foods by corporations. However, there are certain drawbacks. Food processing can reduce the nutritional content of raw ingredients. For example, canning involves the use of heat, which destroys the vitamin C in canned fruit. Also, certain food additives that are included during processing, such as high fructose corn syrup, can affect the health of a consumer. However, the level of added sugar can make a major difference. Small amounts of added sugar and other sweeteners, about 6 to 9 teaspoons a day or less, are not considered harmful. American Heart Association. "Sugar and Carbohydrates." Last updated October 12, 2010. http://www.heart.org/HEARTORG/GettingHealthy/NutritionCenter/HealthyDietGoals/Sugars-and-Carbohydrates_UCM_303296_Article.jsp#.



Pictured here are English muffins as they run along a conveyor belt at a bakery production plant.

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Food Regulation and Control

Food regulatory agencies work to protect the consumer and ensure the safety of our food. Food and drug regulation in the United States began in the late nineteenth century when state and local governments began to enact regulatory policies. In 1906, Congress passed the Pure Food and Drugs Act, which led to the creation of the US Food and Drug Administration (FDA). Today, a number of agencies are in charge of monitoring how food is produced, processed, and packaged. EH.Net Encyclopedia. "History of Food and Drug Regulation in the United States." February 4, 2010. <http://eh.net/encyclopedia/article/Law.Food.and.Drug.Regulation>.

Regulatory Agencies

Food regulation is divided among different agencies, primarily the FDA and the US Department of Agriculture (USDA). Regulatory agencies in Canada include the Canadian Food Inspection Agency and Health Canada. The North American public depends on these and other agencies to ensure that the food they purchase and consume from supermarkets, restaurants, and other sources is safe and healthy to eat. It can be confusing to know which agency monitors and manages which regulatory practice. For example, the FDA oversees the safety of eggs when they're in the shells, while the USDA is in charge of the eggs once they are out of their shells.

The Food and Drug Administration

The FDA enforces the safety of domestic and imported foods. It also monitors supplements, food labels, claims that corporations make about the benefits of products, and pharmaceutical drugs. Sometimes, the FDA must recall contaminated foods and remove them from the market to protect public health. For example, in 2011 contaminated peanut butter led to the recall of thousands of jars of a few popular brands. US Food and Drug Administration. "FDA 101: Product Recalls—From First Alert to Effectiveness Checks." Last updated September 9, 2011.

<http://www.fda.gov/ForConsumers/ConsumerUpdates/ucm049070.htm>. Recalls are almost always voluntary and often are requested by companies after a problem has been discovered. In rare cases, the FDA will request a recall. But no matter what triggers the removal of a product, the FDA's role is to oversee the strategy and assess the adequacy and effectiveness of the recall. You will read more about this practice in [Chapter 15 "Achieving Optimal Health: Wellness and Nutrition"](#).

Video 14.2

FDA 101: Product Recalls

[\(click to see video\)](#)

This video explains how the FDA recalls contaminated products to protect consumers.

The US Department of Agriculture

Headed by the Secretary of Agriculture, the USDA develops and executes federal policy on farming and food. This agency supports farmers and ranchers, protects natural resources, promotes trade, and seeks to end hunger in the United States and abroad. The USDA also assures food safety, and in particular oversees the regulation of meat, poultry, and processed egg products.

The Environmental Protection Agency

A third federal government agency, the Environmental Protection Agency (EPA), also plays a role in the regulation of food. The EPA works to protect human health and the environment. Founded in 1970, the agency conducts environmental assessment, education, research, and regulation. The EPA also works to prevent pollution and protect natural resources. Two of its many regulatory practices in the area of agriculture include overseeing water quality and the use of pesticides.

Food Safety and Hazard Analysis

Government regulatory agencies utilize HACCP programs to ensure food safety. HACCP, or hazard analysis and critical control points, is a system used to identify potential hazards and prevent foodborne illnesses. Some of the seven aspects of an HACCP program include identifying the points in a manufacturing process during which potential hazards could be introduced, establishing corrective actions, and maintaining record-keeping procedures. The USDA uses HACCP to regulate meat, while the FDA uses the seven-point system to monitor seafood and juice. In these industries, HACCP systems are used in all stages of production, processing, packaging, and distribution. US Food and Drug Administration. "Hazard Analysis & Critical Control Points (HACCP)." Last updated April 27, 2011. <http://www.fda.gov/food/foodsafety/hazardanalysiscriticalcontrolpointshaccp/default.htm>. Currently, the use of HACCP is voluntary for all other food products.

Food Additives

If you examine the label for a processed food product, it is not unusual to see a long list of added materials. These natural or synthetic substances are **food additives**³ and there are more than three hundred used during food processing today. The most popular additives are benzoates, nitrites, sulfites, and sorbates, which prevent molds and yeast from growing on food. How Stuff Works. "The Dangers of Food Additives." Accessed October 5, 2011. <http://health.howstuffworks.com/wellness/food-nutrition/facts/dangers-of-food-additives.htm>.

Food additives are introduced in the processing stage for a variety of reasons. Some control acidity and alkalinity, while others enhance the color or flavor of food. Some additives stabilize food and keep it from breaking down, while others add body or texture. **Table 14.1 "Food Additives"** lists some common food additives and their uses:

Table 14.1 Food Additives

Additive	Reason for Adding
Beta-carotene	Adds artificial coloring to food
Caffeine	Acts as a stimulant
Citric acid	Increases tartness to prevent food from becoming rancid
Dextrin	Thickens gravies, sauces, and baking mixes
Gelatin	Stabilizes, thickens, or texturizes food

3. Natural or man-made substance added to a food product during the processing stage to improve its quality.

Additive	Reason for Adding
Modified food starch	Keeps ingredients from separating and prevents lumps
MSG	Enhances flavor in a variety of foods
Pectin	Gives candies and jams a gel-like texture
Polysorbates	Blends oil and water and keep them from separating
Soy lecithin	Emulsifies and stabilizes chocolate, margarine, and other items
Sulfites	Prevent discoloration in dried fruits
Xanthan gum	Thickens, emulsifies, and stabilizes dairy products and dressings

Source: Center for Science in the Public Interest. “Chemical Cuisine: Learn about Food Additives.” ©2012. Center for Science in the Public Interest.
<http://www.cspinet.org/reports/chemcuisine.htm>.

The Pros and Cons of Food Additives

The FDA works to protect the public from potentially dangerous additives. Passed in 1958, the Food Additives Amendment states that a manufacturer is responsible for demonstrating the safety of an additive before it can be approved. The Delaney Clause that was added to this legislation prohibits the approval of any additive found to cause cancer in animals or humans. However, most additives are considered to be “generally recognized as safe,” a status that is determined by the FDA and referred to as GRAS.

Food additives are typically included in the processing stage to improve the quality and consistency of a product. Many additives also make items more “shelf stable,” meaning they will last a lot longer on store shelves and can generate more profit for store owners. Additives can also help to prevent spoilage that results from changes in temperature, damage during distribution, and other adverse conditions. In addition, food additives can protect consumers from exposure to rancid products and food-borne illnesses.

Food additives aren’t always beneficial, however. Some substances have been associated with certain diseases if consumed in large amounts. For example, the FDA estimates that sulfites can cause allergic reactions in 1 percent of the general population and in 5 percent of asthmatics. Similarly, the additive monosodium glutamate, which is commonly known as MSG, may cause headaches, nausea, weakness, difficulty breathing, rapid heartbeat, and chest pain in some individuals. Sustainable Table. “The Issues: Additives.” Accessed October 10, 2011.
<http://www.sustainabletable.org/issues/additives/#fn14>.

The Effect of New Technologies

As mentioned earlier, new technology has had a tremendous effect on the food we eat and the customs and culture related to food consumption. For example, microwaves are used to reduce cooking time or to heat up leftover food. Refrigerators and freezers allow produce to travel great distances and last longer. On the extreme end of making food last longer, there is special food for astronauts that is appropriate for consumption in space. It is safe to store, easy to prepare in the low-gravity environment of a spacecraft, and contains balanced nutrition to promote the health of people working in space. In the military, soldiers consume Meals Ready-to-Eat (MREs), which contain an entire meal in a single pouch.

Genetically Modified Foods

Genetically modified foods⁴ (also known as GM or GMO foods), are plants or animals that have undergone some form of genetic engineering. In the United States, much of the soybean, corn, and canola crop is genetically modified. The process involves the alteration of an organism's DNA, which allows farmers to cultivate plants with desirable characteristics. Genomics.Energy.gov. "What Are Genetically Modified Foods?" Last modified November 5, 2008. http://www.ornl.gov/sci/techresources/Human_Genome/elsi/gmfood.shtml. For example, scientists could extract a gene that produces a chemical with antifreeze properties from a fish that lives in an arctic region (such as a flounder). They could then splice that gene into a completely different species, such as a tomato, to make it resistant to frost, which would enable farms to grow that crop year-round. Whitman, D. B. "Genetically Modified Foods: Harmful or Helpful?" *ProQuest Discovery Guides* (April 2000). <http://www.csa.com/discoveryguides/gmfood/overview.php>.

