

Moving Toward the Food Guide Pyramid: Implications for U.S. Agriculture. By C. Edwin Young, Market and Trade Economics Division, and Linda Scott Kantor, Food and Rural Economics Division, Economic Research Service, U.S. Department of Agriculture. Agricultural Economic Report No. 779.

Abstract

Recent studies show that average diets differ considerably from Food Guide Pyramid recommendations. The gap between current consumption and recommendations is particularly large for caloric sweeteners, fats and oils, fruits, and certain vegetables—notably dark-green leafy and deep-yellow vegetables, and dry beans, peas, and lentils. The change in food consumption needed to meet Food Guide Pyramid serving recommendations will result in adjustments in U.S. agricultural production, trade, nonfood uses, and prices. The net adjustment in crop acreage is projected to be relatively small, about 2 percent of total cropland in 1991-95. However, this small net adjustment masks larger anticipated changes for some sectors, particularly sweeteners, fats and oils, and citrus fruits.

Keywords: Food, food consumption, Food Guide Pyramid, crop production, commodity prices, trade, dietary recommendations, 1996 Farm Act

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Summary

Although the American diet is becoming more healthful, eating habits still fall short of Federal dietary advice provided in the Food Guide Pyramid. If Americans followed Pyramid recommendations, the resulting changes in consumer demand would lead to changes in the type and quantity of food produced, and how and where it is produced.

Closing the gap between average U.S. diets and Pyramid serving recommendations means consumers will have to change their eating habits significantly. For example, while Americans consumed record amounts of fruits and vegetables in 1997, consumption of dark-green leafy vegetables remains well below Federal dietary benchmarks. At the same time, consumption of added sugars hit an all-time high, at more than two and a half times the Pyramid upper limit.

Bringing diets in line with Pyramid recommendations would lead to adjustments in U.S. agricultural production, trade, nonfood uses, and prices. If the average American were to fully adopt the Pyramid recommendations, U.S. crop acreage devoted to food and feed would need to increase by nearly 6 million acres over average levels in the early 1990's. This adjustment is relatively small in relation to total planted area—about 2 percent of average 1991-95 agricultural cropland—and well below the almost 22 million acres of cropland idled under Federal annual acreage planting constraints during 1991-95.

However, this modest adjustment masks larger changes in production and prices expected for individual commodity sectors—notably caloric sweeteners, fats and oils, fruits, and certain vegetables (dark-green leafy and deep-yellow vegetables, and dry beans, peas, and lentils)—where there is a large gap between recommended and actual consumption.

Caloric sweeteners. A 60-percent reduction in average consumption of caloric sweeteners would be necessary to reach Pyramid recommendations (this contrasts sharply with the 9-percent increase per person during 1991-95). Such an unprecedented reduction translates into a 4.8-million-ton reduction in domestic sugar output—a drop in planted area of 0.7 million acres of sugarcane and 1.1 million acres of sugar beets. Sugar imports would have to be cut by 1.3 million tons from the 2.1-million annual average of 1991-95. This sector is highly concentrated with sugarcane production in Florida and Louisiana and sugar beet production in the Red River Valley of North Dakota and Minnesota and in parts of Idaho, Michigan, and California. Producers in these regions will likely shift production to fruits and vegetables or field crops.

Fats and oils. U.S. consumption of added fats and oils, at 59 grams a day, is among the highest in the world. Total fat intake would have to be cut 36 percent in order to meet the suggested daily limit (that contrasts sharply with the 0.5-percent increase between 1991 and 1995). These reductions will have the largest impact on the soybean sector, since soybeans dominate the market for added fats and oils. To match the reduced demand, soyoil production would need to decline by 2 million tons, translating into 20 percent less acreage devoted to soybeans, or a 12-million acre decline. However, market forces would limit the reduction to less than 3 million acres, as exports, feed, and industrial uses would offset the decline in domestic oil demand.

Fruits. Fruit consumption would more than double if the average U.S. diet were to meet Pyramid recommendations. Consumption of citrus, melons, and berries would need to increase by 150 percent, and that of other fruits would need to rise 114 percent. Meeting the need with domestic production alone would imply a 3- to 4-million-acre increase in planted area. However, imports would likely help take up the slack, as land, labor, and climatic constraints limit expansion of domestic fruit production.

Vegetables. Meeting Pyramid recommendations would require some alteration in the quantities and types of vegetables consumed. Although consumption of vegetables as a group would have to rise only 10 percent, average diets would have to include more than four times as many dark-green leafy and deep-yellow vegetables; three times as many dry beans, peas, and lentils; and fewer servings of starchy vegetables (mostly potatoes). A net increase of 2-3 million acres of vegetables would be needed to produce enough vegetables to meet the increased demand, with 1.4 million acres devoted to additional dark-green leafy and deep-yellow vegetables. Some of the increase in domestic supplies could be achieved by switching the types or mix of crops planted.

Milk and meat products. Consumption of dairy products needs to grow by 22 percent and that of meats by 5 percent in order for average diets to meet Pyramid recommendations. More important, meeting the recommendations would require adjustments in the mix of products in these food groups, notably a reduction in fat. Increased demand for lowfat products would raise retail prices, while decreased demand for higher fat products would result in these products moving to industrial uses and exports. Such a shift would have a measurable effect on the grain sector.

Grains. Adjustments will occur largely in the feed grains sector and will be closely linked to developments in the sweetener, oilseed, meat, and poultry industries. Changes in the food use of grains (such as flour and pasta) will be relatively minor.

Interactions among different agricultural commodity markets may moderate the size of the adjustments estimated in this report. Consumers will substitute some products for others, depending on prices. Farmers base planting decisions on expected prices, and can alternate among crops, with some limitations, on the same piece of land. Also, producers and processors alter the supply of final foods, depending on relative prices and changing technologies, for products produced jointly from the same raw agricultural commodity. For example, higher demand for lowfat dairy products can be met by producing less ice cream, butter, and cheese and producing more lowfat yogurt and skim milk.

Because of the size and complexity of the U.S. food system, an almost infinite combination of foods, production methods, end uses, and trade adjustments could work together to move diets toward the Food Guide Pyramid recommendations. Food consumption is just one of several components of demand for agricultural products, along with animal feed, exports, and nonfood or industrial uses. Shifts in food demand due to dietary change would likely result in offsetting shifts in production, trade, and nonfood uses, which would tend to moderate the impacts on food prices and farm income in the long run.