Agriculture Fact Book 1998

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Contents

Foreword

by Dan Glickman, Secretary

When Abraham Lincoln created the U.S. Department of Agriculture, its core mission was "to provide information about agriculture in the most comprehensive and general sense of the word." The ***1998 Agriculture Fact Book*** carries on with that charge, offering thousands of useful facts about U.S. agriculture and rural America.

The heart of USDA remains production agriculture, helping our farmers feed America and the world in a sustainable way. What many folks do not realize, however, is the diversity of responsibilities under the USDA umbrella:

- We run the Federal anti-hunger effort—everything from food stamps to the school lunch and breakfast programs to the WIC program.
- We are the country's largest conservation agency—carrying out voluntary efforts to protect soil, water, and wildlife on the 70 percent of America's lands that are in private hands.
- Nearly half of USDA employees work for the Forest Service.
- As the department of rural America, we bring housing, modern telecommunications, safe drinking water, and more to our country's rural communities.
- We are responsible for the safety of the meat, poultry, and egg products on your plate.
- We are a research leader in everything from human nutrition to new crop technologies that allow us to grow more food and fiber using less water and less pesticides.
- We help ensure open markets for U.S. agricultural products, and provide food aid to needy people overseas.

This book is a handy reference tool that offers convenient, one-stop shopping for information about U.S. agriculture, rural America, food, nutrition and consumer issues, trade, and more.

I am pleased to note that the ***1998 Agriculture Fact Book*** is high-tech, too. You can find this text and other helpful information on the Internet at USDA's home page at *http://www.usda.gov*

In today's world, information is power. Whether you are a farmer, a rancher, or simply a curious citizen, this book holds something of value for you.

President Lincoln called USDA "the people's department." We work hard every day to live up to this name.

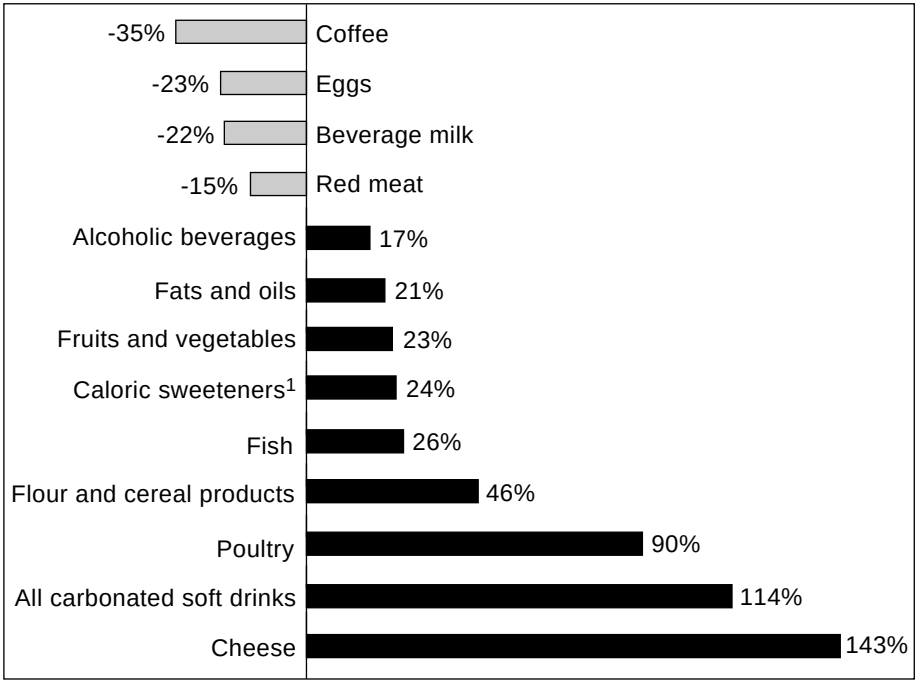
1. U.S. Agriculture—Linking Consumers and Producers

What Do Americans Eat?

In 1996, each American consumed an average of 77 pounds more of commercially grown vegetables than in 1970, 63 pounds more grain products, 54 pounds more fruits, 32 pounds more poultry, 10 gallons more milk lower in fat than whole milk, 20.5 pounds less red meat, 73 fewer eggs, and 17 gallons less whole milk. In 1994 (the latest year for which nutrient data are available), total meat, poultry, and fish contributed nearly a third less saturated fat to the per capita food supply than in 1970, and beverage milk contributed 50 percent less saturated fat. Similarly, eggs' contribution to total dietary cholesterol declined by a fourth between 1970 and 1994, and beverage milk's contribution declined by a half.

Figure 1-1.

The U.S. per capita food supply changed markedly between 1970 and 1996



[1]Includes caloric sweeteners used in soft drinks.

A variety of factors are responsible for the changes in U.S. consumption patterns in the last 25 years, including changes in consumer preferences, relative prices, increases in real(adjusted for inflation) disposable income, and more food assistance for the poor. New products, particularly more convenient ones, also contribute to shifts in consumption, along with more imports, growth in the away-from-home food market, expanded advertising programs, and changes in food enrichment standards and fortification policy. Socio-demographic trends driving changes in food choices include smaller households, more two-earner households, an aging population, and increased ethnic diversity. An expanded scientific base relating diet and health, new *Dietary Guidelines for Americans* designed to help people make food choices that promote health and prevent disease, improved nutrition labeling, and a burgeoning interest in nutrition also influence marketing and consumption trends.

Consistent with dietary and health recommendations, Americans now consume two-fifths more grain products and a fifth more fruits and vegetables per capita than they did in 1970, eat leaner meat, and drink lower fat milk. Many people have traded the typical high-fat eggs-and-bacon breakfast of 1970 for more convenient ready-to-eat breakfast cereals, most of which are fortified with selected vitamins and minerals. Moreover, a steady increase in the proportion of refined flour that is enriched (from 65 percent in 1970 to more than 90 percent today), changes in flour enrichment standards in 1974 and 1983, along with big increases in grain product consumption since 1984, have boosted per capita supplies of five nutrients lost in the milling process and approximately replaced by manufacturers—iron, niacin, thiamine, riboflavin, and, since January 1, 1998, folate.

The typical supermarket fresh produce department carries more than two-and-a-half times as many items today as in the mid-1970's. Increases in domestic production, rising imports, and improved storage facilities afford year-round availability of many fresh foods. Thanks to genetic research, today's carrots and squashes deliver twice as much beta carotene (a nutrient that the body converts to vitamin A) as they did in 1970, and today's grapes are much sweeter than years ago (and per capita consumption has tripled since 1970).

But contrary to recommendations, Americans are consuming record-high amounts of caloric sweeteners and some high-fat dairy products, and near record amounts of added fats—including salad and cooking oils and baking and frying fats. Moreover, a hefty increase in grain consumption reflects higher consumption of mostly refined, rather than high-fiber, whole-grain products—less than 2 percent of the 148 pounds of wheat flour consumed per capita in 1996 was whole wheat flour. (Most nutrients lost during processing, including fiber, vitamins, minerals, and phytochemicals, are not restored to refined flour.) Potatoes used for fat-laden products like frozen french fries (eaten mostly in fast-food eateries), potato chips, and shoestrings accounted for 11 percent of total U.S. per capita fruit and vegetable supplies (fresh-weight basis) in 1996, compared with 8 percent in 1970.

