

From Field to Fitness: Aligning Farm Policy with Health Policy to Improve Nutrition & Health



An Analysis of the Influence of
the Federal Farm Bill on
Nutrition and Health

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Principal Author:
Amy Radican-Wald, DrPH(c), MPH
Senior Policy Analyst

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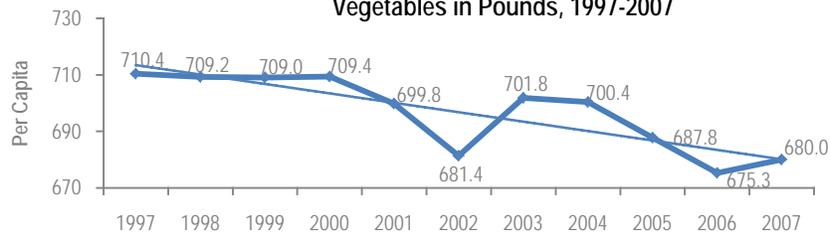
■ Introduction

Mississippi has the distinction of having the highest rates in the nation of both obesity and hunger/food insecurity (Trust for America's Health, 2010 and Food Research and Action Center, 2010b). This apparent paradox can be explained in part by the fact that poor nutrition is an underlying factor for both conditions. Poor nutrition increases risk for early death and disability, where Mississippi again leads the nation.

Ample consumption of fruits and vegetables, which are low in calories and fats while high in vital nutrients, is important for growth and development, as well as prevention of chronic disease. Yet, few Americans eat enough of them to meet nutrition and disease protection needs, and Mississippi adults report the lowest intake of fruits and vegetables (Centers for Disease Control and Prevention [CDC], 2009). Increasing consumption of fruits and vegetables is consequently an important component in any attempt to improve the nutritional status and health of Mississippians. This goal is difficult to obtain without addressing the accessibility and affordability of fruits and vegetables in the state, which ultimately leads to an examination of federal farm policies that directly impact the availability of these foods.

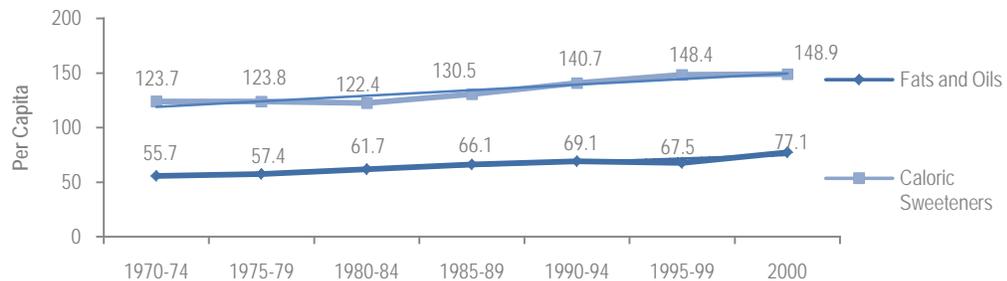
While health experts encourage the population to eat more fruits and vegetables and limit consumption of sugars and fats (United States Department of Health and Human Services [DHHS] & United States Department of Agriculture [USDA], 2005), adult eating patterns show the opposite trend (**Figures 1 and 2**). Federal policies create incentives for farmers to grow certain crops or to abstain from some areas of production and directly affect the cost of foods. This report will examine these and other federal policies contained in the Farm Bill that may contribute to the trends shown in these figures.

Figure 1: United States Average Consumption Per Capita of Fruits & Vegetables in Pounds, 1997-2007



Source: United States Department of Agriculture, Economic Research Service, 2010.

Figure 2: United States Average Per Capita Consumption Caloric Sweeteners and Fats and Oils in Pounds, 1974-2000



Source: Putnam, Allshouse, & Kantor, 2002.

■ What is the Farm Bill?

The United States Congress is scheduled to reauthorize the Food, Conservation, and Energy Act (Public Law 110-246) in 2012. Congress originally enacted the law, known as the “Farm Bill” in 1933 in response to agricultural distress following the Great Depression (Dimitri et al. 2005). It has been amended numerous times since and now governs farm and food policy through a wide range of programs outlined in fifteen titles listed in **Figure 4**. The policies set forth in the bill shape what foods are grown or are available in the nation and abroad thus greatly affecting nutrition and consequently health status of persons nationwide.

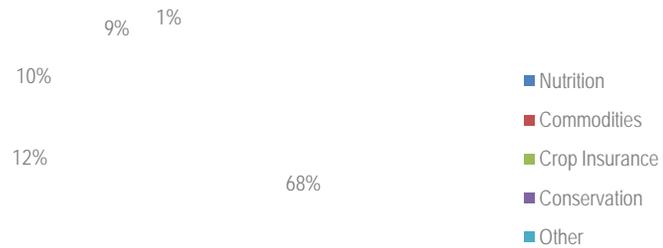
Figure 4: Fifteen Titles and Appropriations in the Food, Conservation, and Energy Act of 2008

Number	Name	Purpose	Funding 2008-2012
Title I	Commodity Programs	Outline Commodity Crops and Supports	\$41.6 Billion
Title II	Conservation	Conserve and Preserve Land	\$24.1 Billion
Title III	Trade	Commercial Outlets for Commodities and Food Assistance Overseas	\$1.9 Billion
Title IV	Nutrition	Supplemental Nutrition Assistance Program (SNAP) and Commodity Distribution Programs	\$188.9 Billion
Title V	Credit	Farm Loan Rules and Support	\$1.4 Billion
Title VI	Rural Development	Rural Area Infrastructure and Growth	\$0.2 Billion
Title VII	Research and Related Matters	Agriculture Research and Extension Service Programs	\$0.3 Billion
Title VIII	Forestry	Manage Public Forests and Lands	\$40.0 Million
Title IX	Energy	Biofuel Support and Renewable Energy Research	\$0.6 Billion
Title X	Horticulture and Organic Agriculture	Fruits and Vegetables, Organic Farming, and Farmers' Market Promotion Programs	\$0.4 Billion
Title XI	Livestock	Animal Health and Food Safety	\$1.0 Million
Title XII	Crop Insurance and Disaster Assistance Programs	Disaster and Crop Protection Funds	\$21.9 Billion
Title XIII	Commodity Futures	Protect Commodity Transactions from Fraud and Abuse	\$0.00
Title XIV	Miscellaneous	Socially Disadvantaged Farmers Support, Agriculture Security, and Other Provisions	\$6.4 Billion
Title XV	Trade and Tax Provisions	Revenue Including Taxes on Corporations and Supplement Disaster Assistance Support	\$3.8 Billion
Total			\$284 Billion

Source: Public Law 110-246

Overall, the 2008 Farm Bill expenditures will total \$284 billion over five years, not including options that require more funds (Johnson, 2008). Titles I, IV, and X have the most direct affect on nutrition and will be addressed in this report. The nutrition title, Title IV, accounts for the most spending at \$189 billion (Economic Research Service, 2009a). Commodity crop provisions, outlined in Title I, are the next largest expense at nearly \$42 billion (Economic Research Service, 2008). Distribution of Farm Bill program funding is depicted in **Figure 5**.

Figure 5: 2008 Farm Bill: Distribution of Funds by Type of Program, 2008-2012



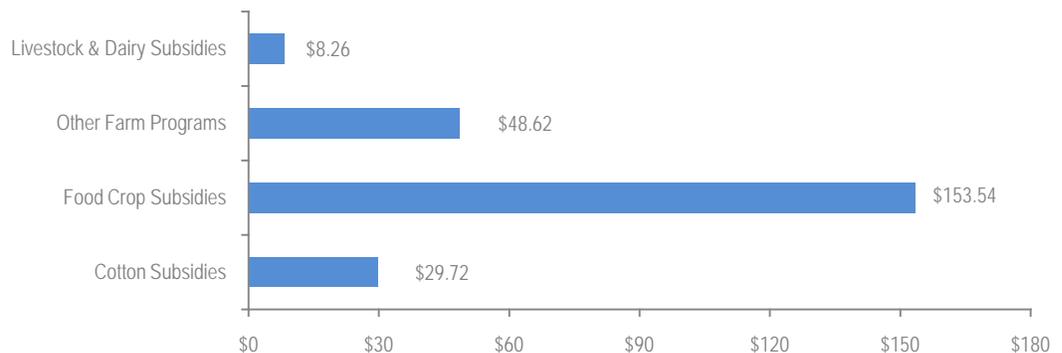
Source: United States Department of Agriculture, Economic Resedarch Service, 2009a.

Title X, horticulture, is a new section added to the Farm Bill in 2008 and relates to fruits, vegetables, and specialty crops (Johnson et al., 2008). This title receives less than half a billion, much lower than Title IV and Title I programs (Public Law 110-246).

Title I: Commodity Programs

Outlined through Title I of the Farm Bill, subsidies are the financial assistance paid directly to farm programs across the United States. Farm programs in this section include crop insurance, loan programs, disaster programs, conservation, and commodities. United States farmers received \$240.1 billion overall in subsidies from 1995 to 2009. As displayed in **Figure 6**, food crop commodities received the most Farm Bill funding at \$153.5 billion, followed by \$48.6 billion for other farm programs, \$29.7 billion for cotton subsidies, and \$8.3 billion for livestock and dairy subsidies (USDA, Farm Service Agency, 2010).

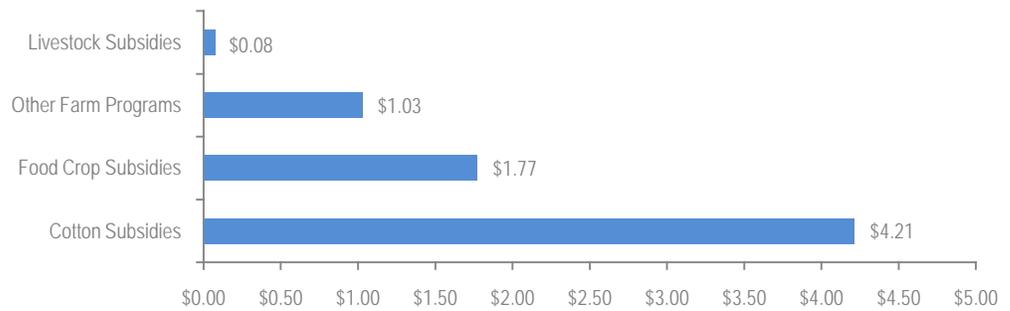
Figure 6: United States Farm Bill Subsidies in Billions, 1995-2009



Source: United States Department of Agriculture, Farm Service Agency 2010. Data analyzed by Environmental Working Group.

Mississippi ranks thirteenth in the nation for total Farm Bill subsidies received. As depicted in **Figure 7**, Mississippi received approximately \$7.1 billion overall in subsidies from 1995 to 2009. Subsidy payments to farm programs included \$4.2 billion for commodity cotton crops, \$1.7 billion to food commodity crops, and \$1.1 billion to other farm programs, livestock, and dairy subsidies (USDA, Farm Service Agency, 2010).

Figure 7: Mississippi Farm Bill Subsidies in Billions, 1995-2009



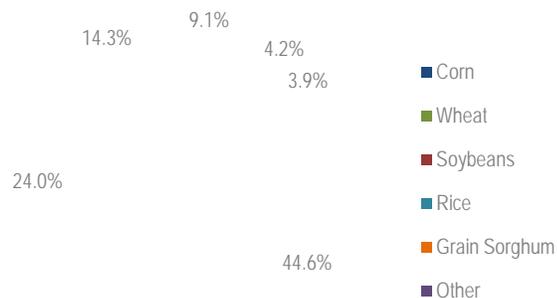
Source: United States Department of Agriculture, Farm Service Agency 2010. Data analyzed by Environmental Working Group.

USDA issues subsidy payments to eligible producers on farms through two programs: the Direct and Counter-cyclical Payment Programs. Payments for both types of programs are calculated using formulas that are based on the amount of acreage that was used to grow crops during a particular time period. Current payments are based on crops grown from 1997 to 2001 (Farm Service Agency, 2008). The term used in the formulas for this acreage is “base acres.”