Certain modifications can be beneficial in resisting pests or pesticides, improving the ripening process, increasing the nutritional content of food, or providing resistance to common viruses. Although genetic engineering has improved productivity for farmers, it has also stirred up debate about consumer safety and environmental protection. Possible side effects related to the consumption of GM foods include an increase in allergenicity, or tendencies to provoke allergic reactions. There is also some concern related to the possible transfer of the genes used to create genetically engineered foods from plants to people. This could influence human health if antibiotic-resistant genes are transferred to the consumer. Therefore, the World Health Organization (WHO) and other groups have encouraged the use of genetic engineering without antibiotic-resistance genes. Genetically modified plants may adversely affect the environment as well and could lead to the contamination of nongenetically engineered organisms. World Health

4. Food products made from animals or plants that have undergone genetic engineering.

Organization. “Food Safety: 20 Questions on Genetically Modified Foods.” © 2011. <http://www.who.int/foodsafety/publications/biotech/20questions/en/>.

Genetically modified foods fall under the purview of the EPA, the USDA, and the FDA. Each agency has different responsibilities and concerns in the regulation of GM crops. The EPA ensures that pesticides used for GM plants are safe for the environment. The USDA makes sure genetically engineered seeds are safe for cultivation prior to planting. The FDA determines if foods made from GM plants are safe to eat. Although these agencies act independently, they work closely together and many products are reviewed by all three. Whitman, D. B. “Genetically Modified Foods: Harmful or Helpful?” *ProQuest Discovery Guides* (April 2000).

Video 14.3

Too Much Controversy Over Genetically Modified Foods?

[\(click to see video\)](#)

Food Enrichment and Fortification

Many foods are enriched or fortified to boost their nutritional value. Enrichment involves adding nutrients to restore those that were lost during processing. For example, iron and certain B vitamins are added to white flour to replace the nutrients that are removed in the process of milling wheat. Fortification is slightly different than enrichment and involves adding new nutrients to enhance a food’s nutritive value. For example, folic acid is typically added to cereals and grain products, while calcium is added to some orange juice.

The Health of the Population

Certain enrichment and fortification processes have been instrumental in protecting public health. For example, adding iodine to salt has virtually eliminated iodine deficiencies, which protects against thyroid problems. Adding folic acid to wheat helps increase intake for pregnant women, which decreases the risk of neural tube defects in their children. Also, vegans or other people who do not consume many dairy products are able to drink orange juice or soy milk that has been fortified with calcium to meet the daily recommendations. However, there is some concern that foods of little nutritive value will be fortified in an effort to improve their allure, such as soft drinks with added vitamins.

KEY TAKEAWAYS

- The food industry encompasses all aspects of food production: manufacturing, distribution, marketing, retail, regulation, and consumption.
- Food preservation and processing have a number of benefits including improving the quality of food products, making them more shelf-stable, and aiding the marketing and advertising of food. There are more than three hundred additives used during food processing today.
- Food preservation and processing also have some drawbacks, including potentially damaging the nutritive value of food. The cultivation and consumption of genetically modified foods are also highly controversial, with many people opposed to the genetic modification of crops.
- There are three key government agencies that regulate food in the United States: the US Department of Agriculture, the US Food and Drug Administration, and the US Environmental Protection Agency.

DISCUSSION STARTER

1. Discuss the debate about the use of food additives, such as beta-carotene and citric acid. What are the benefits to using them? What are the drawbacks? Do you believe that food additives are more helpful or more harmful, and why?

14.3 The Politics of Food

LEARNING OBJECTIVE

1. Discuss how food has become politicized, and give specific examples of how food choices are related to food politics.

Some people have begun to view their choices regarding diet and nutrition in light of their political views. More and more, consumers weigh their thoughts on the environment and the world, while making decisions about what to purchase in the grocery store. For example, many people choose to eat free-range chickens due to concerns about animal welfare. Others worry about the higher cost of organically produced food or find that those products are not available in their communities. As a result, feelings about food have become a political mine field.

Food Politics

The production and sale of food is an extremely big business and touches people in all industries and walks of life. Food is not only crucial for day-to-day survival, but also strongly affects overall health and well-being, as well as the economy and culture of a region or a country. So, it is no wonder that more and more producers and consumers alike are speaking out about food to ensure that their interests are protected. Food politics can influence many stakeholders and interests, but always involve the production, regulation, inspection, distribution, and/or retail of food.

Stakeholders

Stakeholders in food politics include large and small farmers, along with large and small food companies. Other important stakeholders include restaurants and other food-service providers, food distributors, grocery stores and other retail outlets, consumers, and trade associations. Antihunger advocates, nutrition advocates, and food-industry lobbyists also have important roles to play. Nongovernmental organizations, such as the American Cancer Society and the WHO, also work to promote good health and nutrition. Each group has its own perspective and its own agenda in disputes related to food.

Disputes

Food politics can be influenced by ethical, cultural, medical, and environmental disputes over agricultural methods and regulatory policies. They are also greatly influenced by manufacturing processes, marketing practices, and the pursuit of the highest possible profit margin by food manufacturers and distributors. Common disputes and controversies include the genetic modification of plants, the potential dangers of food additives, chemical run-off from large-scale farms, and the reliance on factory-farming practices, such as the use of pesticides in crop cultivation and antibiotics in livestock feed. Additional issues and concerns include the use of sugar, salt, and other potentially unhealthy ingredients, the promotion of fast food and junk food to children, and sanitary standards related to livestock.

The Nitrate Dispute

One current dispute relates to the use of nitrates in agriculture. At the dawn of the twentieth century, German chemists Fritz Haber and Carl Bosch invented a system that synthesizes ammonia to produce nitrates on an industrial scale. The compound could then be used to make fertilizers, which along with pesticides and herbicides, made large-scale, modern agriculture possible. However, when nitrates are used in excess, they can create runoff that pollutes surface- and groundwater. For example, chemical runoff has had a profound effect on the Aral Sea and the surrounding area in Kazakhstan and Uzbekistan. The Aral Sea, which was once one of the four largest lakes in the world, was crucial to irrigation projects in the former Soviet Union. But when the lake became contaminated by farm runoff, salinity increased and the lake dramatically shrank, crippling the area's fishing industry. Also, as the lakebed became exposed, dust storms spread contaminated soil, and thousands of people were forced out of the region. Grant, L. "Nitrates: Dangerous Necessity." Environmentalism @ Suite 101.com. May 7, 2011. <http://larry-grant.suite101.com/nitrates-dangerous-necessity-a369949>. Contaminated runoff from the use of nitrates not only leads to serious consequences for the environment, but also to human health. Nitrate poisoning reduces the oxygen-carrying capacity of the blood and can be fatal to infants. US Environmental Protection Agency. "Ag 101: Nitrate." Last updated September 10, 2009. <http://www.epa.gov/agriculture/ag101/impactnitrate.html>. Therefore, significant efforts are being made to use nitrates and other agricultural chemicals in more environmentally friendly ways and to monitor drinking water for dangerous levels of contamination.

The Role of Government

Federal and state policy plays a major role in the politics of food production and distribution. As previously discussed, government agencies regulate the proper processing and preparation of foods, as well as overseeing shipping and storage. They pay particular attention to concerns related to public health. As a result, the enforcement of regulations has been strongly influenced by public concern over food-related events, such as outbreaks of food-borne illnesses.

Food Production, Distribution, and Safety

Many consumers have concerns about safety practices during the production and distribution of food. This is especially critical given recent outbreaks of food-borne illnesses. For example, during fall 2011 in the United States, there was an eruption of the bacteria *Listeria monocytogenes* in cantaloupe. It was one of the deadliest outbreaks in over a decade and resulted in a number of deaths and hospitalizations. Centers for Disease Control and Prevention. “Multistate Outbreak of Listeriosis Associated with Jensen Farms Cantaloupe—United States.” August–September, 2011. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6039a5.htm?s_cid=mm6039a5_w.



Whole chickens are suspended at a meat production plant and will soon be separated into parts.

© Thinkstock

In January 2011, the Food Safety Modernization Act was passed to grant more authority to the FDA to improve food safety. The FDA and other agencies also address consumer-related concerns about protecting the nation’s food supply in the event of a terrorist attack.

Addressing Hunger

Government agencies also play an important role in addressing hunger via federal food-assistance programs. The agencies provide debit cards (formerly distributed in the form of food vouchers or food stamps) to consumers to help them purchase food and they also provide other forms of aid to low-income adults and families who face hunger and nutritional deficits. This topic will be discussed in greater detail later in this chapter.

The Dual Role of the USDA

The USDA has a dual role in the advancement of American agribusiness and the promotion of health and nutrition among the public. This can create conflicts of

interest, and some question whether the USDA values the interests of the agriculture and food industries over consumer health.

However, there is no question that the USDA makes a great deal of effort to educate the public about diet and nutrition. Working with the US Department of Health and Human Services, the agency codeveloped the *Dietary Guidelines for Americans* to inform consumers about the ways their dietary habits affect their health. The USDA also implements all federal nutrition programs.

The Farm Bill

The Farm Bill (introduced in 1990) is a massive piece of legislation that determines the farm and food policy of the federal government. It addresses policy related to federal food programs and other responsibilities of the USDA. The Farm Bill also covers a wide range of agricultural programs and provisions, including farm subsidies and rural development. And, it influences international trade, commodity prices, environmental preservation, and food safety.

The massive Farm Bill is updated and renewed every five years. Over the decades, it has expanded to incorporate new issues, such as conservation and bioenergy. The Farm Bill passed in 2008, known as the Food, Conservation, and Energy Act, included new policy on horticulture and livestock provisions. The 2008 bill also differed from previous legislation in terms of the large number and scope of proposals that were raised. Johnson, R. and J. Monke, “What Is the ‘Farm Bill’?” Congressional Research Service. *CRS Report for Congress*, no. RS22131 (January 3, 2011). <http://www.nationalaglawcenter.org/assets/crs/RS22131.pdf>.