Evidence from various sources suggests that the average American now consumes more food, more snacks, bigger portions, and more calories than in 1970. A 15-percent increase during1970-94 in the level of food energy (calories) in the U.S. per capita food supply reflects higher levels of all three energy-yielding nutrients: carbohydrates, fat, and protein. More calories, along with reductions in average phys-

ical activity (or energy expenditure), are behind an increase in obesity among adults, adolescents, and children in America. In fact, one-third of adults were overweight in the early 1990's, compared with one-quarter in the late 1970's.

USDA's Economic Research Service (ERS) estimates food supply (disappearance) data based on the amount of food available for consumption in the United States. Estimates of food for domestic human consumption usually are calculated by subtracting measurable uses such as exports, industrial consumption, farm inputs, and end-of-year inventories from total supply (the sum of production, beginning inventories, and imports). Accordingly, the data are indirect measures of actual consumption. They may overstate what is actually eaten because they represent food supplies available in the market and do not account for waste. Food supply nutrient estimates are derived from the disappearance data by researchers in USDA's Center for Nutrition Policy and Promotion (CNPP).

Today's Per Capita Meat Supply Is Larger and Leaner. Now more than ever, we are a nation of meat eaters—but we are eating leaner meat. In 1997, total meat consumption (red meat, poultry, and fish) amounted to 192 pounds (boneless, trimmed-weight equivalent) per person, 1 pound below 1994's record high and 15 pounds above the 1970 level. Each American consumed an average of 20 pounds less red meat than in 1970, 32 pounds more poultry, and 3 pounds more fish and shellfish.

Nutritional concern about fat and cholesterol has encouraged the production of leaner animals, the closer trimming of outside fat on retail cuts of meat, and the marketing of a host of lower fat ground and processed meat products—significantly lowering the meat, poultry, and fish group's contribution to total fat and saturated fat in the food supply. Despite record-high per capita consumption of total meat in 1994, the proportion of fat in the U.S. food supply contributed by meat, poultry, and fish declined from 35 percent in 1970 to 25 percent in 1994. Similarly, the proportion of saturated fat contributed by meat, poultry, and fish fell from 37 percent in 1970 to 26 percent in 1994.

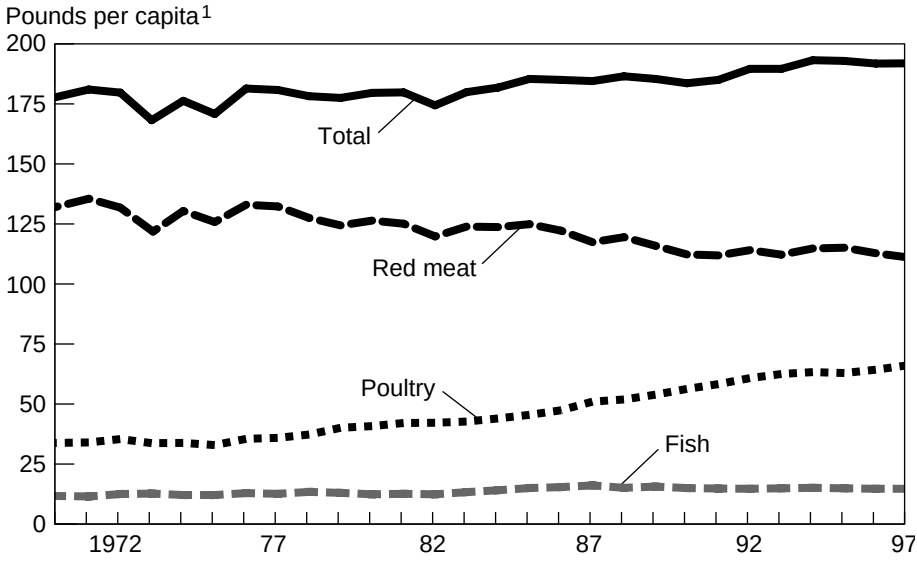
Red meat (beef, pork, lamb, and veal) accounted for 58 percent of the total meat supply in 1997, compared with 74 percent in 1970. By 1997, chicken and turkey accounted for 34 percent of the total meat consumed, up from 19 percent in 1970. Fish and shellfish accounted for 8 percent of total meat consumption in 1997 and 7 percent in 1970.

Long-Term Decline in Egg Consumption Levels Off in the 1990's. Between 1970 and 1989, total annual consumption of shell eggs and egg products steadily declined by about 4 eggs per person per year, from 309 eggs to 237. During the 1990's, total egg consumption has leveled off, fluctuating between 234 and 238 eggs per person per year. Per capita consumption was 238 eggs in 1997 and has been projected to be 242 eggs in 1998. The record high for U.S. per capita consumption was 403 eggs in 1945.

A decline in per capita egg consumption over the last few decades reflects two very different and somewhat counterbalancing trends: a dominating, nearly constant decline in consumption of shell eggs, and a partially offsetting growth in consumption of egg products during the 1980's and 1990's. Egg products are eggs that have been processed and sold primarily to food manufacturers and foodservice operators in liquid or dried form. These pasteurized eggs reach consumers as ingredients in

Figure 1-2.

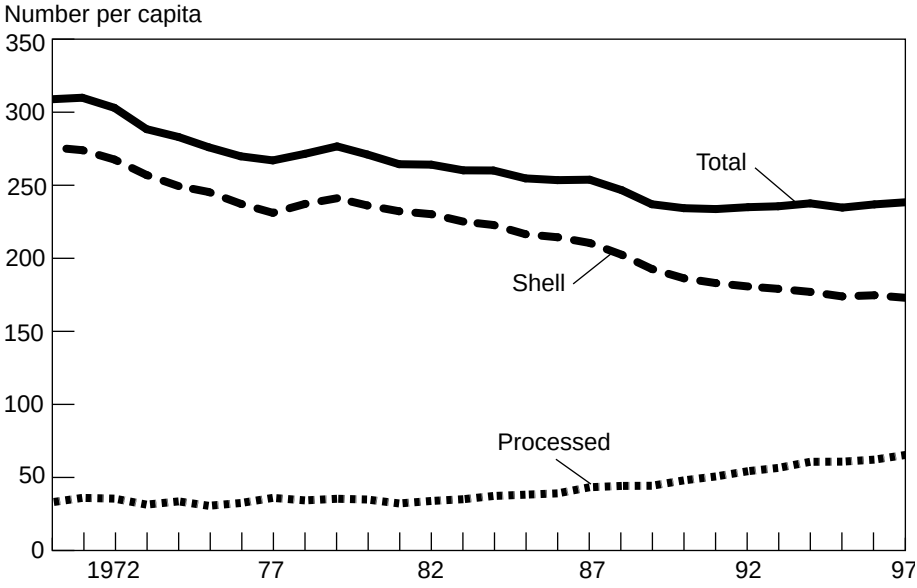
Americans consumed less red meat, more poultry and fish in 1997



[1] Boneless, trimmed equivalent.
Source: USDA/Economic Research Service.