“Base acres” represent the average acres of commodity crops historically planted on a participating farm, which must have been more than 10 base acres to qualify. Direct payments are stipulated at a set level outlined within the Farm Bill for each commodity crop type, guaranteeing a baseline income support. Counter-cyclical payments are provided when eligible commodity crops drop below seasonal market price target levels set in the Farm Bill (Public Law 110-246), a safety net to protect farmers in the event of low crop prices (Monke, 2006).

Food crops receiving subsidy payments under the Farm Bill include the following commodities primarily: corn, wheat, soybeans, rice, and sorghum (USDA, Farm Service Agency, 2010). The distribution of the top food crops subsidized from the direct payment program are shown below in **Figure 8**. Corn was the most highly subsidized commodity at 44.6 percent, followed by wheat at 24 percent, soybeans at 14 percent, rice at 9.0 percent, grain sorghum at 4.2 percent, and all other food crops (including fruits and vegetables) at 3.9 percent.

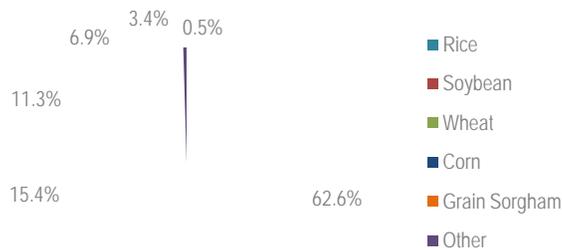
Figure 8: Distribution of United States Federal Farm Food Crop Direct Subsidies, 1995-2009



Source: United States Department of Agriculture, Farm Service Agency 2010. Data analyzed by Environmental Working Group.

The leading food crops associated with direct subsidies in Mississippi from 1995 to 2006 were rice at 62.6 percent, followed by soybeans at 15.4 percent, wheat at 11.3 percent, corn at 6.9 percent, grain sorghum at 3.4 percent, and all other food crops at .05 percent as displayed in **Figure 9** (USDA, Farm Service Agency, 2010).

Figure 9: Distribution of Mississippi Federal Farm Food Crop Direct Subsidies, 1995-2009



Source: United States Department of Agriculture, Farm Service Agency 2010. Data analyzed by Environmental Working Group.

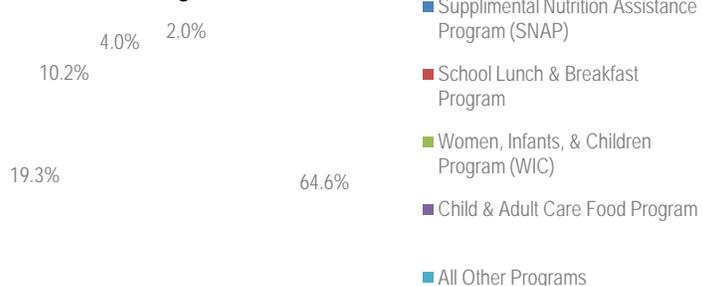
Specialty crops, such as fruits, vegetables, and tree nuts are not eligible for these commodity income support programs (Johnson et al., 2008).

■ Title IV: Nutrition Programs

The Food Stamp Program was renamed the Supplemental Nutrition Assistance Program (SNAP) in the 2008 reauthorization of the Farm Bill (Economic Research Service, 2009b). The intent of the name change was to emphasize the program’s focus on nutrition and “to assist participants as they move to a healthier lifestyle” (Food & Nutrition Service, 2008).

SNAP receives the majority of the funding of all nutrition programs (**Figure 10**). As the largest food and nutrition assistance program for low-income persons, SNAP represents a major funding source for the products of American farmers and food industries. In 2008, Mississippi received \$496 million in federal funding for SNAP benefits and ranked thirty-second nationwide with participation of 63 percent of eligible persons (Economic Research Service, 2009a). In April 2010, 567,724 persons in Mississippi were receiving SNAP benefits representing 19.6 percent of the population, one of the highest rates in the nation (Kaiser Foundation, 2010).

Figure 10: Distribution of United States Domestic Nutrition Assistance Funding, FY 2008



Source: United States Department of Agriculture, Economic Research Service, 2009a.

Note: SNAP is authorized by the Food, Conservation, and Energy Act of 2008 (Farm Bill). School Lunch & Breakfast Program, WIC, & Child and Adult Care Food Program are authorized by Child Nutrition and WIC Reauthorization Act of 2004.

The USDA oversees twenty domestic nutrition assistance programs and activities nationwide and the farm bill covers eight nutrition program areas (Richardson, 2008). Nearly sixty-five percent of nutrition program funding goes to the Supplemental Nutrition Assistance Program (SNAP), covered under Title IV of the farm bill as shown in **Figure 10**.

■ Title X:
Horticulture
Programs

Title X of the 2008 Farm Bill pertains to horticulture farming and covers fruits, vegetables, and specialty crops. **Figure 11** illustrates the distribution of the \$.4 billion in funding designated for various programs. A little over half of the funding (\$224 million) of Title X is allocated for the specialty crop block grant program designed to aid the competitiveness of specialty crops, which includes fruits and vegetables, tree nuts, and nursery crops. Examples of programs funded through the specialty crop block grant in Mississippi include expanding certification of farmers' markets, research to evaluate the effectiveness of producing off-season produce, educational programs focusing on the enhancement of the specialty crop industry, and an assessment of the current market opportunity of medicinal herbs grown in Mississippi (Agricultural Marketing Service, 2008).

Figure 11: Distribution of Farm Bill Title X Program Funding, FY 2008-2012



Source: United States Department of Agriculture, Economic Research Service, 2008

The Farm Bill funds a Farmers' Market Promotion program at \$33 million, representing approximately 8 percent of funds from Title X of the Farm Bill, to provide grants to local governments, nonprofits, and regional farmers' market authorities for improving and expanding farmers' markets, roadside stands, community supported farm programs, and direct producer to consumer market opportunities (Economic Research Service, 2008). In 2008, Mississippi was awarded \$107,038 to design grants to enhance competitiveness of specialty crops within the state (USDA, Agricultural Marketing Service, 2008).

Unique to the 2008 Farm Bill is a provision requiring at least ten percent of the promotion funds to support use of SNAP electronic benefit transfers at farmers' markets. The purpose is two-fold: to increase SNAP participants' access to fresh produce and to provide merchants an incentive to make this service available to their customers. Five million dollars, about one percent of Title X funding, is designated to establish a program to educate workers about sanitary handling of produce to reduce transmission of diseases. Other programs account for nearly forty percent of the remaining Title X funding (Economic Research Service, 2008).

■ Food Crop Production

According to some researchers (Fields, 2004), subsidies for the few commodity crops of corn, wheat, rice, and soybeans have influenced farmers to grow fewer fruits, vegetables, and other grains. Studies also show a positive relationship between commodity cropland accumulation over time and higher subsidy payment levels (Key & Roberts, 2007).

Figure 12 lists the division of farmland for both the nation and Mississippi. In Mississippi, 5.5 million acres, or almost half of all land used in farms statewide, were categorized as cropland during 2007. Of all farmland, more than one in three farmland acres were used to grow commodity crops in the U.S. and Mississippi during 2007. One percent of farmland was used to grow fruits and vegetables nationwide, and less than half a percent was used to grow fruits and vegetables statewide.

Figure 12: United States & Mississippi Farmland Use in Acres, 2007

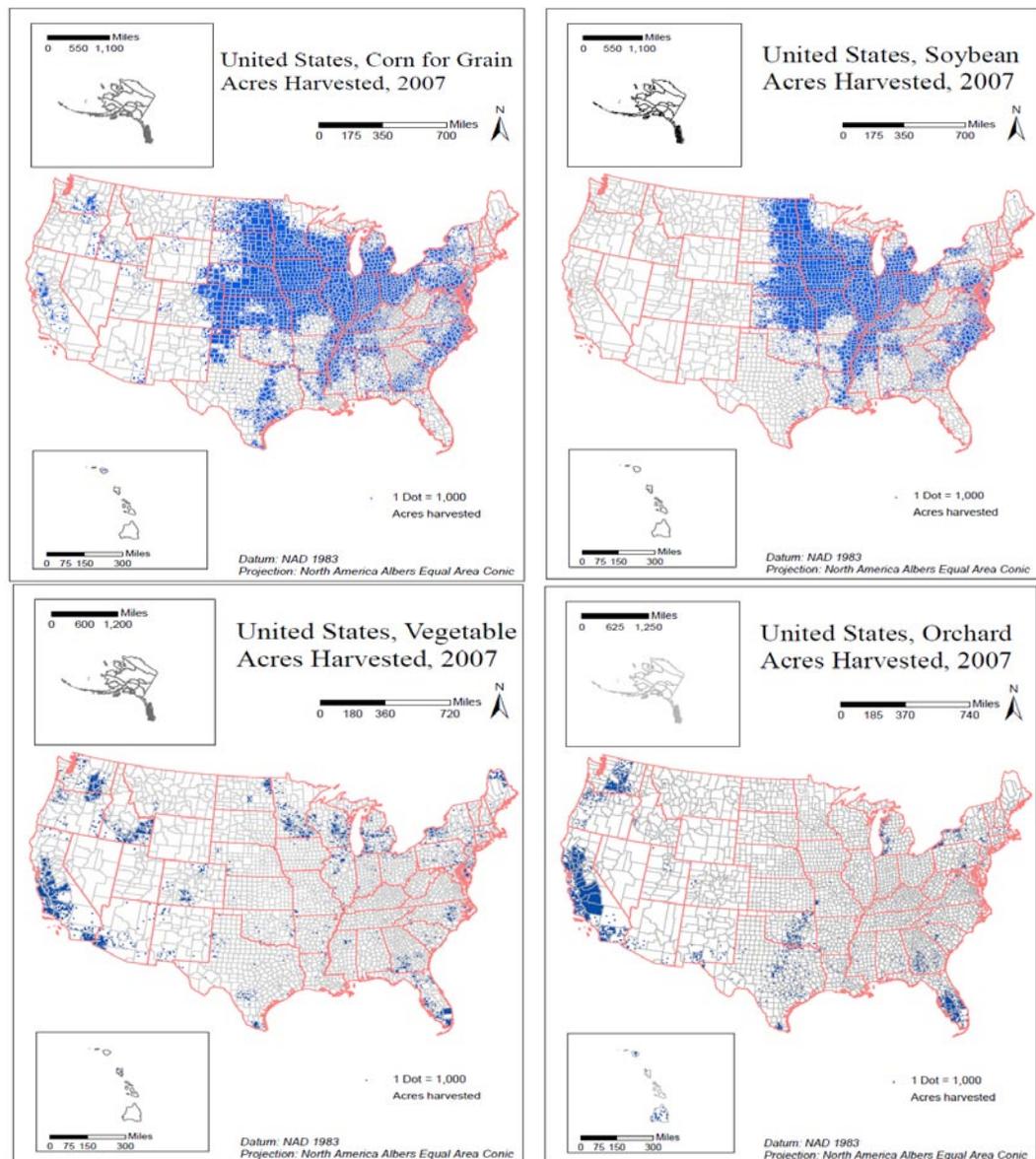
Cropland	United States		Mississippi	
	Acres	Percent	Acres	Percent
Land in Farms*	922,095,840	100.0%	11,456,241	100.0%
Total Cropland	406,424,909	44.1%	5,530,825	48.3%
Harvested Cropland	309,607,601	33.6%	4,223,708	36.9%
All Commodity Cropland	301,152,082	32.7%	3,630,263	31.7%
Food Commodity Cropland	232,397,611	25.2%	3,006,582	26.2%
Fruits & Vegetables	9,983,718	1.1%	49,009	0.4%

Source: United States Department of Agriculture, National Agriculture Statistics Service, 2009.

* The National Agriculture Statistics Service defines a farm as an operation usually producing and selling at least \$1,000 worth of agricultural products annually (2009).

The maps in **Figure 13** compare visually the acres harvested of corn, soybeans, fruits, and vegetables in 2007 in the United States (USDA, National Agricultural Statistics Service, 2009).

Figure 13: United States Acres Harvested of Corn, Soybeans, Vegetables, and Fruits in 2007



Source: United States Department of Agriculture, National Agriculture Statistics Service, 2009. Maps prepared by the GIS and Remote Sensing Program at the University of Mississippi Medical Center, 2010.