Tools for Change

Start paying attention to the news when you hear about the next upcoming Farm Bill to learn about proposals that could affect the food that arrives in your local supermarket or that is served in your favorite restaurant. To learn more about the upcoming legislation, visit <http://www.usda.gov/farmbill>. You may also wish to “vote with your fork” and make choices about what you eat based on practices you approve of, such as choosing a vegetarian, vegan, organic, locavore, sustainable, slow-food movement or other type of diet.

Agricultural Subsidies

The Farm Bill can directly and indirectly have wide-ranging effects. For example, the bill dictates subsidies and other forms of agricultural funding or support. Farmers rely on this kind of support to offset varying crop yields and unfavorable weather conditions. The agricultural industry also depends on the federal government to provide some form of price control to guard against flooding the market and dragging down prices. As an example, major changes in the policy of agricultural subsidies were implemented in the 1970s to increase farm incomes and produce cheaper food. As a result of these policies and subsidies, much more corn was grown, giving rise to high fructose corn syrup as a primary sweetener in a number of products today, since corn syrup is cheaper to produce. It is also sweeter than cane sugar, which encouraged its widespread use.

Historically, Congress has pursued farm support programs to ensure that the US population has continued access to abundant and affordable food. However, some leaders worry about the effectiveness of government programs as well as the cost to taxpayers and consumers. Others question if continued farm support is even needed and wonder if it remains compatible with current economic objectives, domestic policy, trade policy, and regulatory restrictions. Johnson, R. and J. Monke, “What Is the ‘Farm Bill?’” Congressional Research Service. *CRS Report for Congress*, no. RS22131 (January 3, 2011). <http://www.nationalaglawcenter.org/assets/crs/RS22131.pdf>. For example, federal dairy policies can raise the price of milk and other dairy products, which can detrimentally affect school lunch and food stamp programs. Regarding all of these issues, Congress must heed the demands of its constituents. In the end, it is inevitable that consumers’ growing interest in food issues will affect not only the choices they make in the grocery store, but also the decisions they make in the voting booth.

KEY TAKEAWAYS

- Food politics reflect changing perspectives and policies in the areas of production, distribution, marketing, regulation, and consumption.
- Over the years, there have been a number of controversies and disputes over food, including concerns about additives and GM foods, the push for sustainable agriculture, and the need to alleviate hunger.
- In the United States, a massive piece of legislation known as the Farm Bill determines the agricultural and food policy of the federal government.

DISCUSSION STARTER

1. Debate a controversial issue related to food politics, such as sustainable agriculture, farm subsidies, or the Farm Bill. Identify the stakeholders involved with the issue and discuss the pros and cons of the differing sides.

14.4 Food Cost and Inflation

LEARNING OBJECTIVES

1. Cite a recent event that has had a profound effect on how consumers feel about the food supply.
2. Give a historical overview of the era of cheap food.

Statistics show that Americans spend more than \$1.5 trillion on food each year at supermarkets, in restaurants, and from other food providers. Plunkett Research, Ltd. “US Food Industry Overview.” 2011. <http://www.plunkettresearch.com/food%20beverage%20grocery%20market%20research/industry%20statistics>.

According to the USDA, a thrifty family of four spends about \$540-\$620 per month on groceries. US Department of Agriculture. “Official USDA Food Plans: Cost of Food at Home at Four Levels, US Average, August 2011.” Issued September 2011. <http://www.cnpp.usda.gov/Publications/FoodPlans/2011/CostofFoodAug2011.pdf>.

A number of factors affect the rising cost of food. They include agricultural production, processing and manufacturing, wholesale distribution, retail distribution, and consumption.

Around the world, commodity prices rose sharply in 2010 as crop production shortfalls led to reduced supplies and a higher volatility in agricultural markets. Other factors that played a role in increasing food prices include a population boom that has drastically increased demand, droughts and other natural disasters that have crippled farmers, and trade policies and practices that are unfair to developing nations.

Rising agricultural commodity prices have led to concerns about food insecurity and hunger. In an agricultural outlook report for 2010–2020, the Secretary-General of the Organisation for Economic Co-operation and Development states, “While higher prices are generally good news for farmers, the effect on the poor in developing countries who spend a high proportion of their income on food can be devastating. That is why we are calling on governments to improve information and transparency of both physical and financial markets, encourage investments that increase productivity in developing countries, remove production and trade distorting policies, and assist the vulnerable to better manage risk and uncertainty.” Organisation for Economic Co-operation and Development. “OECD-FAO Agricultural Outlook 2010–2020.” June 17, 2011. http://www.oecd.org/document/31/0,3746,en_21571361_44315115_48182047_1_1_1_1,00.html.

Who Bears the Cost?

The cost of our food is influenced by the policies and practices of farms, food and beverage companies, food wholesalers, food retailers, and food service companies. These costs include the energy required to produce and distribute food products from farm field to supermarket to table. Rising prices also reflect the marketing and advertising of food. All of these factors affect all participants in a food system, but some participants are more affected than others. A 2011 report by the Economic Research Service of the USDA shows the division of the consumer food dollar among various aspects of the American food system. A far greater amount of the money you spend to buy a product goes toward the marketing components than toward the actual farmer. US Department of Agriculture, Economic Research Service. "Overview." Last updated November 19, 2012. <http://www.ers.usda.gov/data-products/food-expenditures.aspx>.

The Consumer Price Index

The Consumer Price Index (CPI) measures changes in the price level paid for goods and services. This economic indicator is based on the expenditures of the residents of urban areas, including working professionals, the self-employed, the poor, the unemployed, and retired workers, as well as urban wage earners and clerical workers. The CPI has subindices for many different types of products, including food and beverages. It is a closely-watched statistic that is used in a variety of ways, including measuring inflation and regulating prices.

Implications Around the World

Food prices and inflation disproportionately affect people at lower income levels. For the poorest people of the world, increasing prices can raise levels of hunger and starvation. In many developing countries where the cost for staple crops steadily rises, consumers have faced shortages or even the fear of shortages, which can result in hoarding and rioting. This happened in 2007 and 2008 during rice shortages in India and other parts of Asia. Rioters burned hundreds of food ration stores in the Indian region West Bengal. In the West African nation Burkina Faso, food rioters looted stores and burned government buildings as a result of rising prices for food and other necessities. Vivienne Walt, "The World's Growing Food-Price Crisis," *Time Magazine*, 27 February 2008. <http://www.time.com/time/world/article/0,8599,1717572-1,00.html>. In some poor countries, protests also have been fueled by concerns over corruption, because officials earned fortunes from oil and minerals, while locals struggled to put food on their tables. Bringing down prices would quell protests, but could take a decade or more to accomplish.

The End of the Era of Cheap Food

Concerns about food shortages and rising prices reflect the end of the era of cheap food. Following World War II, grain prices fell steadily around the world for decades. As farms grew in scale, factory-farm practices, such as the use of synthetic and mined fertilizers and pesticides, increased. Agribusinesses also invested in massive planting and harvesting machines. These practices pushed crop yields up and crop prices down. Food became so inexpensive that we entered what came to be called the “era of cheap food.”

However, by 2008, economic experts had declared that the era of cheap food was over. The rapid growth in farm output had slowed to the point that it failed to keep pace with population increases and rising affluence in once-developing nations. Consumption of four staples—wheat, rice, corn, and soybeans—outstripped production and resulted in dramatic stockpile decreases. The consequence of this imbalance has been huge spikes felt moderately in the West and to a much greater degree in the developing world. As a result, hunger has worsened for tens of millions of poor people around the world. Justin Gillis, “A Warming Planet Struggles to Feed Itself,” *The New York Times*, 4 June 2011. http://www.nytimes.com/2011/06/05/science/earth/05harvest.html?_r=2&hp.

Two major trends played a part in this shift. First, prosperity in India and China led to increased food consumption in general, but more specifically to increased meat consumption. Increased meat consumption has led to an increased demand for livestock feed, which has contributed to an overall rise in prices. The second trend relates to biofuels, which are made from a wide variety of crops (such as corn and palm nuts), which increasingly are used to make fuel instead of to feed people.

The world population in 2010 was 6.9 billion. United Nations. “World Population Prospects, the 2010 Revision.” http://esa.un.org/wpp/Analytical-Figures/html/fig_1.htm. It is projected to grow to 9.4 billion by 2050. Food and Agricultural Organization of the United Nations. “Executive Summary.” <http://www.fao.org/docrep/004/y3557e/y3557e03.htm>. The rate of increase is particularly high in the developing world, and the increased population, along with poverty and political instability, are helping to foster long-term food insecurity. In the coming decades, farmers will need to greatly increase their output to meet the rising demand, while adapting to any future trends. Christian Science Monitor. “Why the Era of Cheap Food Is Over.” December 31, 2007. <http://www.csmonitor.com/2007/1231/p13s01-wogi.html>.

KEY TAKEAWAYS

- Food prices are rising in the United States and around the world, which has greatly affected both agricultural producers and consumers.
- A number of factors have contributed to rising costs, including population booms, natural disasters, and the production of biofuels, among others.
- Economic experts have declared that the era of cheap food, which began after World War II, has ended due to rising population rates and decreased agricultural production worldwide. As a result, hunger has worsened for tens of millions of poor people globally.