Figure 1-3.

Long-term decline in total per capita egg consumption levels off in the 1990's



Source: USDA/Economic Research Service

foodservice menu items and processed foods—for example, pasta, candy, baked goods, and cake mixes—or directly as liquid eggs in grocery stores. Grocerystore liquid egg products usually are made from egg whites and are used by consumers as a nonfat, no-cholesterol alternative to shell eggs.

Shell-egg consumption dropped from 276 eggs per capita per year in 1970 to 173 in 1997. The average rate of decline in per capita shell-egg consumption was 4 eggs per year in the 1970's and 5 eggs per year in the 1980's. In the 1990's, the rate of decline in per capita consumption of shell eggs has slowed to 2-1/2 eggs per year and is expected to slow even more.

Much of the decline in shell-egg consumption since 1970 has been due to changing lifestyles (for example, less time for breakfast preparation in the morning as large numbers of women joined the paid labor force) and the perceived ill effects of the cholesterol intake associated with egg consumption. Total cholesterol in the U.S. per capita food supply declined 13 percent between 1970 and 1994, from 470 milligrams per person per day to 410 milligrams. Eggs contributed 39 percent of the total cholesterol in the food supply in 1970 and 34 percent in 1994.

Consumption of egg products has grown consistently since 1983, reaching the equivalent of 66 eggs per person by 1997. The growth period followed more than two decades of relatively level consumption, remaining between the equivalent of 28 and 36 eggs per person from 1960 to 1983. Egg product consumption will continue to increase as consumers opt for more prepared foods and as any perception of potentially negative dietary attributes of processed eggs is lessened.

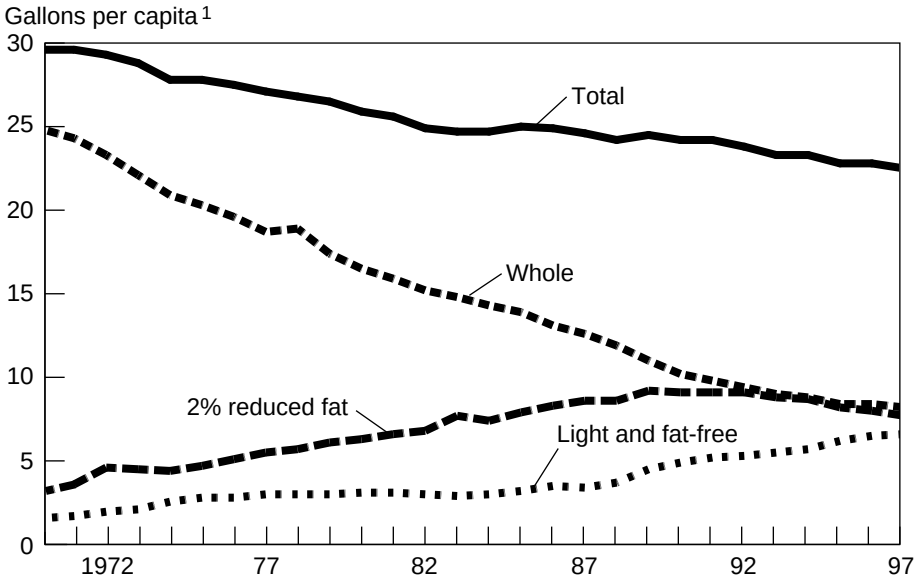
Milkfat Consumption. In 1996, Americans drank an average of 22 percent less milk but ate nearly 2-1/2 times as much cheese (excluding cottage types) as in 1970. Annual per capita consumption of milkfat from fluid milk products (beverage milk and yogurt) has declined by half since 1970 due to lower beverage milk consumption and a trend toward lower fat milks. Americans cut their average consumption of fluid whole milk by two-thirds between 1970 and 1996, and nearly tripled their use of lower fat milks. But, because of the growing yen for cheese and fluid cream products, there was no overall reduction in the use of milkfat. Annual per capita consumption of fluid milk declined from 31 gallons in 1970 to 24 gallons in 1996.

The beverage milk trend is toward lower fat milk. While whole milk represented 81 percent of all beverage milk (plain, flavored, and buttermilk) in 1970, its share dropped to 36 percent in 1996. In 1996, plain whole milk accounted for 37 percent of all plain beverage milk, 2-percent reduced fat milk for 35 percent, and light (0.5-percent and 1-percent) and fat-free (skim) milks combined for 28 percent. In terms of average consumption, light and fat-free milks increased 25 percent in 1991-96, 2-percent milk declined 12 percent, and whole milk declined 15 percent.

Total beverage milk contributed 50 percent less fat to the average American's diet in 1996 than in 1970. In contrast, rising consumption of fluid cream products meant that they contributed nearly two times as much milkfat to the average diet in 1996 as in 1970. Per capita consumption of fluid cream products—half-and-half, light cream, heavy cream, eggnog, sour cream, and dips—jumped from 9.8 half pints in 1970 to 16.4 half pints in 1996. On balance, however, annual per capita consumption of milkfat from all fluid milk and cream products declined by 36 percent in1970-96, from 9.1 pounds per person to 5.8 pounds.

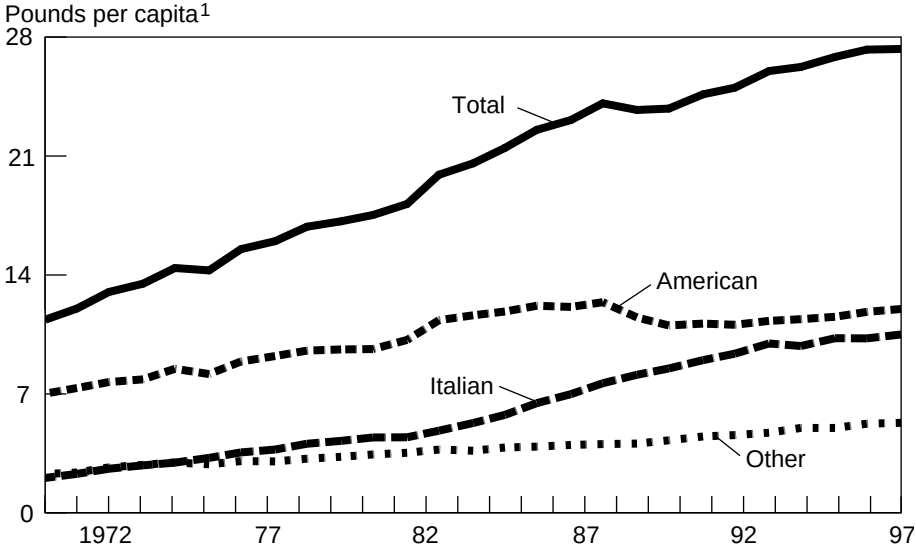
Figure 1-4.