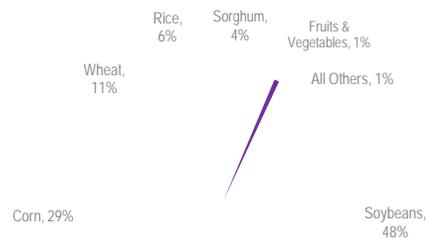
Corn is the most common food crop grown in the nation. Currently, the United States is the world's largest corn producer, with 20 percent of the total crop exported, and also the largest soybean producer and exporter, with seven percent of the total crop exported (Economic Research Service, 2010). Mississippi farmers grow soybeans more than any other food crop. The five crops of corn, soybeans, wheat, rice, and grain sorghum are the top food crops harvested nationwide and in Mississippi, comprising 95 percent of food crop area harvested in the United States in 2007 (Figure 14) and 98 percent of food crop area harvested in Mississippi during 2007 (Figure 15).

Figure 14: Distribution of United States Food Crop Area Harvested in 2007



Source: United States Department of Agriculture, National Agriculture Statistics Service, 2009.

Figure 15: Distribution of Mississippi Food Crop Area Harvested in 2007



Source: United States Department of Agriculture, National Agriculture Statistics Service, 2009.

Federal Restrictions on Planting Fruits & Vegetables

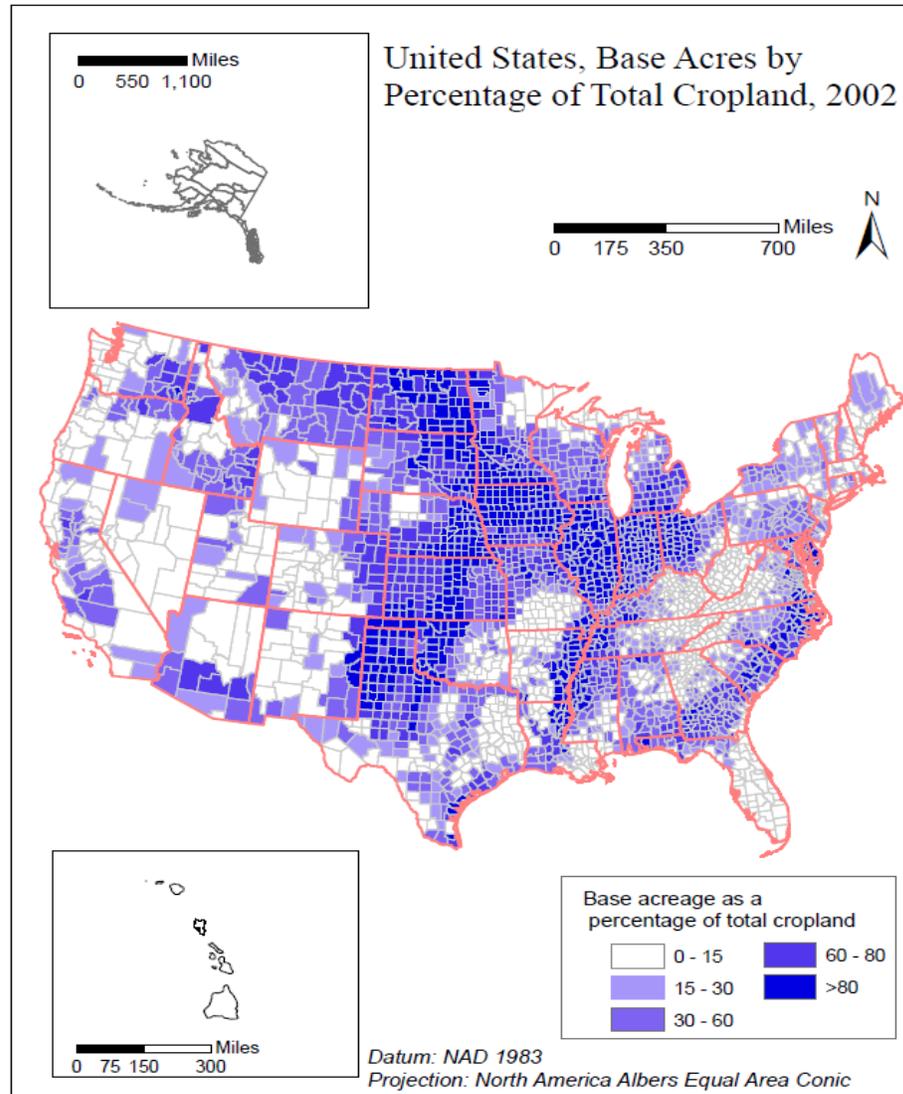
The USDA refers to commodity crops that are eligible for federal subsidy as “covered commodities” or “program commodities.” These covered commodities include wheat, corn, barley, grain sorghum, oats, upland cotton, medium and long grain rice, oilseeds, and pulse crops (small and large chickpeas, dry beans and lentils). Peanuts also qualify for a separate subsidy program. Specialty crops, however, such as fruits and vegetables, are not eligible for federal subsidy payments (Johnson et al., 2008).

Since the 1996 Farm Bill, subsidy payments have been determined based on the history of covered commodity crop production. Farmers receiving subsidy payments are not obligated to produce the same commodity crop planted previously (Livezey & Foreman, 2004). In fact, farmers may grow other crops or keep land fallow while receiving subsidies, except that farmers receiving these subsidy payments may not plant fruits, certain nuts, vegetables, or wild rice (Arkansas Farm Service Agency, 2009).

Farmers growing fruits and vegetables on land qualifying for subsidies will incur penalties for doing so (USDA, Farm Service Agency, 2008). Subsidy payments are reduced for each acre of fruits and vegetables planted, and the farmer is also assessed a financial penalty based on the market value of the fruits and vegetables produced. These planting restrictions were added in the 1996 Farm Bill and renewed with each subsequent reauthorization of the bill (Johnson, Krissoff, & Young et al., 2006).

Young, Johnson, Krissoff, and Lucier with the Economic Research Service (ERS) mapped cropland areas designated as base acres for federal subsidies (**Figure 16**). The researchers point out that these base acre areas are currently at a disadvantage for growing fruits and vegetables due to federal planting restrictions and could possibly be used for growing fruits and vegetables if federal restrictions were lifted (2007).

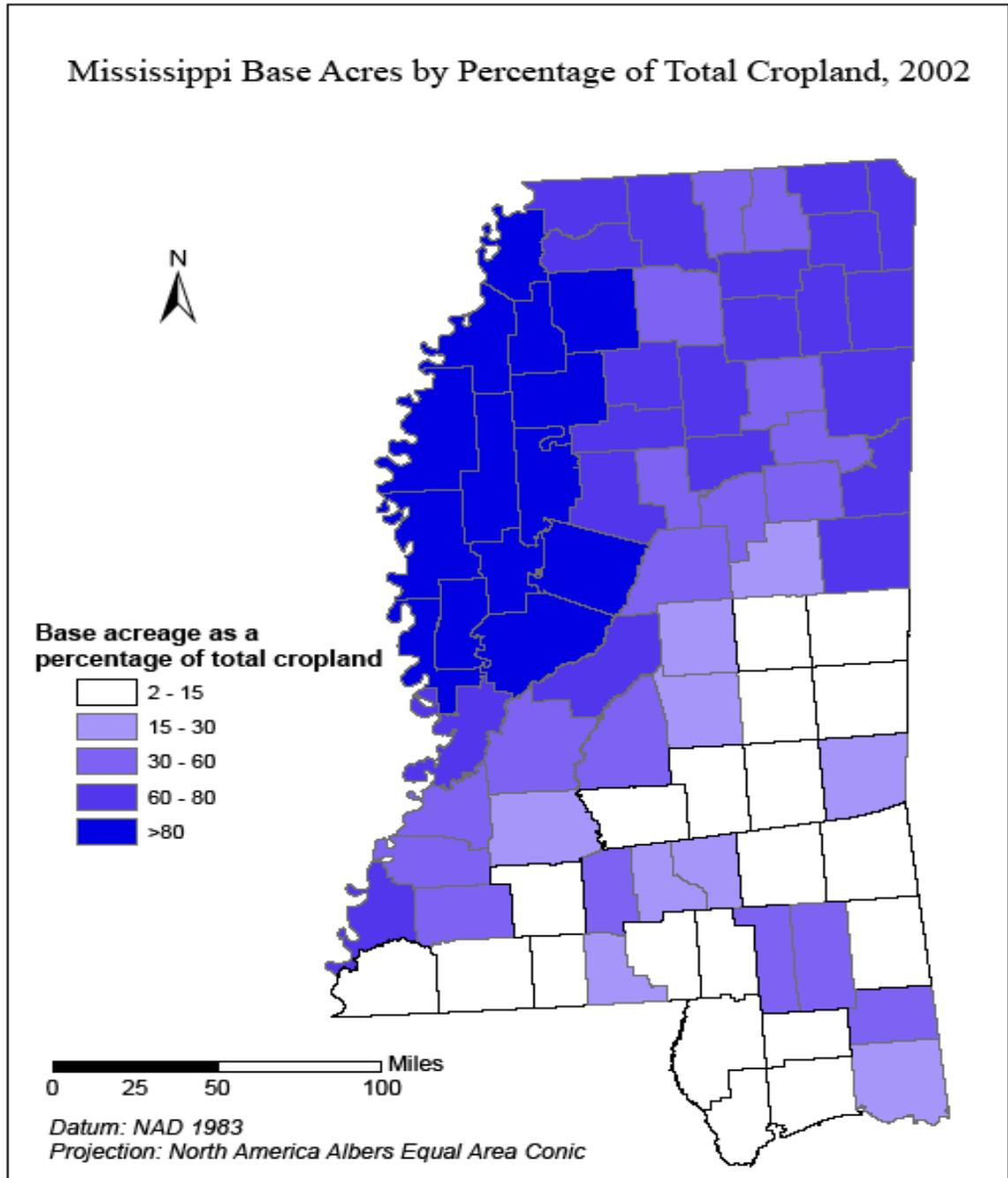
Figure 16: United States Base Acres by Percentage of Total Cropland, 2002



Source: Young, Johnson, Krissoff, & Lucier, *Amber Waves* Vol. 5, Issue 1, 2007. Maps prepared by the GIS and Remote Sensing Program at the University of Mississippi Medical Center, 2010.

In Mississippi, approximately 2.3 million acres are subject to these planting restrictions, which represent about 70 percent of the acreage growing commodity crops in 2008 (**Figure 17**). Therefore, removal of fruit and vegetable planting restrictions could potentially open up these acres for rotating covered commodity crops with fruits and vegetables without farmers incurring financial penalties (Young et al., 2007).

Figure 17: Mississippi Base Acres by Percentage of Total Cropland, 2002



Source: Young, Johnson, Krissoff, & Lucier, Amber Waves Vol. 5, Issue 1, 2007.

Maps prepared by the GIS and Remote Sensing Program at the University of Mississippi Medical Center, 2010.

Researchers with USDA's Economic Research Service found that farmers receiving subsidies for growing covered program commodities often have prior experience in producing fruits and vegetables (Johnson et al., 2006). Farmers with no prior fruit and vegetable planting experience, however, perceive the planting restrictions enough of a barrier that they are unlikely to move out of producing program crops. Approximately 99 percent of farmers who grow fruits and vegetables on commodity program land – in spite of the penalties – had a history of doing so. The researchers concluded that farmers could increase production of fruits and vegetables if planting restrictions and penalties imposed upon their growth were removed.

The 2008 Farm Bill authorized a planting flexibility pilot project that permits certain crops (cucumbers, green peas, lima beans, pumpkins, snap beans, sweet corn, and tomatoes) to be grown, for processing only, in selected areas. Seventy-five thousand acres in Illinois, Indiana, Iowa, Michigan, Ohio, and Wisconsin were specifically designated as eligible for participation in the pilot project. The law requires an evaluation for the project to determine the impact of the penalty provisions on fruit and vegetable production for fresh produce and processing (Public Law 110-246).