DISCUSSION STARTER

1. Examine the graphics from <http://www.ers.usda.gov/data-products/food-dollar-series/documentation.aspx>. What does each image indicate about agriculture and the American economy?

14.5 The Issue of Food Security

LEARNING OBJECTIVE

1. Share an example of a food and nutrition program that seeks to mitigate hunger in the United States and/or Canada.

Physiologically, hunger relates to appetite and is the body's response to a need for nourishment. Through stomach discomfort or intestinal rumbling, the body alerts the brain that it requires food. This uneasy sensation is easily addressed with a snack or a full meal. However, the term "hunger" also relates to a weakened condition that is a consequence of a prolonged lack of food. People who suffer from this form of hunger typically experience malnourishment, along with poor growth and development.

Hunger

Adequate food intake that meets nutritional requirements is essential to achieve a healthy, productive lifestyle. However, millions of people in North America, not to mention globally, go hungry and are malnourished each year due to a recurring and involuntary lack of food. The economic crisis of 2008 caused a dramatic increase in hunger across the United States. World Hunger.org. "Hunger in America: 2011 United States Hunger and Poverty Facts." Accessed October 10, 2011. http://www.worldhunger.org/articles/Learn/us_hunger_facts.htm.

Key Hunger Statistics

In 2010, 925 million people around the world were classified as hungry. Although this was a decrease from a historic high of more than one billion people from the previous year, it is still an unbearable number. Every night, millions and millions of people go to sleep hungry due to a lack of the money or resources needed to acquire an adequate amount of food. This graph shows the division of hungry people around the globe.

Key Hunger Terms

A number of terms are used to categorize and classify hunger. Two key terms, **food security**⁵ and **food insecurity**⁶, focus on status and affect hunger statistics.

5. The state of having continual access to sufficient, safe, and nutritious food to achieve an active, healthy lifestyle.

6. The state of not having continual access to sufficient, safe, and nutritious food to achieve an active, healthy lifestyle.

Another term, malnutrition, refers to the deficiencies that a hungry person experiences.

Food Security

Most American households are considered to be food secure, which means they have adequate access to food and consume enough nutrients to achieve a healthy lifestyle. However, a minority of US households experiences food insecurity at certain points during the year, which means their access to food is limited due to a lack of money or other resources. This graphic shows the percentage of food-secure and food-insecure households in the United States during the year 2010.

Food Insecurity

Food insecurity is defined as not having adequate access to food that meets nutritional needs. According to the USDA, about 48.8 million people live in food-insecure households and have reported multiple indications of food access problems. About sixteen million of those have “very low food security,” which means one or more people in the household were hungry at some point over the course of a year due to the inability to afford enough food. The difference between low and very low food security is that members of low insecurity households have reported problems of food access, but have reported only a few instances of reduced food intake, if any. Coleman-Jensen, A. et al. “Household Food Security in the United States in 2010.” US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011). African American and Hispanic households experience food insecurity at much higher rates than the national average. Coleman-Jensen, A. et al. “Household Food Security in the United States in 2010.” US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011).

Households with limited resources employ a variety of methods to increase their access to adequate food. Some families purchase junk food and fast food—cheaper options that are also very unhealthy. Other families who struggle with food security supplement the groceries they purchase by participating in government assistance programs. They may also obtain food from emergency providers, such as food banks and soup kitchens in their communities.

Malnutrition

A person living in a food-insecure household may suffer from malnutrition, which results from a failure to meet nutrient requirements. This can occur as a result of consuming too little food or not enough key nutrients. There are two basic types of malnutrition. The first is macronutrient deficiency and relates to the lack of

adequate protein, which is required for cell growth, maintenance, and repair. The second type of malnutrition is micronutrient deficiency and relates to inadequate vitamin and mineral intake. World Hunger. “2011 World Hunger and Poverty Facts and Statistics.” Accessed October 10, 2011. <http://www.worldhunger.org/articles/Learn/world%20hunger%20facts%202002.htm>. Even people who are overweight or obese can suffer from this kind of malnutrition if they eat foods that do not meet all of their nutritional needs.

At-Risk Groups

Worldwide, three main groups are most at risk of hunger: the rural poor in developing nations who also lack access to electricity and safe drinking water, the urban poor who live in expanding cities and lack the means to buy food, and victims of earthquakes, hurricanes, and other natural and man-made catastrophes. Food and Agriculture Organization of the United Nations. “Hunger: Frequently Asked Questions.” Accessed October 10, 2011. <http://www.fao.org/hunger/en/> In the United States, there are additional subgroups that are at risk and are more likely than others to face hunger and malnutrition. They include low-income families and the working poor, who are employed but have incomes below the federal poverty level.

Senior citizens are also a major at-risk group. Many elderly people are frail and isolated, which affects their ability to meet their dietary requirements. In addition, many also have low incomes, limited resources, and difficulty purchasing or preparing food due to health issues or poor mobility. As a result, more than six million senior citizens in the United States face the threat of hunger. Meals on Wheels. “Our Vision and Mission.” Accessed October 10, 2011. <http://www.mowaa.org/page.aspx?pid=299>

The Homeless

One of the groups that struggles with hunger are the millions of homeless people across North America. According to a recent study by the US Conference of Mayors, the majority of reporting cities saw an increase in the number of homeless families. The United States Conference of Mayors. “Hunger and Homelessness Survey: A Status Report on Hunger and Homelessness in America’s Cities, a 27-City Survey.” December 2009. <http://usmayors.org/pressreleases/uploads/USCMHungercompleteWEB2009.pdf>. Hunger and homelessness often go hand-in-hand as homeless families and adults turn to soup kitchens or food pantries or resort to begging for food.

Children

Rising hunger rates in the United States particularly affect children. Nearly one out of four children, or 21.6 percent of all American children, lives in a food-insecure household and spends at least part of the year hungry. Coleman-Jensen, A. et al. “Household Food Security in the United States in 2010.” US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011). Hunger delays their growth and development and affects their educational progress because it is more difficult for hungry or malnourished students to concentrate in school. In addition, children who are undernourished are more susceptible to contracting diseases, such as measles and pneumonia. World Hunger. “2011 World Hunger and Poverty Facts and Statistics.” Accessed October 10, 2011.

Video 14.4

Going Hungry in America

[\(click to see video\)](#)

This video examines the effect of hunger on many American children.

Government Programs

The federal government has established a number of programs that work to alleviate hunger and ensure that many low-income families receive the nutrition they require to live a healthy life. A number of programs were strengthened by the passage of the Healthy, Hunger-Free Kids Act of 2010. This legislation authorized funding and set the policy for several key core programs that provide a safety net for food-insecure children across the United States.

The Federal Poverty Level

The federal poverty level (FPL) is used to determine eligibility for food-assistance programs. This monetary figure is the minimum amount that a family would need to acquire shelter, food, clothing, and other necessities. It is calculated based on family size and is adjusted for annual inflation. Although many people who fall below the FPL are unemployed, the working poor can qualify for food programs and other forms of public assistance if their income is less than a certain percentage of the federal poverty level, along with other qualifications.

USDA Food Assistance Programs

Government food and nutrition assistance programs that are organized and operated by the USDA work to increase food security. They provide low-income households with access to food, the tools for consuming a healthy diet, and education about nutrition. The USDA monitors the extent and severity of food insecurity via an annual survey. This contributes to the efficiency of food assistance programs as well as the effectiveness of private charities and other initiatives aimed at reducing food insecurity. Coleman-Jensen, A. et al. "Household Food Security in the United States in 2010." US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011).

The Supplemental Nutrition Assistance Program

Formerly known as the Food Stamp Program, the Supplemental Nutrition Assistance Program (SNAP) provides monthly benefits for low-income households to purchase approved food items at authorized stores. Clients qualify for the program based on available household income, assets, and certain basic expenses. In an average month, SNAP provides benefits to more than forty million people in the United States. Coleman-Jensen, A. et al. "Household Food Security in the United States in 2010." US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011).

The program provides Electronic Benefit Transfers (EBT) which work similarly to a debit card. Clients receive a card with a certain allocation of money for each month that can be used only for food. In 2010, the average benefit was about \$134 per person, per month and total federal expenditures for the program were \$68.2 billion. Coleman-Jensen, A. et al. "Household Food Security in the United States in 2010." US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011).

The Special, Supplemental Program for Women, Infants, and Children

The Special, Supplemental Program for Women, Infants and Children (WIC) provides food packages to pregnant and breastfeeding women, as well as to infants and children up to age five, to promote adequate intake for healthy growth and development. Most state WIC programs provide vouchers that participants use to acquire supplemental packages at authorized stores. In 2010, WIC served approximately 9.2 million participants per month at an average monthly cost of about forty-two dollars per person. Coleman-Jensen, A. et al. "Household Food Security in the United States in 2010." US Department of Agriculture, *Economic Research Report*, no. ERR-125 (September 2011).

The National School Lunch Program

The National School Lunch Program (NSLP) and School Breakfast Program (SBP) ensure that children in elementary and middle schools receive at least one healthy meal each school day, or two if both the NSLP and SBP are provided. According to the USDA, these programs operate in over 101,000 public and nonprofit private schools and residential child-care institutions. US Department of Agriculture. “National School Lunch Program.” October 2011. <http://www.fns.usda.gov/cnd/Lunch/AboutLunch/NSLPFactSheet.pdf>. In 2010, the programs provided meals to an average of 31.6 million children each school day. Fifty-six percent of the lunches served were free, and an additional 10 percent were provided at reduced prices.