Americans are switching to lower fat milks...



[1]Excludes flavored milk and buttermilk.

But cheese consumption continues to rise



[1] Natural equivalent of cheese and cheese products. Excludes full-skim American and cottage type cheeses.

Source: USDA/Economic Research Service.

Average consumption of cheese (excluding full-skim American and cottage, pot, and baker's cheeses) increased 140 percent between 1970 and 1996, from 11 pounds per person to 28 pounds. Lifestyles that emphasize convenience foods were probably major forces behind the higher consumption. In fact, two-thirds of our cheese now comes in commercially manufactured and prepared foods (including foodservice), such as pizza, tacos, nachos, salad bars, fast-food sandwiches, bagel spreads, sauces for baked potatoes and other vegetables, and packaged snack foods. Advertising and new products—such as reduced-fat cheeses and resealable bags of shredded cheeses, including cheese blends tailored for use in Italian and Mexican recipes—also had an effect.

From 1970 to 1996, consumption of Cheddar cheese increased 59 percent to 9.2 pounds per capita. Consumption of Italian cheeses quintupled during the same period, to 10.8 pounds per person in 1996. For example, per capita consumption of Mozzarella—the main pizza cheese—in1996 was 8.5 pounds, more than 7 times higher than in 1970.

Average Annual Use of Added Fats and Oils Has Begun to Decline But Remains Near Record-High Level. Americans' overriding nutrition concern in the mid-1990's with cutting dietary fat is apparent in the recent per capita food supply data, which shows a modest decline since 1993 in the use of added fats and oils. However, average use of added fats and oils in 1997 remained more than a fourth above the 1970 level. Added fats and oils include fats and oils used directly by consumers, such as butter on bread, as well as shortenings and oils used in commercially prepared cookies, pastries, and fried foods. Excluded is all fat naturally present in foods, such as in milk and meat.

Annual per capita consumption of added fats and oils declined at least 7 percent between 1993 and 1997, from a record-high 70 pounds per person to 66 pounds (fat-content basis). This 7-percent decline reflects the following declines in per capita use (product-weight basis): 11percent for butter, 23 percent for margarine and spreads, 17 percent for shortening, and 35 percent for specialty fats used mainly in confectionery products and nondairy creamers. The only per capita consumption increases among added fats during 1993-97 were for lard and edible beef tallow (up 21 percent, or 0.8 pounds) and salad and cooking oils (up 7 percent, or 1.9 pounds). Lard and edible beef tallow are used mainly for baking and frying in the commercially prepared foods and foodservice sectors; supermarket sales of lard, which accounted for only 6 percent of total lard consumption in 1997, have declined since 1993.

The 26-percent increase in per capita consumption of added fats and oils between 1970 and 1997 is probably due to the greatly expanded consumption of fried foods in foodservice outlets, the huge increase in consumption of high-fat snack foods, and the increased use of salad dressings. The average woman aged 19 to 50 gets more fat from salad dressing than from any other food, according to recent USDA food intake surveys.

Average Consumption of Fruits and Vegetables Rises. As Americans increasingly embrace national health authorities' recommendation of consuming five fruits and vegetables a day, their array of choices continues to widen. Fresh-cut fruits and vegetables, prepackaged salads, locally grown items, and exotic produce—as well as

Table 1-1.

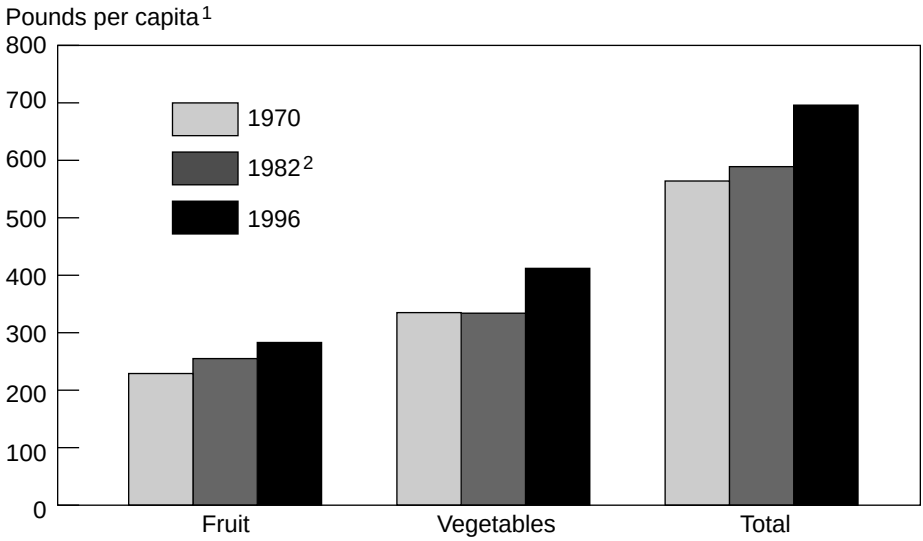
Major Foods: U.S. per capita food supply

Food	*1970*	*1980*	*1996*	*1997*
			Pounds	
Total meats[1]	177.3	179.6	191.9	192.0
Beef	79.6	72.1	65.0	63.8
Pork	48.0	52.1	45.9	45.6
Veal	2.0	1.3	1.0	.9
Lamb and mutton	2.1	1.0	.8	.8
Chicken	27.4	32.7	49.8	51.2
Turkey	6.4	8.1	14.6	14.8
Fish and shellfish	11.7	12.4	14.7	14.7
Eggs (number)	308.9	271.1	236.9	238.4
Cheese[2]	11.4	17.5	27.7	na
Ice cream	17.8	17.5	15.9	na
Fluid cream products	5.2	5.6	8.7	9.1
All dairy products[3]	563.8	543.2	575.6	na
Added fats and oils	52.6	57.2	65.8	65.6
Peanuts and tree nuts[4]	7.2	6.6	7.8	na
Fruit and vegetables[5]	564.4	594.4	695.6	na
Fruit	229.0	257.9	283.2	na
Vegetables	335.4	336.5	412.4	na
Caloric sweeteners[6]	115.8	123.0	152.0	na
Sucrose	101.8	63.6	66.2	na
Corn sweeteners	16.7	38.2	84.5	na
Grain products[7]	135.6	144.7	198.5	na
Wheat flour	110.9	116.9	148.8	na
Rice	6.7	9.4	18.9	na
Corn products	11.1	12.9	22.9	na
Other[8]	6.9	5.5	7.9	na
			Gallons	
Beverage milks	31.3	27.6	24.4	24.0
Whole	24.8	16.5	8.4	8.2
Lower fat and skim	5.8	10.5	15.7	15.5
Coffee	33.4	26.7	21.8	na
Tea	6.8	7.3	8.0	na
Carbonated soft drinks	24.3	35.1	52.0	na
Fruit juices	5.5	6.8	8.7	na
Bottled water	na	2.4	12.4	na
Beer	18.5	24.3	22.1	na
Wine	1.3	2.1	1.9	na
Distilled spirits	1.8	2.0	1.2	na

na = not available.
[1]Boneless, trimmed weight. [2]Excludes full-skim American, cottage, pot, and baker's cheese. [3]Milk equivalent, milkfat basis. [4]Shelled basis. [5]Fresh-weight equivalent. [6]Dry basis. Includes honey and edible syrups. [7]Consumption of items at the processing level (excludes quantities used in alcoholic beverages and corn sweeteners). [8]Oats, barley, and rye.