According to USDA, only 10,000 acres out of the 75,000 (13%) had enrolled in the pilot as of June 2010. Federal officials speculate that the low participation may be because farmers do not see value in enrolling in the pilot program (C.E. Young, personal communication, June 9, 2010). A farmer testifying before the Agriculture Committee of the U. S. House of Representatives cited several reasons he thought accounted for the underutilization of the pilot program. These include the downturn in the economy, the devaluing of the dollar relative to foreign currencies making imported fruits and vegetables more economical, complicated acreage limitation rules, and a complex sign-up process (Specialty Crop and Organic Agriculture Programs, 2010).

Some specialty crop producers, including fruit and vegetable growers, support continuing the planting restrictions. They point out the inequity in allowing producers receiving subsidies for covered commodity crops to grow fruits and vegetables, noting these farmers would have an economic advantage and create unfair competition for the fruit and vegetable farmers who were not eligible to receive subsidies. They also oppose removing the planting restrictions because of the economic impact: "By providing program crop producers full flexibility to enter specialty crop markets without penalty...supply is almost certain to increase compared to current levels with the restrictions in place. The larger supply without a corresponding increase in demand will lead to lower prices – and a direct reduction in revenues – faced by existing specialty crop producers" (Informa Economics, 2007).

An analysis conducted by the Economic Research Service (ERS) concluded that removing the planting restrictions could result in changes in production and pricing for fruits and vegetables, with the market effects limited to certain specific regions of the country and to lower-value commodities for processing. ERS estimated that the markets would likely readjust after one or two years (Johnson, Krissoff, & Young et al., 2006).

Other specialty crop producers support removal of specialty crop planting restrictions. They point out that farmers should be able to produce any commodity they can sell (USDA, Office of Communications, 2006).

Impact of Federal Subsidies

Research findings indicate that farmers decide which commodity crops to plant largely based on the greatest expected flow of subsidy payments (Young et al., 2005). Food commodity crops qualifying for Farm Bill subsidy payments represent the majority of the cropland harvested in Mississippi, as well as in the nation (**Figure 18**). Fruits, vegetables, and all other food crops together comprised only six percent of all United States cropland harvested in 2009 and less than one percent of all food crops harvested in Mississippi during the same time frame (USDA, National Agricultural Statistics Service, 2010).

Figure 18: Distribution of Food Cropland Harvested in the United States & Mississippi, 2009

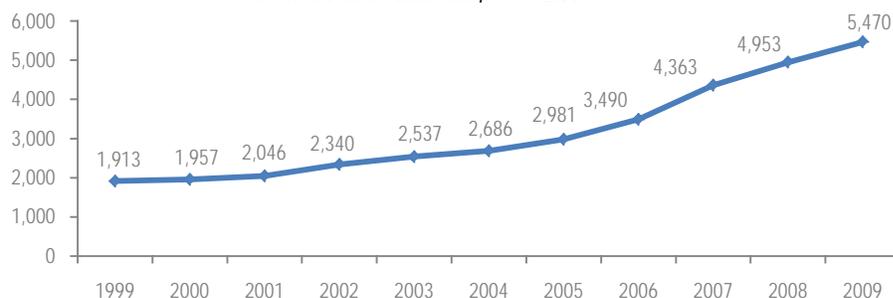
	Percentage of Food Cropland Harvested	
	United States	Mississippi
Food crops qualifying for federal subsidies	94%	99%
Fruits, vegetables, & other non-qualifying crops	6%	1%

Source: United States Department of Agriculture, National Agricultural Statistics Service, 2010.

Surplus commodities, such as corn and soybeans, have changed the base of the food supply over the past thirty to forty years. Corn and soybeans, for example, are used in a variety of economic sectors, influencing food and raw materials. Low prices due to subsidies encourage a surplus of these crops (Wallinga, 2010).

For example, the United States food market has an abundance of products made from these highly subsidized crops, including sweeteners like high-fructose corn syrup, hydrogenated fats from soybeans, and feed for cattle and swine. About 43 percent of corn is converted to feed for meat producing animals. Ninety percent of all industrial and food starches used by Americans are produced from corn. Fifty-six percent of sweeteners on the market are supplied via corn. **Figure 19** below depicts the significant ($p < .01$) increase in corn for food, seed, and industrial use over the past ten years (National Corn Growers Association, 2010).

Figure 19: United States Corn Use for Food, Feed, & Industry in Millions of Bushels, 1999-2009

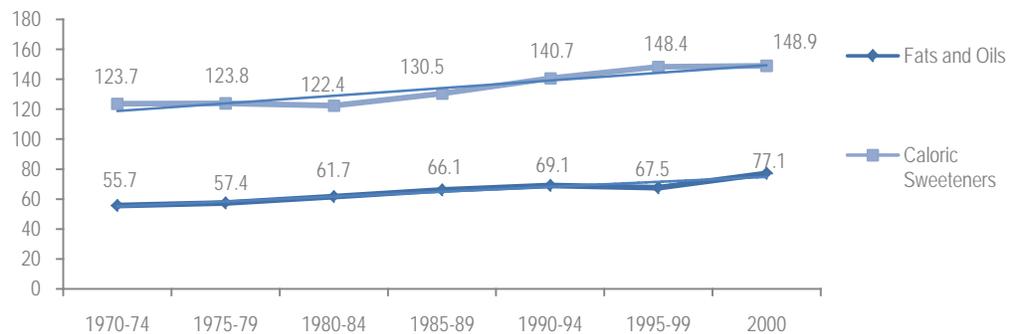


Source: National Corn Growers Association, 2010.

Farm income support via subsidized commodities stemming from the Farm Bill is not proven to significantly affect retail food prices (Miller & Coble, 2005). There is, however, an abundance of subsidized commodities available for consumption on United States and global markets, while other nutritional foods are not as widely available. Primary examples are fruits and vegetables, which do not receive federal subsidy support although federal dietary guidelines recommend that they represent one-third of dietary nutrients for optimal health (DHHS & USDA, 2005).

United States farm policy has historically promoted agricultural capacity and production as a means to prevent hunger and malnutrition, as well as an important component of national security and rural development. Research early in the twentieth century indicated that hungry children grew when given food high in fats and sugars. After World War II, federal policies encouraged production of commodity crops and their associated fats and sugars to address under-nutrition both nationally and internationally (Wallinga, 2010). As a result, American farms have become the major source of extra fats, sugars, and calories. Since 1970, corn sweetener calories have risen 359 percent to 246 calories per day (Brownell et al., 2009) and added fat calories, primarily from soy and corn oils, have increased 69 percent since 1970. The 2008 Farm Bill continued and increased financial support for cane and beet sugar (Economic Research Service, 2008). **Figure 20** displays the rise in consumption of fats and oils as well as sweeteners over time (Putnam, Allshouse, & Kantor, 2002).

Figure 20: United States Average Consumption Caloric Sweeteners and Fats and Oils in Pounds, 1974-2000

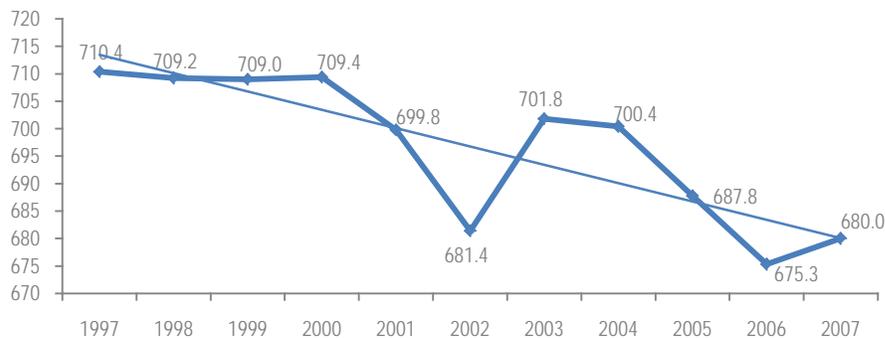


Source: Putnam, Allshouse, & Kantor, 2002.

Federal farm policy has been a success in its goal to produce cheap calories. In recent times, however, obesity has trumped hunger as the most prevalent nutritional issue for children (Wallinga, 2010).

In contrast to trends for sugars and fats, consumption patterns for fruits and vegetables across the United States have shown a marked decline, as presented in **Figure 21**.

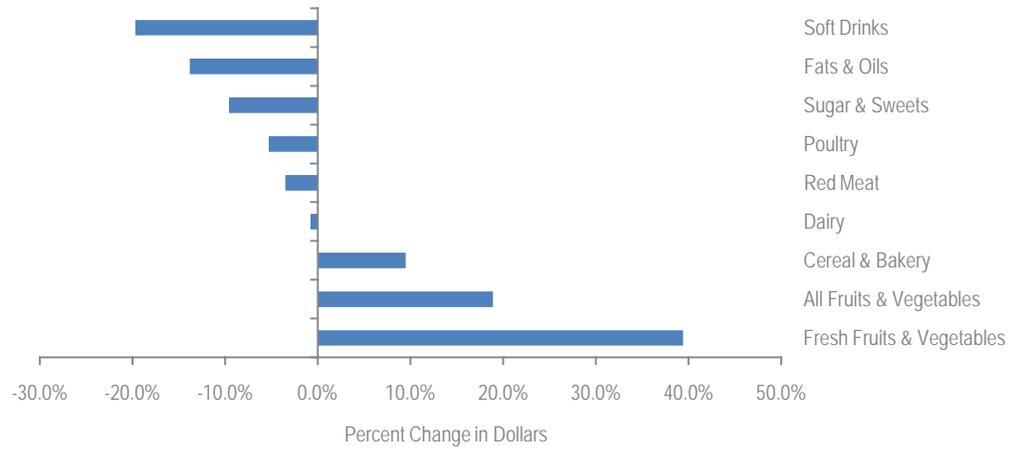
Figure 21: United States Consumption Per Capita of Fruits & Vegetables in Pounds, 1997-2007



Source: United States Department of Agriculture, 2010.

Foods with added fats and sweets are often the lowest cost food choice, with the most expensive being fruits and vegetables (Darmon, Feruson, & Briend, 2002). Researchers from the Economic Research Service (Putnam, Allshouse, & Kantor, 2002) calculated the percentage change in the costs of a variety of foods over fifteen years (**Figure 22**), which revealed fresh fruits and vegetables had the highest percentage cost increase at nearly forty percent, followed by cereal and bakery items at ten percent. Yet sweets, fats and oils, and soft drinks decreased in percentage cost by nearly ten, fourteen, and twenty percent, respectively, over the same time frame.