Other Food-Assistance Programs for Children

Other government programs provide meals for children after school hours and during summer breaks. The Child and Adult Care Food Program (CACFP) offers meals and snacks at child-care centers, daycare homes, and after-school programs. Through CACFP, more than 3.2 million children and 112,000 adults receive nutritious meals and snacks each day. US Department of Agriculture. “Child & Adult Care Food Program.” Last modified June 10, 2011. <http://www.fns.usda.gov/cnd/care/>. The Summer Food Service Program provides meals to children during summer break. Sponsors include day camps and other recreation programs where at least half of the attendees live in households with incomes below the federal poverty level. US Department of Agriculture. “Summer Food Service Program.” st.TER 14 2011r Congressbrary. Last modified July 20, 2011. <http://www.summerfood.usda.gov/default.htm>. These and other programs help to fill in the gaps during the typical day of a food-insecure child.

The Head Start Program

Head Start is a health and development program for children ages three to five, from low-income families. The philosophy behind the organization is that early intervention can help address the educational, social, and nutritional deficiencies that children from lower-income families often experience. Launched in 1965, it is one of the longest-running, poverty-related programs in the United States. Today, Head Start programs include education, meals, snacks, and access to other social services and health guidance. US Department of Health and Human Services. “About the Office of Head Start.” Last reviewed February 23, 2011. <http://www.acf.hhs.gov/programs/ohs/about/index.html>.

Other Forms of Assistance

Other forms of assistance include locally-operated charitable organizations, such as food banks and food pantries, which acquire food from local manufacturers, retailers, farmers, and community members to give to low-income families. Neighborhood soup kitchens provide meals to the homeless and other people in need. These and other organizations are run by nonprofit groups, as well as religious institutions, to provide an additional safety net for those in need of food.

Meals on Wheels

An organization known as Meals on Wheels delivers meals to elderly people who have difficulty buying or making their own food because of poor health or limited mobility. It is the oldest and largest program dedicated to addressing the nutritional needs of senior citizens. Each day, Meals on Wheels volunteers deliver more than one million meals across the United States. The first Meals on Wheels program began in Philadelphia in the 1950s. In the decades since, the organization has expanded into a vast network that serves the elderly in all fifty states and several US territories. Today, Meals on Wheels remains committed to ending hunger among the senior citizen community. Meals on Wheels. “The Meals on Wheels Association of America.” Accessed October 10, 2011. <http://www.mowaa.org/page.aspx?pid=212>.

KEY TAKEAWAYS

- Around the world, nearly one billion people suffer the effects of constant hunger.
- Key terms related to hunger include food security, which means having continual access to safe, sufficient, nutritious food, and food insecurity, which means not having continual access to safe, sufficient, nutritious food.
- There are two types of malnutrition. The first is macronutrient deficiency and relates to the lack of adequate protein, which is required for cell growth, maintenance, and repair. The second type of malnutrition is micronutrient deficiency and relates to inadequate vitamin and mineral intake.
- There are a number of groups at risk for hunger, including the unemployed and underemployed, poor families, the elderly, and the homeless.
- The United States has a number of federal and state programs, as well as local charities, which provide assistance and education for people who fall into the category of food insecurity.

DISCUSSION STARTER

1. Do you believe there are enough government programs currently in place to address the problem of hunger? Why or why not? If not, what additional solutions would you recommend?

14.6 Nutrition and Your Health

LEARNING OBJECTIVE

1. Relate the research on home-cooked family meals to comprehensive health and wellness, taste, sustainability, and the strengthening of family bonds.

The adage, “you are what you eat,” seems to be more true today than ever. In recent years, consumers have become more conscientious about the decisions they make in the supermarket. Organically grown food is the fastest growing segment of the food industry. Also, farmers’ markets and chains that are health-food-oriented are thriving in many parts of North America. Shoppers have begun to pay more attention to the effect of food on their health and well-being. That includes not only the kinds of foods that they purchase, but also the manner in which meals are cooked and consumed. The preparation of food can greatly affect its nutritional value. Also, studies have shown that eating at a table with family members or friends can promote both health and happiness.

Family Meals

In the past, families routinely sat down together to eat dinner. But in recent decades, that comfortable tradition has fallen by the wayside. In 1900, 2 percent of meals were eaten outside of the home. By 2010, that figure had risen to 50 percent. Mark Hyman, MD, “How Eating at Home Can Save Your Life,” Huffington Post.com, 9 January 2011.

http://www.huffingtonpost.com/dr-mark-hyman/family-dinner-how_b_806114.html? Today, family members often go their own way at mealtimes and when they do sit down together, about three times a week, the meal often lasts less than twenty minutes and is spent eating a microwaved meal in front of a television.



Home-cooked meals provide parents an opportunity to teach their children about nutrition.

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However, recent studies have shown that home-cooked, family meals really matter. Family meals usually lead to the consumption of healthy food packed with nutrition, rather than an intake of empty calories. Other benefits include

strengthening familial bonds, improving family communication, and helping young children learn table manners. Increased frequency of family meals has also been associated with certain developmental assets, such as support, boundaries and expectations, commitment to learning, positive values, and social competency. Rochford, M. "Do Family Meals Still Matter?" *Visions: Family and Community Health Sciences* (Rutgers University) 21, no. 3 (2009).

Home-prepared meals provide an opportunity for more balanced and better-portioned meals with fewer calories, sodium, and less saturated fat. When families prepare food together, parents or caregivers can also use the time to teach children about the ways their dietary selections can affect their health.

The Adolescent Diet

Teenagers' dietary choices are influenced by their family's economic status, the availability of food inside and outside the home, and established traditions. Studies have found links between the prevalence of family meals during adolescence and the establishment of healthy dietary behaviors by young adulthood. Yet, many of today's teenagers make food selections on their own, which often means eating junk food or fast food on the go.

However, adolescents who regularly consume family meals or have done so in the past are more likely to eat breakfast and to eat more fruits and vegetables. Research has shown that adolescents who have regular meals with their parents are 42 percent less likely to drink alcohol, 50 percent less likely to smoke cigarettes, and 66 percent less likely to use marijuana. Regular family dinners also help protect teens from bulimia, anorexia, and diet pills. In addition, the frequency of family meals was inversely related to lower academic scores and incidents of depression or suicide. Mark Hyman, MD, "How Eating at Home Can Save Your Life," *Huffington Post.com*, 9 January 2011. http://www.huffingtonpost.com/dr-mark-hyman/family-dinner-how_b_806114.html?

Sustainable Eating

As discussed at the beginning of this chapter, sustainable agricultural practices provide healthy, nutritious food for the consumers of today, while preserving natural resources for the consumers of tomorrow. Sustainability not only has economic and environmental benefits, but also personal benefits, including reduced exposure to pesticides, antibiotics, and growth hormones. Sustainable eaters do all of the following:

- **Consume less processed food.** People who eat sustainably focus on whole foods that are high in nutritive value, rather than heavily processed foods with lots of additives.
- **Eat more home-cooked meals.** Sustainable eaters go out to restaurants less often, and when they do, they dine at establishments that provide dishes made from whole-food ingredients.
- **Consume a plant-based diet.** Research has shown that a plant-based diet, focused on whole grains, vegetables, fruits, and legumes, greatly reduces the risk of heart disease.
- **Buy organic food products.** Organically produced foods have been cultivated or raised without synthetic pesticides, antibiotics, or genetic engineering. Certified organic foods can be identified by the USDA's stamp.
- **Buy locally grown foods.** Buying locally benefits the environment by reducing the fossil fuels needed to transport food from faraway places. Also, farmers keep eighty to ninety cents for every dollar spent at a farmer's market.

Disease Prevention and Management

Eating fresh, healthy foods not only stimulates your taste buds, but also can improve your quality of life and help you to live longer. As discussed, food fuels your body and helps you to maintain a healthy weight. Nutrition also contributes to longevity and plays an important role in preventing a number of diseases and disorders, from obesity to cardiovascular disease. Some dietary changes can also help to manage certain chronic conditions, including high blood pressure and diabetes. A doctor or a nutritionist can provide guidance to determine the dietary changes needed to ensure and maintain your health.

Heart Health

According to the WHO, cardiovascular disease is the leading cause of death on the planet. World Health Organization. "The Top 10 Causes of Death." Accessed <http://www.who.int/mediacentre/factsheets/fs310/en/>. However, a healthy diet can go a long way toward preventing a number of conditions that contribute to cardiovascular malfunction, including high levels of blood cholesterol and narrowed arteries. As discussed in this text, it is extremely helpful to reduce the intake of trans fat, saturated fat, and sodium. This can considerably lower the risk of cardiovascular disease, or manage further incidents and artery blockages in current heart patients. It is also beneficial to eat a diet high in fiber and to include more omega-3 fatty acids, such as the kind found in mackerel, salmon, and other oily fish.

High Blood Pressure

Blood pressure is the force of blood pumping through the arteries. When pressure levels become too high, it results in a condition known as hypertension, which is asymptomatic but can lead to a number of other problems, including heart attacks, heart failure, kidney failure, and strokes. For people with high blood pressure, it can be beneficial to follow the same recommendations as those for heart patients. First of all, it is crucial to reduce the intake of sodium to prevent pressure levels from continuing to rise. It can also be helpful to increase potassium intake. However, patients should check with a doctor or dietitian first, especially if there are kidney disease concerns.