Figure 1-5.

Per capita consumption of fruits and vegetables increased 23 percent between 1970 and 1996



[1]Fresh weight equivalent. [2]Publication of Diet, Nutrition, and Cancer, which emphasized the importance of fruits and vegetables in the daily diet.

Source: USDA/Economic Research Service.

hundreds of new varieties and processed products—have been introduced or expanded in the last decade.

Supermarket produce departments carry over 400 produce items today, up from 250 in the late 1980's and 150 in the mid-1970's. Also, the number of ethnic, gourmet, and natural foodstores—which highlight fresh produce—continues to rise.

Consumers increasingly have more access to local produce as well. The number of farmers markets reported to State agriculture departments has grown substantially throughout the United States over the last several decades, numbering around 1,755 in 1993 and eclipsing 2,400 in mid-1996. Some analysts say that the total number of farmers markets, including those not reported, is more than double that figure.

While the overall market for fruits and vegetables has expanded in the last 15 years, the mix has changed. Shifts have taken place among traditional produce items and between fresh and processed forms. Traditional varieties have lost market share to specialty varieties, and exotic produce has gained favor. For example, per capita consumption of iceberg lettuce fell by 5.4 pounds (or 19 percent) between 1989 and 1996, while per capita consumption of romaine and leaf lettuces increased 2.8 pounds (or 78 percent) during the same period. In addition, many specialty lettuces not yet tracked in USDA's food supply database—such as radicchio, frisee, arugula, and red oak—gained in popularity in the last several years because of inclusion in fresh-cut salad mixes and in upscale restaurant menus.

Total per capita consumption of 80 commercially produced fruits and vegetables (for which ERS has U.S. production data) rose 23 percent, from 564 pounds in 1970 to 696 pounds in1996. Four-fifths of this increase occurred since 1982, the year in which an expert scientific panel convened by the U.S. National Academy of Sciences published its landmark report *Diet, Nutrition, and Cancer.* The report emphasized the importance of including fruits (especially citrus fruits), vegetables (especially carotene-rich and cruciferous, or cabbage family, vegetables), and whole-grain cereal products in the daily diet, noting that these dietary guidelines were consistent with good nutritional practices and likely to reduce the risk of cancer.

The rate of increase in per capita consumption of processed fruits and vegetables, including potatoes, between 1970 and 1996 outpaced that for fresh produce—24 percent versus 21 percent. The trend is reversed and more pronounced, however, if potatoes are excluded. In that case, the rise in per capita use of processed fruits and vegetables other than potatoes during the same time period was only 18 percent, compared to a 34-percent rise for fresh items. These divergent trends reflect two important points. Potatoes constitute a significant portion of total estimated fruit and vegetable consumption—21 percent in 1996, down from 22 percent in 1970.

Grain Consumption Up From 1970's, But Far Below Early 1900's. Per capita use of flour and cereal products reached 198 pounds in 1996, up from an annual average of 145 pounds in 1980 and 136 pounds in 1970. The expansion reflects strong consumer demand for variety breads and other instore bakery items, and increasing fast-food sales of products made with buns, doughs, and tortillas. However, current use is far below the 300 pounds consumed per person in 1909 (the earliest year for which data are available).

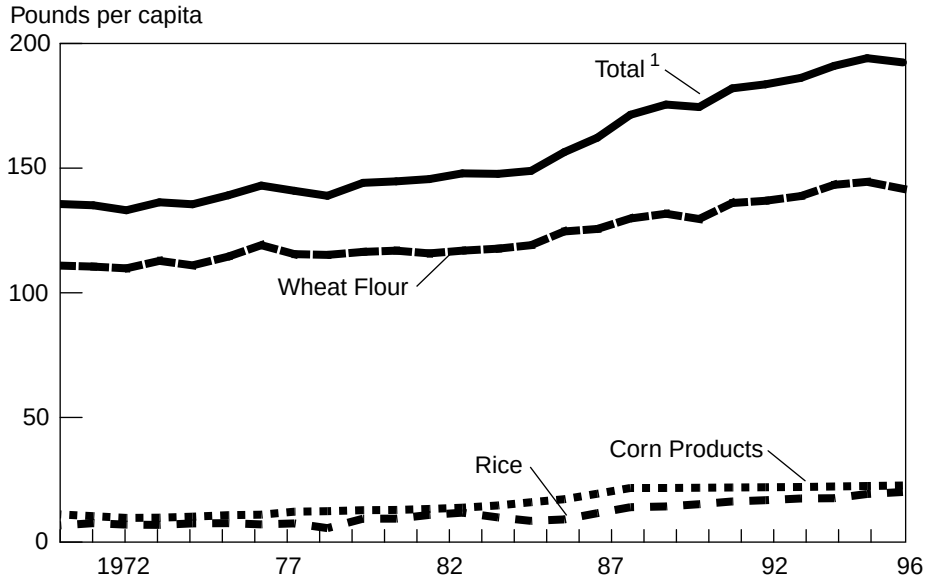
USDA's nationwide food consumption surveys confirm the food supply data, also indicating Americans are eating more grain products. Consumption of grain mixtures—such as lasagna and pizza—increased 115 percent between 1977-78 and 1994. Snack foods—such as crackers, popcorn, pretzels, and corn chips—have soared 200 percent, and ready-to-eat cereals were up 60 percent. One of the biggest changes within the grain mixture group was the explosion of ethnic foods, especially Mexican foods. Mexican foods were consumed four times more often in 1994 than in the late 1970's.

Yet Americans are still eating a serving or less a day of whole-grain foods, far below the minimum three per day the American Dietetic Association (ADA) recommends. If a bread does not have whole wheat, oats, or some other whole grain as the first ingredient, much of its vitamin-and mineral-rich germ and bran have been milled away, along with most of its fiber. Enriched flour, from which most breads are made, is not a whole grain. The processor has added back four of the B vitamins (including folic acid, beginning in 1998) and the iron that were lost when the wheat was refined. Some companies that make "light" breads also add highly processed fiber to boost the fiber content and cut the calories.