Figure 22: Food Price Percent Change in Dollars, 1985-2000



Source: Putnam, Allshouse, & Kantor, FoodReview Vol. 25, Issue 3, 2002

Nutrition Considerations

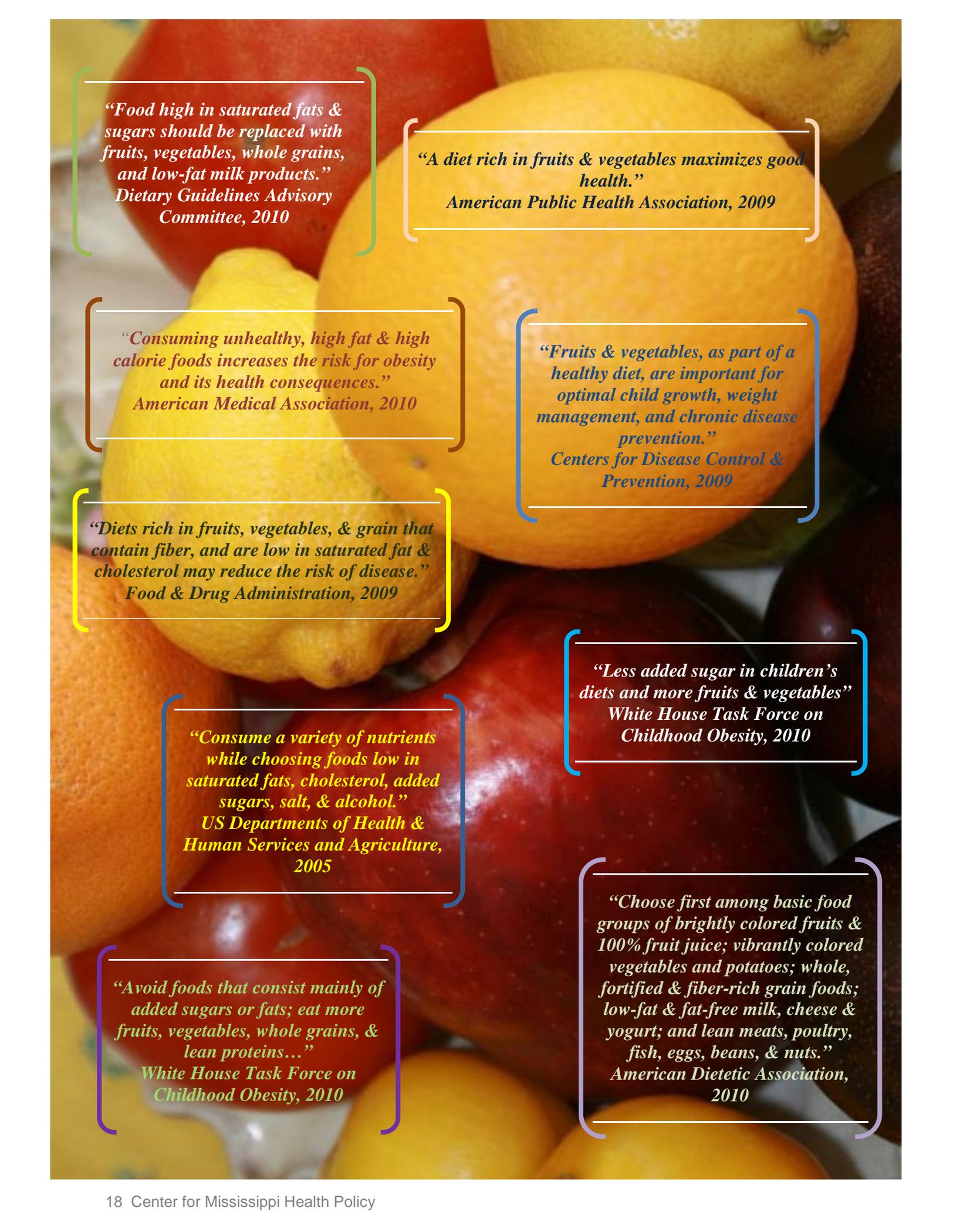
Recognition of the Farm Bill's impact on the health of our nation is a relatively recent development (Harvie, Mikkelsen, & Shak, 2009). Farm Bill commodity policy has a direct effect on nutrition and health because the provisions of the law influence what farmers grow, affecting the accessibility and affordability of foods.

Evidence suggests that increased consumption of fruits and vegetables lowers the incidence and death rates of the most common chronic diseases in America (Bazzano, 2006). Americans in general, however, are currently not eating enough fruits and vegetables at levels recommended by experts (Dong & Lin, 2009). Mississippi adults have the lowest consumption rates, at 8.8 percent, of the recommended amounts of at least five fruits and vegetables daily (CDC, 2009).

A growing body of research supports the value of a nutrient-rich diet consisting of a variety of sources and abundant in fruits and vegetables. Specifically, low fruit and vegetable consumption results in lower than optimal intake for essential nutrients such as vitamin C and beta-carotene, as discovered across multiple studies over the past twenty-five years (Darmon, Ferguson, & Briand, 2002). A small increase of one serving per day in vitamin C intake from fruits and vegetables showed a 20 percent reduction in all causes of mortality over a four year time period (Khaw, et al., 2001). Mortality improvements included heart disease, the leading cause of death in the United States and a condition for which Mississippi leads the nation in deaths (Heron, et al., 2009). A recent 2010 study by Stringhini and colleagues estimates the influence of diet on all causes of death in low-income groups to be seventeen percent, meaning a good diet can decrease mortality overall by this magnitude.

Increasing fruit and vegetable servings by two per day can lower risk of cancer development by four percent (Boffetta et al., 2010). Diets rich in whole grains, which increase fiber intake, are strongly associated with lower risks of heart disease, diabetes, and hypertension. Adequate whole grain consumption is also linked to reducing risk for obesity and associated consequences (Morland, Wing, & Diez, 2002). A recent study found dietary replacement of white rice with brown rice is associated with a sixteen percent decrease in type two diabetes risk, while replacement with whole grains reduces type two diabetes risk by thirty-six percent for both men and women in the United States (Sun et al., 2010). Adequate dietary calcium has been associated with significantly lower rates of all-cause mortality in middle and elderly-aged men (Kaluza et al., 2010). A study of elderly persons and their diets before development of Alzheimer's disease (Yian et al., 2010) shows higher intake of nutrient rich foods such as fruits and vegetables, along with lower intake of high-fat foods such as fatty meats, significantly reduced risk of dementia onset associated with the disease.

Poor dietary quality is quite common among low-income groups (Patterson, Haines, & Popkin, 1994). A national study using linked Census data showed a significant difference between neighborhoods with low economic status and neighborhoods with high economic status for measures of five blood sample markers that indicate residents' levels of fruit and vegetable consumption objectively. Persons living in neighborhoods with better economic indicators had statistically higher levels of fruit and vegetable nutrient blood indicators than those living in lower economic neighborhoods (Stimpson et al., 2007). Factors found to reinforce unhealthy eating in low-socioeconomic status groups include insufficient storage space for food and avoidance of wasting food (Dowler, 1997) along with pricing differences between small local stores and large supermarkets (Caraher, et al., 1998), which are more often accessible only by automobile (Travers, 1996). Thus, the price of food is an important determinant of food choice and nutritional status, particularly among low-income groups (Glanz et al., 1998). Conversely, neighborhood factors including increased income and access to healthy foods locally are associated with reductions in obesity (Black & Macinko, 2010).



“Food high in saturated fats & sugars should be replaced with fruits, vegetables, whole grains, and low-fat milk products.”
Dietary Guidelines Advisory Committee, 2010

“A diet rich in fruits & vegetables maximizes good health.”
American Public Health Association, 2009

“Consuming unhealthy, high fat & high calorie foods increases the risk for obesity and its health consequences.”
American Medical Association, 2010

“Fruits & vegetables, as part of a healthy diet, are important for optimal child growth, weight management, and chronic disease prevention.”
Centers for Disease Control & Prevention, 2009

“Diets rich in fruits, vegetables, & grain that contain fiber, and are low in saturated fat & cholesterol may reduce the risk of disease.”
Food & Drug Administration, 2009

“Less added sugar in children’s diets and more fruits & vegetables”
White House Task Force on Childhood Obesity, 2010

“Consume a variety of nutrients while choosing foods low in saturated fats, cholesterol, added sugars, salt, & alcohol.”
US Departments of Health & Human Services and Agriculture, 2005

“Avoid foods that consist mainly of added sugars or fats; eat more fruits, vegetables, whole grains, & lean proteins...”
White House Task Force on Childhood Obesity, 2010

“Choose first among basic food groups of brightly colored fruits & 100% fruit juice; vibrantly colored vegetables and potatoes; whole, fortified & fiber-rich grain foods; low-fat & fat-free milk, cheese & yogurt; and lean meats, poultry, fish, eggs, beans, & nuts.”
American Dietetic Association, 2010

One study showed increasing food cost for low-income groups resulted in an increase in the proportion of energy ingested from cereals, processed meat, added fats and sweets, and a decline in energy from fruits and vegetables, as well as meat, fish, and eggs. For most nutrients, except vitamin E and A, retinol, and polyunsaturated fatty acids, which are all found in fats, cost constraints lead to a progressive decline in nutrient density for low-income persons, particularly so for essential nutrients vitamin C and beta-carotene (Darmon, Fergusson, & Briand, 2002).

The Economic Research Service (ERS) finds Americans' diets, particularly those of low-income households, fall short of dietary recommendations. Evidence suggests that low-income households are sensitive to price changes and lower prices for fruit and vegetables result in more consumption by adults and smaller increases in weight gain for children (Powell & Bao, 2009). Research, however, finds that a number of factors, not just price and income, determine a household's food choices.

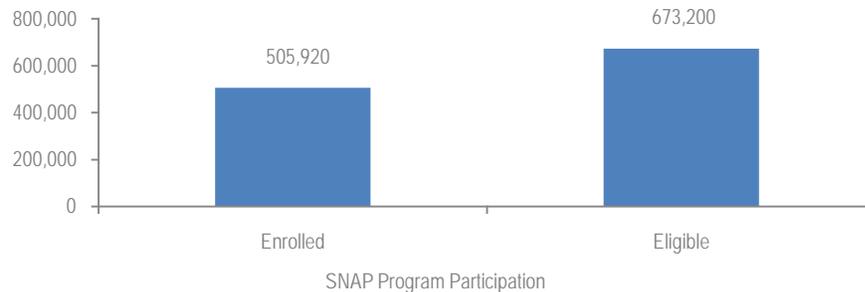
In order for each person to consume a healthy diet recommended by the most recent *Dietary Guidelines for Americans* (DHHS & USDA, 2005), an increase in growth of fruits and vegetables, and a shift in wheat grains would be necessary to meet demand. Fruit consumption, to meet these guidelines, must rise 132 percent, which in turn, is a 4.1 million acre increase in fruit farmland harvests. Vegetable intake would have to increase by 31 percent for each American to eat 2.5 cups per day, requiring an 8.9 million acre gain in vegetable harvests. Whole grain intake would need to increase by 248 percent to 2.1 ounces per person. However, due to whole grain requiring less refinement, 5.6 million fewer acres of wheat would need harvesting, and a shift in farmland allocation could occur. Therefore, about 7.4 million additional acres, a net growth of 1.7 percent total cropland nationwide, would be required to meet all fruit, vegetable, and whole grain needs (Buzby, Wells, & Vocke, 2006).

ERS researchers estimate that reducing fruit and vegetable prices with a 10 percent subsidy would encourage low-income Americans to increase their consumption of fruits by 2.1 percent to 5.2 percent and vegetables by 2.1 percent to 4.9 percent. The annual cost of such a subsidy would be about \$310 million for fruits and \$310 million for vegetables (Dong & Lin, 2009). Rickard and Gonsalves (2006) found full compliance with a seven-a-day fruit and vegetable cancer prevention diet would boost total United States net farm revenues by \$1.44 billion.

Supplemental Nutrition Assistance Program

The largest nutrition program governed by the Farm Bill is the Supplemental Nutrition Assistance Program (SNAP), formerly referred to as the Food Stamp Program. In 2009, over thirty-three million Americans were enrolled in SNAP (USDA, 2010), about eleven percent of the U.S. population (United States Census Bureau, 2010). Almost half of American children and ninety percent of African American children participate in SNAP at some point in their young lives (Rank & Hirschl, 2009). Although this is a large group receiving benefits, estimates suggest thirty-three percent of persons eligible for SNAP are not receiving food benefits (United States Census Bureau, 2010) as shown in **Figure 23**.

Figure 23: SNAP Nutrition Program Enrollment versus Eligibility, Mississippi 2009

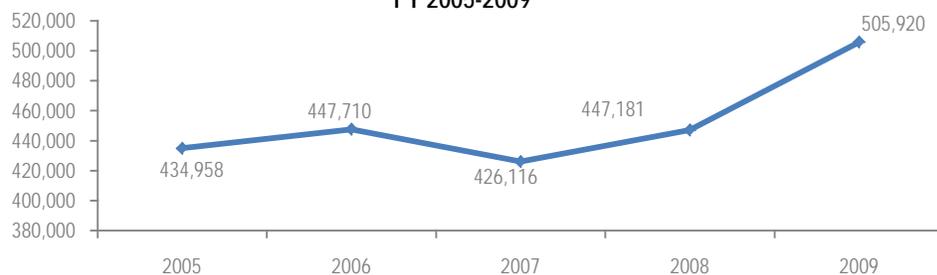


Source: Mississippi Department of Human Services, 2010. United States Census Bureau, 2010.

SNAP has a large impact on Mississippi residents as well. Overall, almost one in every five persons in Mississippi participates in SNAP (Kaiser Family Foundation, 2010). Thus, the Farm Bill's largest nutrition program has a direct influence on foods accessed and consumed statewide.