Tools for Change

The Dietary Approaches to Stop Hypertension, or DASH diet, is highly recommended to lower blood pressure. This program promotes an increased intake of potassium and calcium by emphasizing fruits, vegetables, whole grains, low-fat dairy products, and limited amounts of lean meat. The DASH diet also decreases the intake of saturated fat and sugar. Studies have shown that blood-pressure patients on the DASH diet were able to reduce their diastolic pressure levels (the lower measurement, which is taken between beats when the heart is relaxed) by up to 5 mmHg regardless of age, gender, or ethnicity. You can learn more about the DASH diet at <http://dashdiet.org/>.

Diabetes

The rising rates of diabetes have triggered a health crisis in the United States and around the world. In diabetics, the levels of blood glucose, or blood sugar, are too high because of the body's inability to produce insulin or to use it effectively. There are two types of this disease. Although the causes of Type 1 diabetes are not completely understood, it is known that obesity and genetics are major factors for Type 2.

Nutrition plays a role in lowering the risk of Type 2 diabetes or managing either form of the disease. However, it is a myth that there is one diabetes diet that every patient should follow. Instead, diabetics should keep track of the foods they consume that contain carbohydrates to manage and control blood-glucose levels. Also, a dietitian can help patients create a specific meal plan that fits their preferences, lifestyle, and health goals.

The Crisis of Obesity

Excessive weight gain has become an epidemic. According to the National Institutes of Health, over two-thirds of American adults are overweight, and one in three is obese. Obesity in particular puts people at risk for a host of complications, including Type 2 diabetes, heart disease, high cholesterol, hypertension, osteoarthritis, and some forms of cancer. The more overweight a person is, the greater his or her risk of developing life-threatening complications. There is no single cause of obesity and no single way to treat it. However, a healthy, nutritious diet is generally the first step, including consuming more fruits and vegetables, whole grains, and lean meats and dairy products. National Institute of Diabetes and Digestive and Kidney Diseases, National Institutes of Health. "Overweight and Obesity Statistics." *NIH Publication No. 04-4158*. Updated February 2010. <http://win.niddk.nih.gov/publications/PDFs/stat904z.pdf>.

Kidney Disease

Chronic kidney failure is the gradual loss of kidney function and can cause dangerous levels of fluid and waste to build up in the body. Nutrition is very important in managing end-stage renal disease, and a patient with this condition should discuss a meal plan with a dietitian and physician. Certain macro- and micronutrients will need to be monitored closely, including protein, potassium, sodium, and phosphorus. Kidney patients must also keep track of their caloric intake and dietitians may recommend consuming more fast-releasing carbohydrates and low-saturated fats to boost the number of calories consumed each day.

Cancer

Certain cancers are linked to being overweight or obese. Additionally, some foods are related to either an increased or decreased risk for certain cancers. Foods linked to decreased cancer risk include whole grains, high-fiber foods, fruits, and vegetables. Foods linked to increased cancer risk include processed meats and excess alcohol.

Digestive Disorders

Digestive disorders can include constipation, heartburn or gastroesophageal reflux disease, inflammatory bowel disease, including Crohn's and ulcerative colitis, and

irritable bowel syndrome. These disorders should be addressed with a physician. However, for many of them, diet can play an important role in prevention and management. For example, getting enough fiber and fluids in your diet and being active can help to alleviate constipation.

KEY TAKEAWAYS

- More and more consumers are weighing nutritional considerations as they choose which foods to purchase and prepare for their families.
- Studies have shown that family meals and home-cooked food not only benefit a person's health, but also their overall well-being. Family meals lead to the consumption of healthy food, tighter familial bonds, improved communication, and the teaching of table manners to young children.
- Diet plays a key role in the prevention and management of many chronic conditions or diseases, such as hypertension and diabetes.

DISCUSSION STARTER

1. What would you recommend to help people who are struggling with diabetes? What tips would you provide? What lifestyle changes might help? Use the dietary guidelines at the Mayo Clinic's website to help provide specific suggestions.

<http://www.mayoclinic.com/health/diabetes-diet/DA00027>.

14.7 Diets around the World

LEARNING OBJECTIVES

1. Give examples of how local taste preferences and availability influence food choices in different regions of the globe.
2. Explain what is meant by Alice Waters' statement: "Food is precious."

In the past, people's culture and location determined the foods they ate and the manner in which they prepared their meals. For example, in the Middle East, wheat was a staple grain and was used to make flatbread and porridge, while halfway around the world in Mesoamerica, maize was the staple crop and was used to make tortillas and tamales. Today, most people have access to a wide variety of food and can prepare them any way they choose. However, customs and traditions still strongly influence diet and cuisine in most areas of the world.

Comparing Diets

There are a multitude of diets across the globe, in all regions and cultures. Each is influenced by the traditions of the past, along with the produce and livestock available. Local tastes, agricultural economics, and incomes still have a profound effect on what many people eat around the world. In this section, you will read a few examples of cuisines in different countries and regions, demonstrating differences in preferences. We will also compare common dietary choices in each region for a key meal—breakfast.

North America

The people of the United States and Canada consume a wide variety of food. Throughout both countries, people enjoy eating all kinds of cuisine from barbecue, pizza, peanut butter sandwiches, and pie to sushi, tacos, chow mein, and roti (an Indian flatbread). This is partly due to the influence of immigration. As people emigrated to North America, they brought their dietary differences with them. In the 1800s, for example, Italian immigrants continued to cook spaghetti, pesto, and other cultural dishes after arriving in the United States. Today, Italian cuisine is enjoyed by many Americans from all backgrounds.

The variety of North American cuisine has also been impacted by regional variations. For example, fried chicken, cornbread, and sweet tea are popular in the

southern states, while clam chowder, lobster rolls, and apple cider are enjoyed in New England. Also, as more people seek to support sustainable agriculture, locally grown crops and whole-food cooking practices often factor into what Americans eat and how they eat it.

Breakfast in North America

Meals can vary widely from one region of the world to another. Therefore, it can be interesting and informative to compare the choices made for a particular meal around the globe. Throughout this section, we will explore the kinds of foods that people consume as they begin their day. Breakfast is a vital meal in any part of the world because it breaks the long overnight fast. An adequate breakfast also provides fuel for the first part of the day and helps improve concentration and energy levels.

Let's begin with breakfast in North America. On weekdays, North Americans often eat breakfast in a hurry or on the go. Therefore, many people choose breakfast foods that are quick and easy to prepare or can be eaten during the trip to school or the office. As a result, breakfast cereals with milk are extremely popular, and also oatmeal, toast, or bagels. However, on the weekends, some people spend a longer time enjoying a hearty breakfast or going out for brunch. Typical choices emphasize hot foods and include egg dishes, such as omelettes and scrambled or fried eggs, along with pancakes, waffles, french toast, bacon or sausage, and orange juice, coffee, or tea to drink.

Central and South America

Both Central America and South America feature cuisines with rich Latin flavors. In addition, rice and corn are staples in both and form the basis for many dishes. Both regions are also affected by the mixture of influences from the native populations and the cultural traditions brought by Spanish and Portuguese immigrants during the 1600s and beyond.

South America has a diverse population, which is reflected in dietary choices across the continent. The northwestern region boasts some of the most exotic food in Latin America. In northeastern South America, many dishes feature a contrast of sweet and salty tastes, including raisins, prunes, capers, and olives. Also, rice grown in the area and seafood off the coast are key ingredients in South American-style paella. The north central part of the continent reflects a Spanish influence. Many of the dominant spices—cumin, oregano, cinnamon, and anise—came from Spain, along with orange and lime juices, wine, and olive oil. The south is cattle country and the locals enjoy grass-fed beef cooked in the form of asados, which are large cuts roasted in a campfire. Another popular meat dish is parrilladas, which are

thick steaks grilled over oak. Cooking Light. "South American Cuisine." © 2012 Time Inc. Lifestyle Group. <http://www.cookinglight.com/food/world-cuisine/south-american-cuisine-0040000001391/>.

From Mexico in the North to Panama in the South, Central American cuisine features some of the world's favorite foods, including rice, beans, corn, peppers, and tropical fruits. This area combines a variety of culinary traditions derived from the native Maya and Aztec populations, arrivals from Spain, and African and Latin-influenced neighbors along the Caribbean. In this region of the world, tamales are common. Spicy seasonings, including hot chili peppers, are also very popular.

Typical Southern and Central American Foods

Typical foods in South and Central America include quinoa, which is a grain-like crop that is cultivated for its edible seeds. Quinoa has a high protein and fiber content, is gluten-free, and is particularly tasty cooked in pilafs. Another popular grain product is the tortilla, which is a flatbread made from wheat or corn. Tortillas are used to make a number of dishes, including burritos, enchiladas, and tacos. Fruits and vegetables that are common in Mexico, Central America, and South America include corn, avocados, yucca, peppers, potatoes, mangoes, and papayas. Rice, beans, and a soft cheese known as queso fresco are common to the cuisine in this area of the world as well.



Tamales, which are popular in Mexico and parts of Central and South America, are made from a shell called a masa that is stuffed with meat or vegetables and steamed or boiled in a wrapper of dried corn leaves. The wrapping is discarded prior to eating.