Beginning January 1, 1998, all enriched grain foods, including pasta, bread, rolls, flour, cakes, and cookies, must be fortified with the B-vitamin folic acid, which is also lost during milling. That should reduce the risk of babies' being born with neural tube birth defects like spinabifida. It may also protect adults from heart disease and reduce the chances of cervical cancer in women. Folic acid is found naturally in

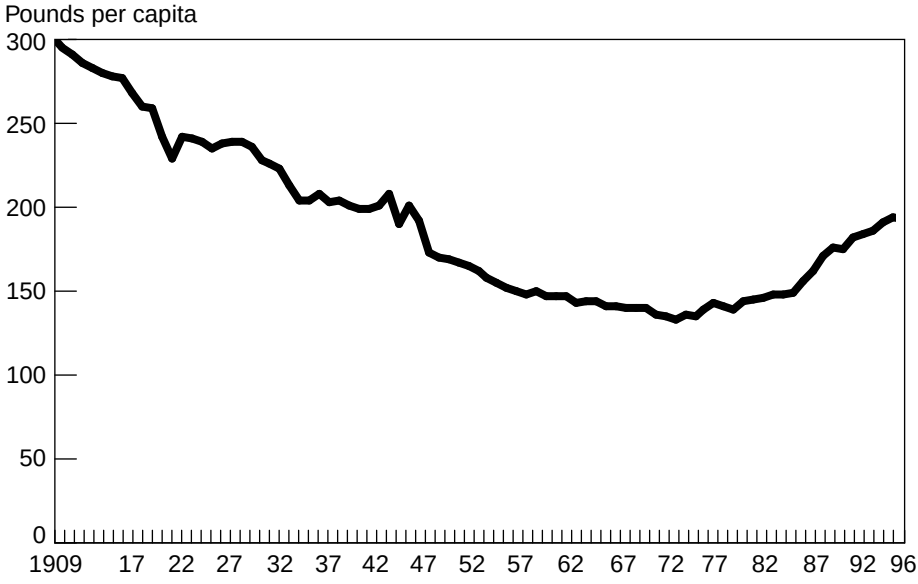
Figure 1-6.

Consumption of flour and cereal products increased 33 percent between 1984 and 1996...



[1] Includes oat, rye, and barley products.

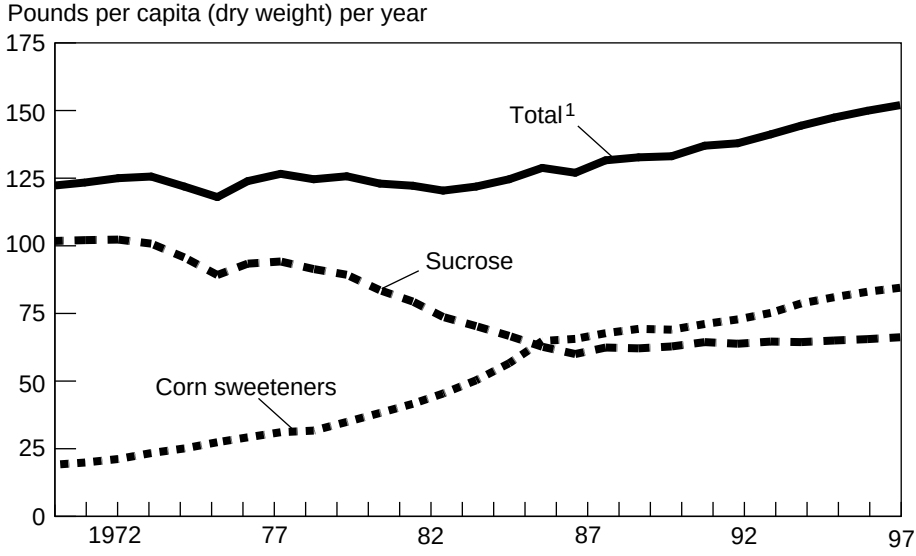
But in 1996, it remained 100 pounds below the 1909 level



Source: USDA/Economic Research Service.

Figure 1-7.

In 1996, Americans consumed more than two-fifths of a pound of caloric sweeteners per person per day



[1] Includes honey, molasses, and other refiner's syrups.

Source: USDA/Economic Research Service

legumes; liver; many vegetables, especially green leafy ones like spinach; citrus fruits and juices; whole-grain products; and eggs.

Most ready-to-eat breakfast cereals are fortified with folate. Fortified ready-to-eat cereals usually contain at least 25 percent of the U.S. Recommended Daily Allowance (RDA) for folate(since cereals vary, check the label on the package for the percentage of the U.S. RDA).

Average Consumption of Caloric Sweeteners Hits Record High. Americans have become conspicuous consumers of sugar and sweet-tasting foods and beverages. Per capita consumption of caloric sweeteners (dry-weight basis)—mainly sucrose (table sugar made from cane and beets) and corn sweeteners (notably high-fructose corn syrup, or HFCS)—increased 32 pounds, or 27 percent between 1982 and 1996. In 1996, each American consumed a record average 152 pounds of caloric sweeteners. That amounted to more than two-fifths of a pound—or 47 teaspoons—of caloric sweeteners per person per day in 1996. USDA's Food Guide suggests that people on a 1,600-calorie diet limit their intake of added sugars to 6 teaspoons per day. The daily suggested limit increases to 12 teaspoons for those consuming 2,200 calories a day, and to 18 teaspoons for those consuming 2,800 calories.

A striking change in the availability of specific types of sugar occurred in the past two decades. Sucrose's share of total caloric sweetener use dropped from 83 percent in 1970 to 44 percent in 1996, while corn sweeteners increased from 16 percent

to 55 percent. All other caloric sweeteners—including honey, maple syrup, and molasses—combined to maintain a 1-percent share.

In 1996, Americans consumed 73 percent more caloric sweeteners per capita than in 1909. In 1909, two-thirds of the sugar produced went directly into the home. In contrast, more than three-quarters of the refined and processed sugars produced today goes to food and beverage industries, and less than a quarter is being brought home.

Sugar—including sucrose, corn sweeteners, honey, and molasses—is, in a sense, the number-one food additive. It turns up in some unlikely places, such as pizza, bread, hot dogs, boxed rice mixes, soup, crackers, spaghetti sauce, lunch meat, canned vegetables, fruit drinks, flavored yogurt, ketchup, salad dressing, mayonnaise, and some peanut butter. Carbonated softdrinks provided more than a fifth (22 percent) of the refined and processed sugars in the 1994 American diet.

Cost of Food Services and Distribution

The estimated bill for marketing domestically grown and consumed foods was $441 billion in 1997. This amount covered all charges for transporting, processing, and distributing foods that originated on U.S. farms. It represented 79 percent of the $561 billion consumers spent for these foods. The remaining 21 percent, or $120 billion, represents the gross return paid to farmers.

The cost of marketing food has increased considerably over the years, mainly because of rising costs of labor, transportation, food packaging materials, and other inputs used in marketing, and also because of the growing volume of food and the increase in services provided with the food. In 1987, the cost of marketing farm foods amounted to $285 billion. In the decade since, the cost of marketing rose about 55 percent. From 1996 to 1997, the marketing bill rose 4 percent.