The average monthly SNAP benefit in Mississippi was \$113.83 per person in 2009 (USDA, Food & Nutrition Service, 2010). Levels of SNAP (**Figure 24**) participation increased significantly ($p < .01$) from 15 percent of the statewide population in 2008 to 17 percent in 2009 (United States Census Bureau, 2010), reflecting the national trend as well.

Figure 24: Mississippi SNAP Average Monthly Participation, FY 2005-2009



Source: United States Department of Agriculture, Food & Nutrition Service, 2010.

SNAP-Ed

Nutrition education for SNAP participants, termed SNAP-Ed, is a specific component of the Farm Bill. USDA provides states the authority and funding to implement nutrition education programs directed at individuals who receive or are eligible for SNAP benefits. In 2009, Mississippi received a total of \$3.2 million, about \$6.45 per SNAP participant based on average monthly participation for SNAP-Ed activities, ranking the state thirty-fourth in the nation for SNAP-Ed financial expenditures per participant (USDA, Food & Nutrition Service, 2010). The state provided nutrition education through SNAP-Ed to 370,079 persons in 2009 (not necessarily an unduplicated count), according to the Mississippi Department of Human Services (J. Smith, personal communication, July 12, 2010).

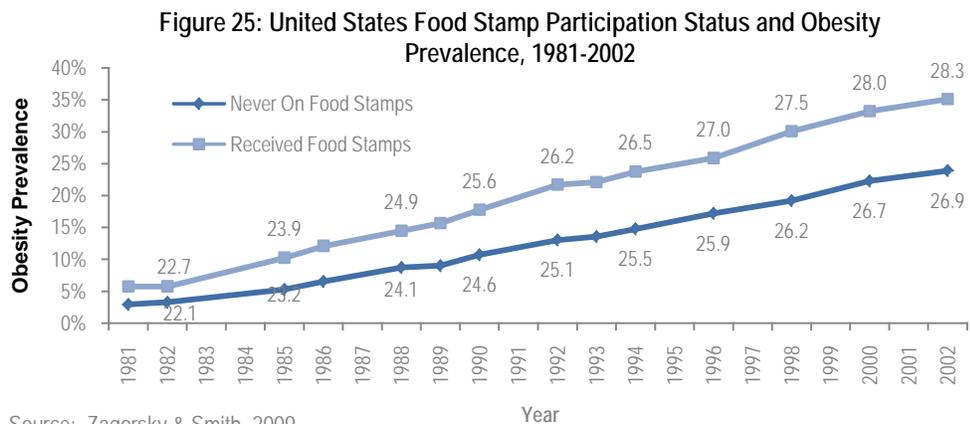
Research indicates that nutrition education through SNAP-Ed can improve eating patterns for SNAP participants. Evaluations in South Carolina, for instance, showed that before enrollment in the program only fifteen percent of participants ate foods from all five food groups, and upon completing the program, forty-two percent ate from all five food groups (Cason, 2010). Some states have found it difficult to evaluate the effectiveness of the program due to the inability to match SNAP-Ed data with information on SNAP purchasing patterns (National Governor’s Association, 2010).

USDA regulations prohibit states from using SNAP-Ed funds for conducting marketing campaigns directed toward the public in general. The regulations also forbid SNAP-Ed nutrition education from containing messages that are negative or disparage specific foods, beverages, or commodities (Supplemental Nutrition Assistance Program, 2009).

A further limitation on the use of SNAP-Ed funds is in providing breastfeeding education that is otherwise provided through other programs (such as WIC, the Supplemental Nutrition Program for Women, Infants, and Children). Less than half of Mississippi babies (48%) are ever breastfed, compared to nearly three-quarters (74%) of babies nationwide. Mississippi ranks lowest in the nation for breastfeeding rates (CDC, National Immunization Survey, 2009). Multiple studies find increased health benefits for breastfed babies compared to babies not breastfed, including lower rates of infection, developmental delays, asthma, childhood cancers, and childhood obesity. Breastfeeding mothers recover more quickly from childbirth, return to normal weight faster, and are at reduced risk of breast cancer, ovarian cancer, and osteoporosis later in life than mothers who do not breastfeed. Overall, health benefits from breastfeeding save an estimated \$3.6 billion per year in national health care costs (American Academy of Pediatrics, 2005). Using multiple programs to advance breastfeeding education is a low cost strategy for improving breastfeeding rates.

Nutrition & SNAP

Some researchers (Zagorsky & Smith, 2009) have demonstrated a link between SNAP program participation and increased body weight, nearly all due to women, compared to people with similar economic status not enrolled in SNAP. Their study showed that white women in SNAP gained the most weight, followed by black women. Men, however, did not show statistically significant increases in weight gain associated with SNAP participation. SNAP recipients followed over 14 years were also likely to gain significantly more weight the longer they participated in the program. **Figure 25** depicts this trend between obesity and food stamp participation over time.



Other research, however, has not shown a link between participation in SNAP and obesity (Ver Ploeg et al., 2006). The topic remains subject to further investigation.

Studies pointing to the close relationship between hunger/food insecurity and obesity suggests that the timing of SNAP benefits may play a role in linking these two states. Dietz (1995) posited two reasons for this association: 1) the increased fat content of foods consumed in low-income households and 2) the body's response to cycles of food sufficiency and insufficiency. Dinour and colleagues (2007) also observed that "feast or famine" cycles of food restriction are associated with weight gain and noted in particular the cyclical nature of SNAP benefits in this regard.

SNAP monetary benefits are deposited automatically during the first part of each month to a debit-like card for food purchase. Participants often use the bulk of the benefits at the beginning of the month, a pattern that is associated with a ten to fifteen percent decline in caloric intake over the remainder of the food stamp month. Medical research showing that changes in body metabolism caused by fluctuations in food intake are conducive to obesity suggests that the timing of program fund distribution to SNAP participants may play a part in encouraging weight gain (Shapiro, 2005).

Another concern about the diet of SNAP recipients is the consumption of excessive amounts of unhealthy foods and beverages, in particular sugar-sweetened beverages. Researchers point to studies indicating that SNAP participants purchase sugar-sweetened beverages at a rate approximately 40 percent higher than those not receiving SNAP benefits (Shenkin & Jacobson, 2010).

SNAP benefits can be used to purchase most food commodities in a supermarket except alcoholic beverages, tobacco products, and pet food (Government Accounting Office, 2008), including foods of minimal or no nutritional value. This policy is in contrast to other federal nutrition programs, such as the Supplemental Nutrition Program for Women, Infants, and Children (WIC), which only provides benefits for foods determined to have appropriate nutritional value (2010). USDA has identified in regulation certain foods considered of minimal nutritional value (National School Lunch Program, 2010). These foods include soda water, water ices, chewing gum, and certain candies.



■ Healthy Incentives Pilot

Evidence suggests the most significant impact on change in attitudes of low-income groups, demonstrated from increased purchases of fresh fruits and vegetables, occurs when both education (Herman, Harrison, & Jenks, 2006) and financial incentives in the form of fresh food coupons are provided (Anderson et al., 2001). Fresh food coupons are discount vouchers given to households to purchase fresh fruits and vegetables, for example taking ten percent off at time of purchase. One recent study captured the effect of a ten percent off coupon for fruits and vegetables of all types, both fresh and processed, compared to simply discounting the price of these items. Coupons were found to influence purchasing behaviors in two ways: having a discount on price and providing an informational advertising effect of the availability of these products. As a result, average weekly fruit and vegetable purchases increased between two and eleven percent, while price discounts alone increased purchases between five and six percent (Dong & Leibtag, 2010).

The U. S. Senate Agriculture Committee asked the Government Accountability Office (GAO) to research the effectiveness of various strategies for increasing purchases of healthier foods. The agency's report to Congress in 2008 notes that economic research supports the effectiveness of supplying financial incentives to low-income households to increase fruit and vegetable consumption.

The 2008 Farm Bill allocates \$20 million for the Healthy Incentives Pilot (HIP), to test the effectiveness of providing incentives to SNAP participants to encourage the purchase of fruits, vegetables, and other healthful foods with SNAP benefits (Food & Nutrition Service, 2010b). In December 2009, the USDA issued a request for applications under this program and will fund one state to conduct a 15-month pilot.

■ Fresh Fruit & Vegetable Program

The 2008 Farm Bill allocates \$190 to \$206 million to purchase fruits, vegetables, and nuts in frozen, canned, dried, or fresh form for use in federal nutrition assistance programs. Subsidized commodity crop surpluses from the bill continue to be provided to the National School Lunch Program (NSLP) that serves eligible low-income children. In Mississippi during 2008, three out of four school-aged children participated in the NSLP. However, federal School Breakfast Program (SBP) participants do not currently receive surplus commodities as an entitlement, although schools may serve NSLP commodities in school breakfasts (Food & Nutrition Service, 2010a).

The Fresh Fruit and Vegetable Program (FFVP), which began as a pilot in 2002, expanded to all fifty states with the 2008 Farm Bill reauthorization. Through the FFVP, schools receive reimbursement for making fresh fruits and vegetables available free to eligible elementary students for snacks and nutrition education promotion. At least fifty percent of elementary students must be eligible for the NSLP for the school to apply for the FFVP program fund reimbursements. The Farm Bill allocates \$500 million from 2008 to 2012 for the purchase of fresh fruits and vegetables to use in the FFVP.

Evaluations of the pilot program indicate that the FFVP has served many functions. Researchers found the FFVP exposed children to varieties of fresh fruits and vegetables; decreased hunger in children; reduced unhealthy snacks brought from home; improved classroom attention; increased at home requests for fresh fruits and vegetables; increased awareness of healthier eating which reduced intake of unhealthy foods; and increased children's willingness to try fresh fruits and vegetables (Buzby, Guthrie, & Kantor, 2003).

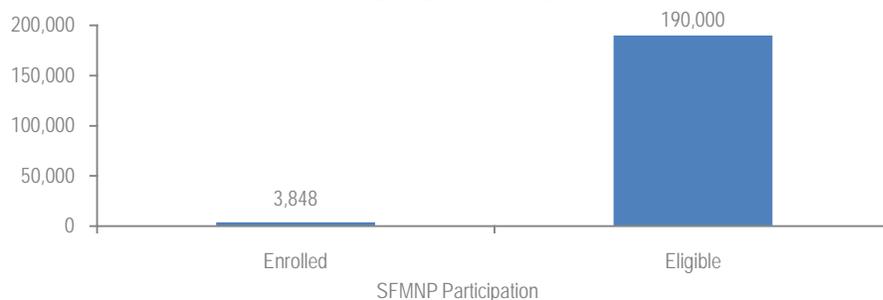
In 2008, the FFVP program in Mississippi reached 13,000 students. During the 2009 - 2010 school year, the program expanded due to increased funds from the Farm Bill to 21,983 children, a seventy percent increase. However, 44,827 students, more than twice the current number of qualified program participants, were rejected due to lack of funds available. In total, 246,536 Mississippi school children remain eligible, but do not participate in the FFVP according to the Mississippi Department of Education, Office of Healthy Schools (A. Olson, personal communication, July 8, 2010).

Children who are food insecure are at significantly higher risk for poor health (Cook et al., 2006) as well as being and becoming overweight (Casey et al., 2006). Surveys including the National Survey of Children's Health conducted in 2007 found that nearly half (44%) of Mississippi children are overweight or obese, the highest rates of childhood overweight and obesity in the nation.