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Breakfast in Central America

In this region, the first meal of the day commonly includes huevos rancheros (fried eggs served over a tortilla and topped with tomato sauce). Other popular breakfast dishes include pan dulce (a sweetened bread), along with fried plantains, and a spicy sausage called chorizo. The typical beverage is coffee, which is available in many forms, including café con leche (which is sweetened with lots of milk) and café de olla (with cinnamon and brown sugar). Hot chocolate is also popular and tends to be thick, rich, and flavored with spices such as cinnamon or achiote. In the Yucatan region, huevos motulenos are prepared by spreading refried beans onto fresh tortillas with fried eggs, peas, chopped ham, and cheese.

Europe

European cuisine is extremely diverse. The diet in Great Britain is different from what people typically consume in Germany, for example. However, across the continent, meat dishes are prominent, along with an emphasis on sauces. Potatoes, wheat, and dairy products are also staples of the European diet.

The nations along the Mediterranean Sea are particularly renowned for their flavorful food. This part of the world boasts a number of famous dishes associated with their countries of origin. They include Italy's pasta, France's coq au vin, and Spain's paella.

Italy

Although Italy is a relatively small nation, the difference in cuisine from one region to another can be great. For example, the people of northern Italy tend to rely on dairy products such as butter, cream, and cheeses made from cow's milk, because the land is flatter and better suited to raising cattle. In southern Italy, there is greater reliance on olive oil than butter, and cheeses are more likely to be made from sheep's milk. Cooking Light. "Regional Italian Cuisine." © 2012 Time Inc. Lifestyle Group. <http://www.cookinglight.com/food/world-cuisine/regional-italian-cuisine-0040000001340/>.

However, there are a number of common ingredients and dishes across the country. Italian cuisine includes a variety of pasta, such as spaghetti, linguine, penne, and ravioli. Other well-known dishes are pizza, risotto, and polenta. Italians are also known for cooking with certain spices, including garlic, oregano, and basil.

France

For centuries, the French have been famous for their rich, extravagant cuisine. Butter, olive oil, pork fat, goose fat, and duck fat are all key ingredients. Common French dishes include quiche, fondue, baguettes, and also creams and tarts. Frites, or French fries, are cut in different shapes and fried in different fats, depending on the region. Fresh-baked bread is also found across the nation from the skinny baguettes of Paris to the sourdough breads in other parts of the country.

Every region of France seems to have its version of coq au vin (braised chicken most often cooked with garlic, mushrooms, and pork fat in wine). For instance, in the northeast, the dish is prepared a la biere (in beer). In Normandy in the northwest, coq au vin is cooked au cidre (in apple cider). Cooking Light. "France's Regional

Cuisine.” © 2012 Time Inc. Lifestyle Group. <http://www.cookinglight.com/food/world-cuisine/frances-regional-cuisine-0040000001365/>.

Spain

One of the most popular Spanish dishes is paella, a gumbo of rice, seafood, green vegetables, beans, and various meats. The ingredients can vary wildly from one region to another, but rice is always the staple of the dish. Spain is also renowned for its tapas, which are appetizers or snacks. In restaurants that specialize in preparing and serving tapas, diners often order a number of different dishes from a lengthy menu and combine them to make a full meal.

Cooks in Spain rely on a variety of olive oils known for their flavors, ranging from smooth and subtle to fruity and robust. Spanish cuisine combines Roman, Moorish, and New World flavors. Key ingredients include rice, paprika, saffron, chorizo, and citrus fruits. Cooking Light. “Spanish Flavor.” © 2012 Time Inc. Lifestyle Group. <http://www.cookinglight.com/food/world-cuisine/specialties-spanish-0040000001203/>.

Video 14.5

The Mediterranean Diet

[\(click to see video\)](#)

This video shows the cultural history of the cuisine enjoyed by many people who live in the Mediterranean region of Europe.

Breakfast in Europe

In some countries, such as France, Italy, and Belgium, coffee and bread are common breakfast foods. However, the people of Great Britain and Ireland tend to enjoy a bigger breakfast with oatmeal or cold cereal, along with meats like bacon and sausage, plus eggs and toast. Tea is also popular in this area, not only for breakfast, but throughout the day. The continental-style breakfast is most commonly associated with France and includes fresh-baked croissants, toast, or a rich French pastry called brioche, along with a hot cup of tea, coffee, or café au lait.

Africa

The continent of Africa is home to many different countries and cultural groups. This diversity is reflected in the cuisine and dietary choices of the African people.

Traditionally, various African cuisines combine locally grown cereals and grains, with fruits and vegetables. In some regions, dairy products dominate, while in others meat and poultry form the basis of many dishes.

Ethiopia

Ethiopia, located along the Horn of Africa, is one of the few African countries never colonized by a foreign nation prior to the modern era. So, outside influences on the culture were limited. Religious influences from Jewish, Islamic, and Catholic traditions played a larger role on the shaping of Ethiopian cuisine, because of the need to adhere to different dietary restrictions. For example, approximately half of Ethiopians are Muslim and must abstain from eating pork or using spices and nuts to flavor dishes. Ethiopia is also known for dishes that use local herbs and spices, including fenugreek, cumin, cardamom, coriander, saffron, and mustard. Many dishes also reflect a history of vegetarian cooking since meat was not always readily available. Cooking Light. "Ethiopian Tastes." © 2012 Time Inc. Lifestyle Group. <http://www.cookinglight.com/food/vegetarian/ethiopian-tastes-0040000037116/>.

In addition, Ethiopians use their hands to eat. First, diners tear off pieces of injera, a spongy, tangy flatbread made from teff flour. Then, they use the pieces as utensils to scoop up vegetables, legumes, and meats from a communal plate. Ethiopian Restaurant.com. "Injera." © 2004–2012. <http://www.ethiopianrestaurant.com/injera.html> Teff is a grass that grows in the highlands of Ethiopia and is a staple of the diet.

Central and West Africa

Stretching from mountains in the north to the Congo River, Central Africa primarily features traditional cuisine. Meals are focused on certain staples, including cassava, which is a mashed root vegetable, and also plantains, peanuts, and chili peppers. In West Africa, which includes the Sahara Desert and Atlantic coast, the cuisine features dishes made from tomatoes, onions, chili peppers, and palm nut oil. Popular dishes in both regions include stews and porridges, such as ground nut stew made from peanuts, and also fufu, a paste made from cassava or maize.

Breakfast in Africa

African breakfast choices are strongly influenced by the colonial heritage of a region. The people of West Africa typically enjoy the French continental-style breakfast. However, in the eastern and southern parts of the continent, the traditional English breakfast is more common. In North Africa, breakfast is likely to include tea or coffee, with breads made from sorghum or millet. In East and West

Africa, a common breakfast dish is uji, a thick porridge made from cassava, millet, rice, or corn. Kitoza is a delicacy made from dried strips of beef that are eaten with porridge in Madagascar. In Algeria, French bread, jam, and coffee is a typical breakfast. The people of Cameroon eat beignets, which is a doughnut eaten with beans or dipped in a sticky, sugary liquid called bouilli.

Asia

Asia is a massive continent that encompasses the countries of the Middle East, parts of Russia, and the island nations of the southeast. Due to this diversity, Asian cuisine can be broken down into several regional styles, including South Asia, which is represented for our purposes here by India, and East Asia which is represented for our purposes by China, Korea, and Japan. Even with this variety, the Asian nations have some dietary choices in common. For example, rice is a staple used in many dishes across the continent.

India

In India, there is much variety between the different provinces. The nation's many kinds of regional cuisines can date back thousands of years and are influenced by geography, food availability, economics, and local customs. However, vegetarian diets are common across the nation for religious reasons, among others. As a result, Indian dishes are often based on rice, lentils, and vegetables, rather than meat or poultry. Indian cooking also features spicy seasonings, including curries, mustard oil, cumin, chili pepper, garlic, ginger, and garam masala, which is a blend of several spices. Curry Dishes.com. "Guide to Easy Indian Recipes, Curry Recipes and Curry Spices." © 2009. <http://www.currydishes.com/>. India is also known for its breads, including the flatbreads roti and chapati. Dishes that are popular not only in India but around the world include samosa, a potato-stuffed pastry; shahi paneer, a creamy curry dish made out of soft cheese and tomato sauce; and chana masala, chickpeas in curry sauce. Food-India.com. "Your Guide to Indian Food." © 2003-2011. <http://www.food-india.com/>.

China

China has the world's most sizable population. As a result, there are many different culinary traditions across this vast country, which is usually divided into eight distinct cuisine regions. For example, Cantonese cuisine, which is also known as Guangdong, features light, mellow dishes that are often made with sauces, including sweet-and-sour sauce and oyster sauce. Cantonese-style cuisine has been popularized in Chinese restaurants around the world. Another cuisine is known as Zhejiang, which is often shortened to Zhe, and originates from a province in southern China. It features dishes made from seafood, freshwater fish, and bamboo

shoots.eChinacities.com. “China’s Eight Cuisines Revealed and How to Identify Them.” ©2008–2011 <http://www.echinacities.com/expat-corner/china-s-8-cuisines-revealed-and-how-to-identify-them.html> Key ingredients that are used in several, but not all, of the different regions include rice, tofu, ginger, and garlic. Tea is also a popular choice in most parts of the country.

Chinese use chopsticks as utensils. These small tapered sticks can be made from a variety of materials, including wood, plastic, bamboo, metal, bone, and ivory. Both chopsticks are held in one hand, between the thumb and fingers, and are used to pick up food.