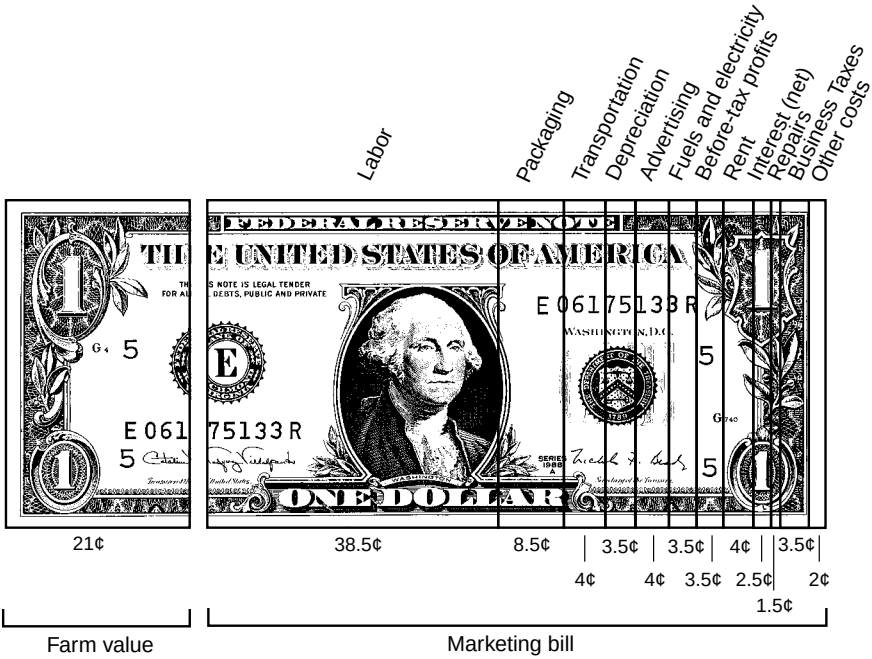
These rising costs have been the principal factor affecting the rise in consumer food expenditures. From 1987 to 1997, consumer expenditures for domestically grown food rose $186 billion. Nearly 85 percent of this increase resulted from an increase in the marketing costs.

The cost of labor is the biggest part of the total food marketing bill, accounting for nearly half of all marketing costs. Labor used by assemblers, manufacturers, wholesalers, retailers, and eating places cost $216 billion in 1997. This was 5.7 percent higher than in 1996 and 66 percent more than in 1987. The total number of food marketing workers in 1997 was about 13.7 million, about 19 percent more than a decade earlier. Nearly 70 percent of the growth in food industry employment occurred in public eating places.

A wide variety of costs comprise the balance of the marketing bill. These costs include packaging, transportation, energy, advertising, business taxes, net interest, depreciation, rent, and repairs. Their relative proportions are illustrated in the accompanying dollar chart.

Figure 1-8.

What a dollar spent for food paid for in 1997



Food Expenditures and Prices

Total food expenditures, which include imports, fishery products, and domestically grown food, reached $709.2 billion in 1997, an increase of 2.6 percent from 1996. Away-from-home meals and snacks captured 46 percent of the U.S. food dollar in 1997, up from 38 percent in 1977and 44 percent in 1987.

The percentage of disposable personal income (income after taxes) that U.S. consumers spend on food continues to decline. In 1996, U.S. consumers spent 10.7 percent of their disposable personal income on food, compared to 11.6 percent in 1990, 13.4 percent in 1980, and 13.8 percent in 1970.

In the United States, retail food prices (including meals served in restaurants) rose 38.6 percent over the last 10 years (1987-97). Prices of food eaten away from home increased 34.2 percent, while retail foodstore prices increased 41.3 percent. In comparison, prices of all goods and services, excluding food, in the Consumer Price Index climbed 41.8 percent over the same 10 years. Transportation was up 36.9 percent; housing 37.3 percent; medical care 80.3 percent; and apparel and upkeep 20.2 percent.

Farm-to-Retail Price Spread

Food prices include payments for both the raw farm product and marketing services. In1997, the farm value, or payment for the raw product, averaged 23 percent of the retail cost of a market basket of U.S. farm foods sold in foodstores. The other 77 percent, the farm-retail price spread, consisted of all processing, transportation, wholesaling, and retailing charges incurred after farm products leave the farm.

Farm-retail spreads have increased every year for the past 30 years, largely reflecting rising costs of labor, packaging, and other processing and marketing inputs. In 1997, farm-to-retail spreads rose an average of 4.7 percent and farmers received 4.4 percent less for the food they produced. The farm value as a percentage of retail prices was slightly lower in 1997 than in 1996. Meanwhile, retail food prices rose 2.4 percent. Widening farm-retail spreads continued to push up food costs in 1997.

The percentage of the retail price accounted for by the farm value varies widely among foods. Generally, it is larger for animal products than for crop-based foods, and smaller for foods that require considerable processing and packaging. The percentage generally decreases as the degree of processing increases. For example, the farm value of meat was 36 percent in 1997, while cereal and bakery products had a farm value of 7 percent. The additional manufacturing processes required for cereal and bakery products lower the farm value relative to the retail cost. Other factors that influence the farm value percentage include transportation costs, product perishability, and retailing costs.

Table 1-2.

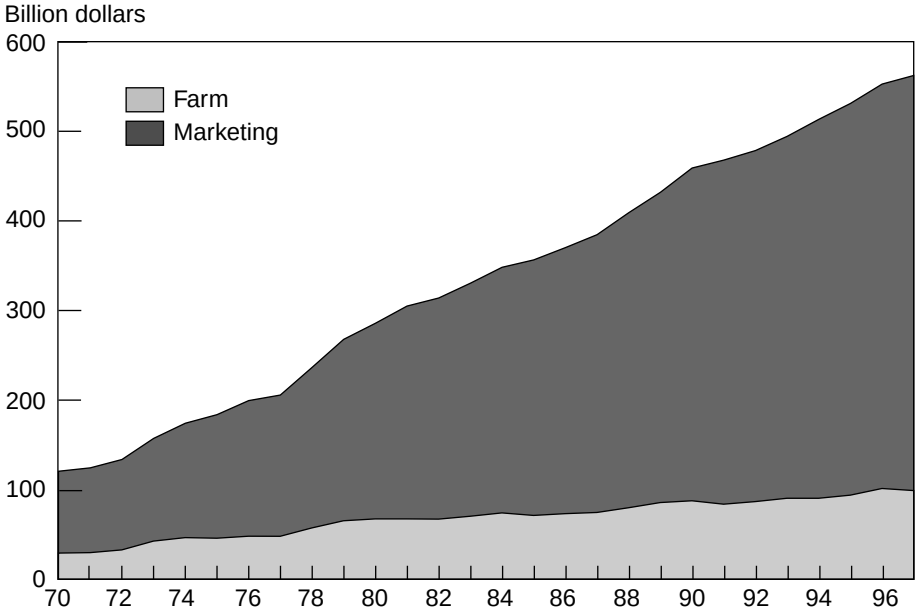
Farm value as a percentage of retail price for domestically produced foods, 1987 and 1997

Items	*1987*	*1997*
	Percent	
Livestock products:		
Meats	47	37
Dairy	42	32
Poultry	45	41
Eggs	54	46
Crop Products:		
Cereal and bakery	8	7
Fresh fruits	26	18
Fresh vegetables	31	21
Processed fruits and vegetables	24	19
Fats and oils	18	21

Figure 1-9.