■ Senior Farmers' Market Nutrition Program

The Senior Farmers' Market Nutrition Program (SFMNP) is a nutrition program providing low-income seniors with coupons to purchase fresh foods at farmers' markets or stands. Only fresh foods and honey can be purchased. Dried fruits and vegetables, nuts, and maple or molasses syrups are excluded as eligible foods for purchase (USDA, 2009). According to the Mississippi Department of Agriculture (2010) the state was awarded approximately \$102,000 per year for the program to increase fresh food items access and directly boost local farmers from the 2008 Farm Bill. Each qualifying senior obtains seven \$4 dollar vouchers, for a total of \$28, to use at farmers' markets and stands during a five to six month period coinciding with the local growing season. In 2009, SFMNP impacted almost 4,000 low-income seniors (3,848), and was accessible in fourteen sites statewide, up from five sites according to the Mississippi Department of Agriculture (P. Green, personal communication, April 15, 2010). Compared to 2005, a forty-eight percent increase to low income seniors occurred after the 2008 Farm Bill Senior Farmers' Market program funding was increased. According to United States Census Bureau population estimates, around 190,000 seniors in Mississippi are estimated as eligible for the SFMNP, therefore, only two percent of the low- income seniors out of these potential eligible's (**Figure 26**) are currently being served by the program (2010). Expansion of the SFMNP in upcoming reauthorizations of the Farm Bill could translate into more eligible low-income seniors being served or increases in benefits for current participants.

Figure 26: Senior Farmer's Market Nutrition Program Enrollment versus Eligibility, Mississippi 2009



Source: Mississippi Department of Human Services, 2010; United States Census Bureau, 2010.

■ Discussion

A broad reaching federal policy, the original intent of Farm Bill food policy has been successful in supporting a stable food supply and decreasing the incidence of hunger. The issue at hand is that American dietary needs have changed as obesity has replaced hunger as the overriding food and nutrition issue. More emphasis is needed on improving access to the healthy foods that provide the nutrients needed to promote health and prevent disease and early death.

Policies enacted through the Farm Bill discourage farmers from growing fruits and vegetables by excluding these crops from income support programs and penalizing farmers for harvesting fruits and vegetables on land receiving subsidies. In contrast, federal health officials and nutrition experts are lamenting the low consumption of fruits and vegetables by the American public and devising strategies to encourage the populace to eat more of these healthy foods. It is time for federal farm policies to work in alignment with health policies and not in opposition. Changes are in order to meet the needs of farmers and at the same time facilitate consumption of nutritious foods to promote health. Mississippi is the poster child for this policy discord with its vast amounts of alluvial soil and rich farmland yet high rates of food insecurity and obesity. Mississippi ranks thirteenth in the nation for receipt of farm commodity subsidies, but fiftieth in consumption of fruits and vegetables by adults.

Evidence suggests that the Supplemental Nutrition Assistance Program (SNAP), the largest federal nutrition program, may be associated with higher rates of obesity. The program's stated mission is to provide supplemental nutrition to assist low-income households in achieving healthy lifestyles. Yet SNAP benefits can be used to purchase foods of minimal or no nutritional value, and research is cited that indicates SNAP recipients purchase sugar-sweetened beverages more often than other consumers do. There appears to be an inherent conflict between the intended goal of the program and the policies that allow benefits to be used to purchase empty calories that do not improve nutrition and may promote obesity, particularly given the limited funding for the program.

In the 2008 reauthorization of the Farm Bill, Congress took steps to reduce some of the barriers to fruit and vegetable access. The initiation of the planting flexibility pilot, the authorization of a Healthy Incentives Pilot under SNAP, and the expansion of the Fresh Fruit and Vegetable Program for school children and the Senior Farmers' Market Nutrition Program all indicate recognition of the need to improve access to fruits and vegetables, particularly in low-income populations. These are still limited efforts: the planting flexibility pilot is restricted to six mid-western states; the Healthy Incentives Pilot is for one site, and the expansions of the Fresh Fruit and Vegetable Program and Senior Farmers' Market Nutrition Program will still not reach many eligible low-income children and senior citizens. Further steps are necessary to align evidence-based nutrition goals with Farm Bill policy in order to improve health. The following section summarizes policy options offered by a variety of stakeholders in this regard.

■ Policy Options

A collection of policy strategies offered by a variety of organizations is contained in the appendix. The following section presents key policy options that are consistent with the research compiled in this report:

1. Make increasing the affordability and quality of nutrient-dense foods a stated goal of farm policy.
2. Use federal nutrition recommendations as guidelines for U.S. agricultural production needs and production controls.
3. Remove planting restrictions and penalties against growing fruits and vegetables from at least enough acreage participating in subsidy programs to produce adequate amounts of fruits and vegetables to meet dietary guidelines.
4. Allow all regions of the country to participate in planting flexibility projects and simplify the participation process.
5. Allow farmers to opt out of the federal farm subsidy program on a yearly basis to raise fruits and vegetables without penalties.
6. Provide greater incentives to families to purchase nutritious foods through SNAP, such as discounts to enable purchase of more fresh fruit and vegetables and whole grain products.
7. Restrict the use of SNAP benefits from purchasing foods of minimal nutritional value.
8. Allow states the option through a waiver of SNAP regulations to set stricter standards for foods that can be purchased through the program.
9. Provide SNAP benefits on a bimonthly rather than a monthly basis.
10. Allow use of SNAP-Ed funds in states with high SNAP participation to conduct marketing campaigns directed at low-income households that promote healthy eating and increased consumption of fruits and vegetables.
11. Allow SNAP-Ed programs to provide nutrition education that discourages SNAP participants from eating unhealthy foods.
12. Remove restrictions on SNAP-Ed programs providing breastfeeding education.
13. Allow states more flexibility in using SNAP and SNAP-Ed data in a secure and confidential manner to determine the effectiveness of SNAP-Ed nutrition education.
14. Expand the availability of wireless devices to farmers' markets and other retailers who lack the means to use a wired Electronic Benefit Transfer (EBT) device for SNAP benefits.
15. Expand the Fresh Fruit and Vegetable Program to reach more eligible school-age children.
16. Increase availability of fruits and vegetables to school-age children through commodity programs that provide food for School Lunch and Breakfast Programs as well as after-school and summer feeding programs.

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APPENDIX A

American Public Health Association (APHA) recommended in 2007:

1. Shift toward promoting healthy, local, sustainably produced foods and seeking to align food prices with national nutritional priorities to create a fair playing field for healthy food.
2. Expand the infrastructure for providing locally grown food.
3. Improve the access of low-income Americans to healthy and local food.
4. Inform consumers about food origins and other information about how food is produced.
5. Support adoption and continuation of more sustainable farming methods.
6. Strengthen the livelihoods of small farmers and rural communities.
7. Fund research, technical aid, and marketing assistance for sustainable food production.
8. Support adoption and continuation of more sustainable farming methods and discouraging intensive, industrial food production.
9. Enforce antitrust laws in agriculture.

Food Stamp Nutrition Education (FSNE):

- Enhance the effectiveness of FSNE programs by allowing state Food Stamp Programs to use education, marketing and population-based public health approaches to increase food security and promote healthy eating, physical activity and obesity prevention for low-income Americans.

Promote Children's Fruit and Vegetable Intake:

- USDA Fresh Fruit and Vegetable Program: provide \$300 million per year in mandatory spending for national expansion of the fruit and vegetable snack program for students.
- Section 32 Purchases: increase the minimum threshold for Section 32 purchases of fresh fruits and vegetables from \$200 million to \$400 million per year.
- Department of Defense Fresh Program: increase purchases of fresh fruits and vegetables through the program from \$50 million per year to \$75 million/yr for the FY09 – FY10 and \$100 million/yr for FY11 and \$125 million/yr for FY12. This program allows schools to buy a wide variety of high quality produce for the school lunch program.
- Food Stamp Fruit and Vegetable EBT Pilot Program: provide states with \$10 million per year to develop and test approaches to provide incentives for purchases of fruits and vegetables through the Food Stamp Program.

Access to Healthy Foods:

- Promote local and sustainably produced foods by supporting farmers' markets, other direct farmer-to-consumer marketing, farmers transitioning to beneficial forms of agricultural production, and infrastructure to enable processing and distributing such food.
- Create new and expanded food systems programs to help communities develop retail food markets, urban agriculture projects, and marketing networks to address the needs of underserved neighborhoods (APHA, 2007).

Arizona Department of Health Services recommended in 2009:

1. Increase the SNAP benefit level to allow for purchase of more healthy foods.
 - USDA should allow state and local agencies to use SNAP administrative funds and/or SNAP-Ed reimbursement to conduct marketing campaigns that increase participation, especially in SNAP, school breakfast, summer meals, afterschool snack, and the child and adult care food program.

- SNAP-Ed guidance should allow local programs to engage in activities that increase the availability and affordability of healthy foods such as fresh fruits and vegetables, whole grains, and low fat milk products in low-income neighborhoods.
 - Changes in the USDA guidance should allow the SNAP-Ed programs the option to conduct counter-marketing campaigns against unhealthy products.
 - Coordination requirements and guidance barriers to sharing of eligibility information between USDA nutrition programs should be identified and reduced to enable participants to easily move between and participate in all available nutrition programs.
2. Financial incentives for sale and purchase of healthy foods.
 - Allow states the option to provide point of sale SNAP coupons to reduce the cost of target foods such as fruits and vegetables.
 - Create SNAP incentives and use USDA guidance for SNAP authorization of vendors to require grocery stores to eliminate point of sale marketing of calorie-dense, nutrient poor foods.
 - Establish minimum inventory levels for grocers of whole grain products, fruits and vegetables, low fat dairy products and other target foods based upon their SNAP redemption patterns as reported annually to the Store Tracking and Retailer Subsystems (STARs).
 - Allowing states the option of a waiver of SNAP regulations to enable them to set standard for acceptable food within their individual programs.
 3. Enhancing nutrition and physical activity.
 - Modify USDA nutrition programs guidance for SNAP to enable programs to spend equal time promoting both good nutrition and importance of physical activity.
 - Increase the match so that states can provide more effective SNAP nutrition education to participants. More effective and specialized education could then be provided to families regarding their diet, use of financial resources, and nutritional and physical activity options.
 4. Use SNAP benefits to promote specific foods.
 - Support U.S. Dietary Guidelines to improve diet quality of SNAP beneficiaries (Arizona Department of Health Services, 2009).

Food Research & Action Center recommended in 2010:

Provide USDA commodities, which include fresh fruits and vegetables, to participants in the School Breakfast Program (SBP) to create healthier school meals (Food Research and Action Center, 2010a).

Harvard Law School Mississippi Delta Project recommended in 2010:

1. Move towards a national incentive program for every SNAP dollar spent buying produce directly from farmers and farmers' markets.
2. Incentivize SNAP, Farmers' Market Nutrition Program, and Senior Farmers' Market Nutrition Program usage by boosting the value of benefits used at a farmers' market.
3. Appropriate funds so that the Food and Nutrition Service at USDA could provide wireless devices to all retailers to accept SNAP benefits who lack the means to use a wired Electronic Benefit Transfer (EBT) device.
4. Mississippi can improve how it allocates the federal Farm Bill nutrition funding it receives through strategic use of existing funding as well as creative educational and promotional tools that can leverage federal and non-profit grant programs (Broad, et al., 2010).

Institute of Medicine (IOM) recommended in 2009:

1. USDA Food and Nutrition Service adopt nutrient targets as the scientific basis for setting standards for menu planning for school meals.
1. Align school meals with the USDA *Dietary Guidelines for Americans* by adopting standards for menu planning that increase the amounts of fruits, vegetables, and whole grains and focus on reducing the amounts of saturated fat and sodium provided, as well as set calorie level minimums and maximums.
2. USDA work to reduce the sodium content of prepared foods and to increase the availability of whole grain-rich products while maintaining acceptable palatability, cost, and safety.
3. Require the Food and Drug Administration to take action for labeling of the whole grain content of food products (Institute of Medicine, 2009).

Institute for Agriculture and Trade Policy, Minneapolis, Minnesota recommended in 2010:

1. Reinstate programs to manage the oversupply of commodity crops and calories, combined with support for new farmers as well as for existing farmers who want to transition away from exclusive production of commodity crops.
2. Seek executive leadership such as the 1969 White House Conference on Food, Nutrition, and Health to bring together disparate health and agriculture communities around food policy.
3. Integrate food and health analysis, using a designated nongovernmental organization, such as the Food Commission in the United Kingdom, to link food production policies with nutrition and health policies, rather than the fragmented authority and expertise found over several Federal organizations currently.
4. Support farmers as anti-obesity partners by recruiting and training new farmers, providing grants or financing on favorable terms for new farmers to acquire land or move from commodities to other production, and allow fruit and vegetable growers to participate in any commodity programs in the Farm Bill.
5. Invest in forward-looking research to inform what diverse mix of crops and farming methods can best meet the nation's health and other needs sustainably. The National Institutes of Health and other health agencies' research programs could complement USDA research initiatives in realizing this goal.
6. Codify healthier commodity food programs under the Farm Bill by raising nutrition standards for all food served in programs obtaining surplus commodities such as the National School Lunch and Breakfast Programs (Wallinga, 2010).