Korea

Korean cuisine is primarily centered around rice, vegetables, and meat. Commonly-used ingredients include sesame oil, soy sauce, bean paste, garlic, ginger, and red pepper. Most meals feature a number of side dishes, along with a bowl of steam-cooked, short grain rice. Kimchi, a fermented cabbage dish, is the most common side dish served in Korea and is consumed at almost every meal. Another signature dish, bibimbap, is a bowl of white rice topped with sautéed vegetables and chili pepper paste and can include egg or sliced meat. Bulgogi consists of marinated, barbecued beef. Korea Tourism Organization. “Food in Korea.” Accessed October 10, 2011. http://visitkorea.or.kr/enu/1051_Food.jsp.

Japan

As in other parts of Asia, rice is a staple in Japan, along with seafood, which is plentiful on this island nation. Other commonly-used ingredients include noodles, teriyaki sauce, dried seaweed, mushrooms and other vegetables, meat, and miso, which is soybean paste. Some favorite foods include the raw fish dishes sashimi and sushi, which are not only popular in Japan, but are also around the world. Typical beverages include green tea and also sake, which is a wine made of fermented rice. Web MD. “Diets of the World: The Japanese Diet.” © 2005–2011. <http://www.webmd.com/diet/features/diets-of-world-japanese-diet>.

The traditional table setting in Japan includes placing a bowl of rice on the left and a bowl of miso soup on the right side. Behind the rice and the soup are three flat plates which hold the accompanying side dishes. Similar to China, chopsticks are used in Japan and are generally placed at the front of the table setting. At school or work, many Japanese people eat out of a bento lunch box, which is a single-portion takeout or home-cooked meal. Bento boxes typically include rice, fish or meat, and cooked or pickled vegetables.

The Middle East

Middle Eastern cuisine encompasses a number of different cooking styles from Asian countries along the Mediterranean, as well as from North African nations, such as Egypt and Libya. In this part of the world, lamb is the most commonly consumed meat and is prepared in a number of ways, including as a shish kebab, in a stew, or spit-roasted. However, kosher beef, kosher poultry, and fish are eaten as well. Other staples include the fruits and vegetables that grow in the hills of many Middle Eastern countries, such as dates, olives, figs, apricots, cucumber, cabbage, potatoes, and eggplant. Common grains include couscous, millet, rice, and bulghur. Popular dishes include Syrian baba ganoush, which is pureed eggplant, and kibbeh, or lamb with bulghur wheat, from Lebanon. Saveur. "Middle Eastern Recipes." Accessed December 5, 2011. <http://www.saveur.com/solrSearchResults.jsp?fq=Cuisine:Middle%20Eastern&sitesection=recipes>. A flatbread called pita served with hummus, or pureed chickpeas, is another popular dish in this region of the world.

Most people who reside in the Arab countries of the Middle East are Muslim, which can affect their diet. Many Muslims do not consume alcohol or pork. They also observe certain diet-related religious traditions, such as a daytime fast during the month of Ramadan. Other residents of the Middle East include Jews and Christians, and their traditions also affect what foods they eat and how they prepare it. For example, many Jews in Israel keep kosher and follow a set of dietary laws that impact food choices, storage, and preparation.

Breakfast in Asia

To continue the comparison of breakfast around the world, let's examine the first meal of the day in many parts of Asia. In India, the first meal of the day commonly includes eggs scrambled with spices, potatoes, and onions, as well as fresh fruit and yogurt. Breakfast in China often consists of rice complemented by vegetables, meat, or fish. In Korea, a traditional breakfast would include soup made of either beef ribs or pork intestines, a selection of bread and pastries, rice, and kimchi, which is believed to promote intestinal health. Breakfast in Japan does not greatly differ from any other meal. It typically consists of a bowl of steamed white rice, a small piece of fish, a bowl of miso soup with tofu, vegetables, green tea, and occasionally pickled plums called umeboshi. Hot bowls of noodles in broth topped with pork slices, scallions, and bamboo shoots are also common.

Congee is a common breakfast food across Asia. This dish is a porridge made of rice that is consumed in a number of Asian countries, including Vietnam, Thailand, Burma, and Bangladesh. Congee can be prepared both savory and sweet and contain a variety of ingredients, usually meats, vegetables, and herbs. It can be eaten alone or served as a side dish.



In the different regions of China, congee is prepared with various types of rice, which results in different consistencies.

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The Diversity of Palates and Habits

Around the globe, people enjoy different foods and different flavors. In some cultures, the main dishes are meat-based, while others focus on plant-based meals. You can also find different staples in different regions of the world, including rice, potatoes, pasta, corn, beans, root vegetables, and many kinds of grains. Different flavors are also popular on different parts of the planet, from sweet to salty to sour to spicy.

Food Availability

People tend to eat what grows or lives nearby. For example, people in coastal areas tend to consume more seafood, while those in inland areas tend to structure their diet around locally-grown crops, such as potatoes or wheat. In many developing countries, a large part of the diet is composed of cereal grains, starchy roots, and legumes. However, a number of common staples are consumed worldwide, including rice, corn, wheat, potatoes, cassava, and beans.

Income and Consumption

In addition to regional dissimilarities in diets, income also plays a major role in what foods people eat and how they prepare them. The average global calorie consumption has increased to record levels in recent years. This is a consequence of rising incomes, which have allowed consumers in many regions to expand both the variety and the quantity of food they eat. Among developing countries, the daily intake of calories per person rose by nearly 25 percent from the early 1970s to the mid-1990s. US Department of Agriculture, Foreign Agricultural Service. "Diets Around the World: How the Menu Varies." Last modified October 14, 2004. <http://www.fas.usda.gov/info/agexporter/2000/Apr/diets.htm>. Centers for Disease Control and Prevention. "Caloric Consumption on the Rise in the United States, Particularly Among Women." NCHS Press Room, February 5, 2004. <http://www.cdc.gov/nchs/pressroom/04news/calorie.htm>. People in the western world were able to increase their consumption of meat and poultry, fruits and vegetables, and fats and oils. However, those gains were minimal in the poorest

countries, where many continue to struggle with hunger and a limited diet. US Department of Agriculture, Foreign Agricultural Service. "Diets Around the World: How the Menu Varies." Last modified October 14, 2004. <http://www.fas.usda.gov/info/agexporter/2000/Apr/diets.htm>.

Different Ways of Eating

People from different parts of the world consume their food in different ways and what is common in one country may be considered impolite in another. For example, in some areas people eat with their fingers, while in others using a fork is much more acceptable. In some regions of the world, people slurp their soup, while in others they quietly sip it. In some places, diners eat off of individual plates, while in others people sit at a table with a large communal plate from which everyone eats.

No matter where you travel, you will find that food production, purchase, and preparation affect all facets of life, from health and economics to religion and culture. Therefore, it is vital for people from all walks of life to consider the choices they make regarding food, and how those decisions affect not only their bodies, but also their world. Alice Waters, an influential chef and founder of the nonprofit program Edible Schoolyard, as well as an advocate for sustainable production and consumption, has said, "Remember food is precious. Good food can only come from good ingredients. Its proper price includes the cost of preserving the environment and paying fairly for the labor of the people who produce it. Food should never be taken for granted." Waters, A. "The Art of Eating." PlanetGreen.com. March 31, 2009. <http://planetgreen.discovery.com/feature/earth-day/alice-waters-eat-green.html>.

Video 14.6

Alice Waters: Edible Education

[\(click to see video\)](#)

In this video, Edible Schoolyard founder Alice Waters talks about the value of growing a garden and learning about food.

KEY TAKEAWAYS

- Many people around the world have access to a wide variety of food and can prepare it any way they choose.
- However, cuisine remains strongly influenced by location, culture, tradition, and economics.
- People from all cultures and all walks of life should consider the choices they make regarding food, and how those decisions affect not only their bodies, but also the world.

DISCUSSION STARTER

1. Compare and contrast breakfast in different parts of the world. What are common attitudes about the first meal of the day? How are the choices that people make the same? How are they different? Are there any breakfast dishes in common?

14.8 End-of-Chapter Exercises

IT'S YOUR TURN

1. Visit a store and study the labels for one kind of processed food. List all of the additives it contains and research them at the library or on the Internet. Why was each substance included during the processing stage?
2. Create a brochure for tourists to explain the kinds of foods they can expect to encounter in one region of the world. Reference a few popular dishes and a few considerations they might need to keep in mind during their travels.
3. How can you move toward a more sustainable diet? Make a list of the kinds of changes you could make to the foods you choose and the ways you prepare them.

APPLY IT

1. Create a short newsletter for parents explaining the value of home-cooked, family meals. Describe how sitting down together for a few meals each week can benefit different members of the family. You may also wish to include one or two tips that parents can use to encourage their children to make mealtimes a priority.
2. Plan a website that addresses the rising price of food around the world. Describe the look and focus of the main page, along with subsections that you will include. Also provide links to related material already available online.
3. Research one of the different cuisines described in this chapter, such as the Indian or Ethiopian diet. Explore the history of the diet, along with the climate, soil, and other factors that affect the foods that farmers grow and how consumers prepare them. Then create a report to explain your findings.

EXPAND YOUR KNOWLEDGE

1. Write a short script for a public service announcement that explains the benefits and risks of food additives. What do you believe the public should know about the natural and synthetic substances that are introduced to foods during the processing stage?
2. Summarize in a written discussion why economic experts believe the era of cheap food is over. What factors have contributed to rising food prices around the globe?
3. Draw a comic strip that shows the different facets of a food system for a particular crop, from production to consumption.