Institute for a Sustainable Future and the Prevention Institute recommended in 2009:

1. Alternative policy is needed to reward and incentivize farmers to produce healthful products besides corn, wheat, and soybean commodity subsidies.
2. Train and invest in production, light processing such as precut vegetables or washed fruit, and distribution infrastructure for local farms to support local farmers' markets.
3. Support farmers to transition to organic agriculture, or to utilize fewer pesticides intensively by expanding the Environmental Quality Incentives Program which sets aside funds for organic conversion authorized through the Farm Bill (Harvie, Mikkelsen, & Shak, 2009).

National Governors Association, Health and Human Services Committee recommended in 2010:

1. Provide incentives to encourage healthy SNAP purchases.
 - Incentives should be provided to clients for purchasing healthier foods to reward those households that change their purchasing habits, including the use of the Electronic Benefit Transfer (EBT) process.
2. Allow innovative techniques to track the impact of SNAP-Ed initiatives.
 - Allow states to utilize advanced data matching techniques to determine the effectiveness of nutrition education activities in changing client behavior (National Governors Association, 2010).

United States Department of Agriculture, Economic Research Service Study on Promoting Fruit and Vegetable Consumption recommended additional research in 2010 on:

1. How low-income households compare with higher income households in fruit and vegetable discount coupon usage.
2. How fruit and vegetable discount coupons made available only to qualifying low-income households would differ in usage as compared with those currently made available to the public.
3. The extent to which fruit and vegetable discount coupon usage would differ if coupons were distributed via a Government program as compared with manufacturer coupons.
4. How product or brand-specific fruit and vegetable discount coupons differ from coupons that are more general.
5. How consumers would respond to a more general coupon that would include fresh fruits and vegetables, which do not often have coupons available in the current retail environment (USDA, Economic Research service, 2010).

United States Department of Agriculture, Food and Nutrition Service, Office of Research and Analysis Study of Diet Quality of SNAP Participants recommended in 2008:

1. Replace whole milk with reduced-fat or nonfat milk.
2. Increase consumption of dairy products.
3. Increase consumption of whole fruits.
4. Reduce consumption of regular sodas.
5. Increase consumptions of vegetables, whole grains, and oils, and increase the variety of vegetables (Food & Nutrition Service, 2008).

United States Department of Agriculture, Specialty Crop Producers Farm Bill Forums recommended in 2007:

1. Eliminate provision of the Farm Bill limiting planting flexibility on base acres to exclude fruits, vegetables, and wild rice.
2. Look to the food pyramid as a guideline of U.S. agricultural production needs and production controls.
3. Allow farmers to opt out of the Federal farm program on a yearly basis to raise fruits and vegetables for processing without penalizing them on those acres (USDA, 2007).

University of California Agricultural Issues Center recommended in 2007:

1. Provide additional outreach and nutrition education to low-income households to help them make better use of the SNAP program and use the assistance to prevent nutrition-related chronic disease.
2. Provide greater incentives to families to purchase nutritious foods through SNAP, such as discounts to enable purchase of more fresh fruit and vegetables and whole grain products.
3. Support and utilize the SNAP-Ed program to convey stronger messages about the importance of diet in preventing top chronic disease such as diabetes, heart disease, and cancers.
4. Increase availability of fruits and vegetables to school-age children, not only through the SBP and SNLP, but also through after-school and summer programs. Current small pilot programs funded through the Farm Bill can be expanded.
5. Support the recommendations made by the Institute of Medicine to provide food assistance that is more consistent with the USDA *Dietary Guidelines for Americans*.
6. Prioritize funding for nutrition research and monitoring of the impact of policies in food programs on childhood obesity.
7. Increase attention to the causes and consequences of increased prices of fruits and vegetables as related to commodity subsidy policies enacted through the Farm Bill to facilitate affordability of a more healthy diet (Kaiser & Lamp, 2007).

University of California, School of Public Health recommended in 2009:

1. Make increasing the affordability and quality of nutritious foods the goal of farm policy.
2. Revise current Farm Bill subsidy structures to equally support naturally grown specialty crops and cap farm payments to large operations to support family farms.
3. Focus federal research on various types of production systems that incorporate sustainable and healthful agricultural production.
4. Increase federal research on structural interventions that reduce the health impact of current food production systems and increase access to healthy calories. Models are "edible schoolyards," community-supported agriculture, and farmers' market programs.
5. Support research into the health effects of agricultural production including antibiotic resistance, pesticides, toxins, hormones, corn sweeteners, grain-fed livestock, and the true costs of "traveled" foods.
6. Evaluate the costs and benefits of changes to the food system on health care costs related to chronic disease.
7. Allow school food programs to tailor meals to the nutritional needs of their students.
8. Revise regulations that prevent small-scale livestock operations.
9. Consider the benefits of supporting small farmers, including job growth and environmental stewardship benefits (Jackson, et al., 2009).

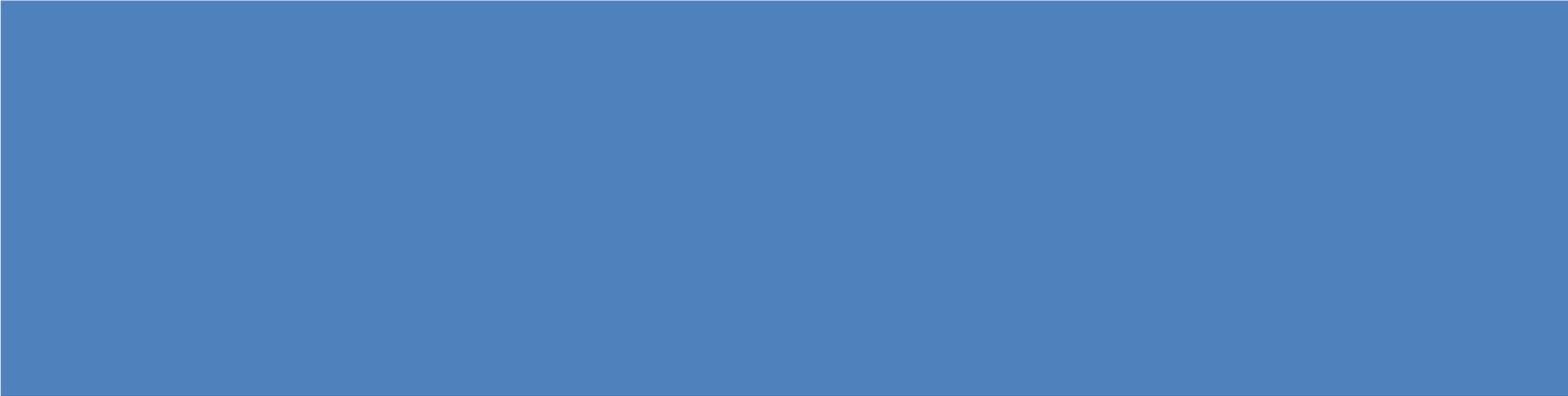
APPENDIX B

TABLE 1-1 Key Recommendations for the General Population from the *Dietary Guidelines for Americans 2005* (Institute of Medicine, 2007)

Focus Area	Key Recommendation
Adequate nutrients within calorie needs	Consume a variety of nutrient-dense foods and beverages within and among the basic food groups while choosing foods that limit the intake of saturated and trans fats, cholesterol, added sugars, salt, and alcohol. Meet recommended intakes within energy needs by adopting a balanced eating pattern, such as the U.S. Department of Agriculture (USDA) Food Guide or the Dietary Approaches to Stop Hypertension (DASH) Eating Plan.
Weight management	To maintain body weight in a healthy range, balance calories from foods and beverages with calories expended. To prevent gradual weight gain over time, make small decreases in food and beverage calories and increase physical activity.
Physical activity	Engage in regular physical activity and reduce sedentary activities to promote health, psychological well-being, and a healthy body weight. To reduce the risk of chronic disease in adulthood, engage in at least 30 minutes of moderate-intensity physical activity, above usual activity, at work or home on most days of the week. For most people, greater health benefits can be obtained by engaging in physical activity of more vigorous intensity or longer duration. To help manage body weight and prevent gradual, unhealthy body weight gain in adulthood, engage in approximately 60 minutes of moderate- to vigorous-intensity activity on most days of the week while not exceeding caloric intake requirements. To sustain weight loss in adulthood, participate in at least 60 to 90 minutes of daily moderate-intensity physical activity while not exceeding caloric intake requirements. Some people may need to consult with a health-care provider before participating in this level of activity. Achieve physical fitness by including cardiovascular conditioning, stretching exercises for flexibility, and resistance exercises or calisthenics for muscle strength and endurance.
Food groups to encourage	Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2 1/2 cups of vegetables per day are recommended for a reference 2,000-calorie intake, with higher or lower amounts depending on the calorie level. Choose a variety of fruits and vegetables each day. In particular, select from all five vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week. Consume 3 or more ounce-equivalents of whole-grain products per day, with the rest of the recommended grains coming from enriched or whole-grain products. In general, at least half the grains should come from whole grains. Consume 3 cups per day of fat-free or low-fat milk or equivalent milk products.

Fats	<p>Consume less than 10 percent of calories from saturated fatty acids and less than 300 mg/day of cholesterol, and keep trans fatty acid consumption as low as possible.</p> <p>Keep total fat intake between 20 to 35 percent of calories, with most fats coming from sources of polyunsaturated and monounsaturated fatty acids, such as fish, nuts, and vegetable oils.</p> <p>When selecting and preparing meat, poultry, dry beans, and milk or milk products, make choices that are lean, low-fat, or fat-free.</p> <p>Limit intake of fats and oils high in saturated and/or trans-fatty acids, and choose products low in such fats and oils.</p>
Carbohydrates	<p>Choose fiber-rich fruits, vegetables, and whole grains often.</p> <p>Choose and prepare foods and beverages with little added sugars or caloric sweeteners, such as amounts suggested by the USDA Food Guide and the DASH Eating Plan.</p> <p>Reduce the incidence of dental caries by practicing good oral hygiene and consuming sugar- and starch-containing foods and beverages less frequently.</p>
Sodium and potassium	<p>Consume less than 2,300 mg of sodium (approximately 1 teaspoon of salt) per day. Choose and prepare foods with little salt. At the same time, consume potassium-rich foods, such as fruits and vegetables.</p>
Alcoholic beverages	<p>Those who choose to drink alcoholic beverages should do so sensibly and in moderation—defined as the consumption of up to one drink per day for women and up to two drinks per day for men. Alcoholic beverages should not be consumed by some individuals, including those who cannot restrict their alcohol intake, women of childbearing age who may become pregnant, pregnant and lactating women, children and adolescents, individuals taking medications that can interact with alcohol, and those with specific medical conditions.</p> <p>Alcoholic beverages should be avoided by individuals engaging in activities that require attention, skill, or coordination, such as driving or operating machinery.</p>
Food safety	<p>To avoid microbial foodborne illness:</p> <ul style="list-style-type: none"> Clean hands, food contact surfaces, and fruits and vegetables. Meat and poultry should not be washed or rinsed. Separate raw, cooked, and ready-to-eat foods while shopping for, preparing, or storing foods. Cook foods to a safe temperature to kill microorganisms. Chill (refrigerate) perishable food promptly and defrost foods properly. Avoid raw (unpasteurized) milk or any products made from unpasteurized milk, raw or partially cooked eggs or foods containing raw eggs, raw or undercooked meat and poultry, unpasteurized juices, and raw sprouts.

SOURCE: Department of Health and Human Services & United States Department of Agriculture, 2005.



Center *for* Mississippi
Health Policy

Plaza Building, Suite 700

120 N. Congress Street

Jackson, MS 39201

Phone 601.709.2133

Fax 601.709.2134

www.mshealthpolicy.com