Distribution of food expenditures

The marketing bill is 79 percent of 1997 food expenditures



2. Structure of U.S. Agriculture

Farming Regions

The 10 major farm production regions in the United States differ in soils, slope of land, climate, distance to market, and storage and marketing facilities. Together they comprise the agricultural face of the Nation.

The Northeastern States and the Lake States are the Nation's principal milk-producing areas. Climate and soil in these regions are suited to raising grains and forage for cattle and for providing pastureland for grazing.

Broiler farming is important in Maine, Delaware, and Maryland. Fruit and vegetables are also important to the region.

The Appalachian region is the major tobacco-producing area in the Nation. Peanuts, cattle, hog, and dairy production are also important there.

In the Southeast region, beef and broilers are important livestock products. Fruits, vegetables, and peanuts are grown in this region. Big citrus groves, winter vegetable, and sugarcane production areas in Florida are major suppliers of agricultural goods. Cotton production is making a comeback.

In the Delta States, the principal cash crops are soybeans and cotton. Rice, corn, and sugarcane are also grown. With improved pastures, livestock production has gained in importance. This is a major broiler-producing region.

The Corn Belt has rich soil and good climate for excellent farming. Corn, soybeans, cattle, hogs, and dairy products are the major outputs of farms in the region. Other feed grains and wheat are also important.

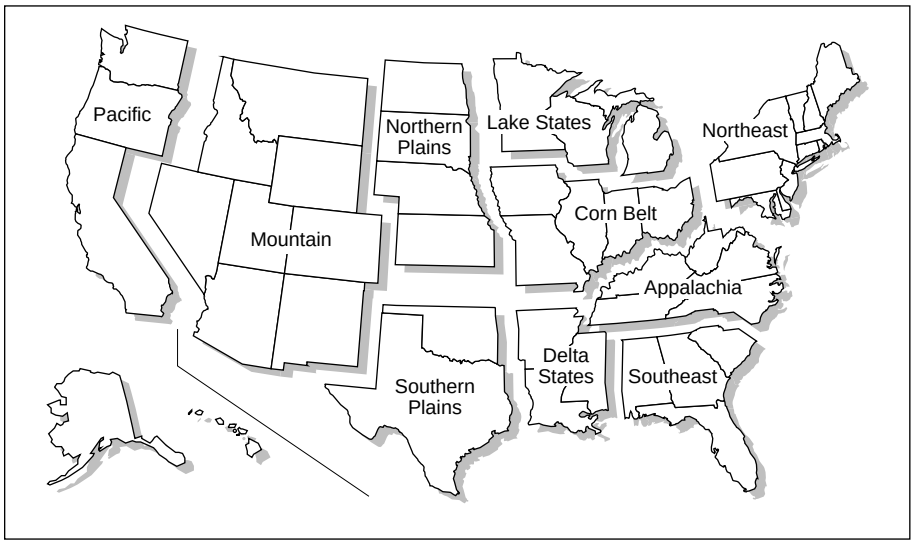
Agriculture in the Northern and Southern Plains, which extend north and south from Canada to Mexico, is restricted by rainfall in the western portion and by cold winters and short growing seasons in the northern part. About three-fifths of the Nation's winter and spring wheat is produced in this region. Other small grains, grain sorghum, hay, forage crops, and pastures form the basis for raising cattle and for milk production. In the southern part, cotton is also a major crop.

The Mountain States provide a still different terrain. Vast areas of this region are suited to raising cattle and sheep. Wheat is important in the northern parts. Irrigation in the valleys provides water for such crops as hay, sugar beets, potatoes, fruits, and vegetables.

The Pacific region includes the three Pacific Coast States plus Alaska and Hawaii. Farmers in Washington and Oregon specialize in raising wheat, fruit, and potatoes. Vegetables, fruit, and cotton are important in California. Cattle are raised throughout the region, and California leads the Nation in milk production. In Hawaii, sugarcane and pineapples are the major crops. Greenhouse/nursery and dairy products are Alaska's top-ranking commodities.

Figure 2-1.

U.S. farm production regions



Farms and Land in Farms

The United States had 2.06 million farms in 1997, down less than 1 percent from 1996. A farm is defined as any establishment from which $1,000 or more of agricultural products was sold or would normally be sold during the year. The number of farms declined annually about 1 percent from 1987 through 1997, except for an increase in 1995 of less than half a percent which was due in part to a change in definition; the overall decline for the period was 7 percent.

Land in farms continues to decline slowly; the total of 968 million acres in 1997 is down 0.2 percent from a year earlier and down 3.1 percent from 1987. Land in farms has declined every year since reaching its peak at 1.206 billion acres in 1954. The number of farms has declined at a faster rate than land in farms, with the average farm increasing from 451 acres in 1987 to 471 acres in 1997.

Table 2-1.

Number of farms, land in farms, average farm size: United States, June 1, 1986-97[1, 2]

Year	Number of Farms	Land in Farms	Average Farm Size
	In 1,000	*In 1,000 acres*	*In acres*
1987	2,213	998,923	451
1988	2,201	994,423	452
1989	2,175	990,723	456
1990	2,146	986,850	460
1991	2,117	981,736	464
1992	2,108	978,503	464
1993	2,083	976,463	469
1994	2,065	973,403	471
1995	2,072	972,253	469
1996	2,063	968,048	470
1997	2,058	968,338	471

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or would normally be sold during the year.
[2]1987-1996 estimates are for a June 1 reference date. 1997 estimates are for the entire year.
Source: U.S. Department of Agriculture, National Agricultural Statistics Service, Farms and Land in Farms.

Farms by Sales Class

Farms are commonly classified in size groups based on the total value of their gross farm sales. Data from the annual Farms and Land in Farms report from the National Agricultural Statistics Service show that the greatest number of farms is in the lower sales classes, with over 61 percent reporting gross farm sales of less than $20,000 in 1997. According to the survey, these small farms accounted for only 16.9 percent of the acreage operated. A relatively small number of very large farms produce the largest share of farm sales. Only 2.8 percent of the farms in 1997 were large operations with sales of $500,000 or more, but they operated 16.5 percent of the land. Average farm size increases consistently with sales class, ranging from 65 acres per farm in the less than $2,500 category to 2,773 acres for farms with receipts of $500,000 or more.

Legal Structure of U.S. Farms (Individual, Partnership, Corporation)

Type of organization refers to the farm's form of business organization. Farms may broadly be classified as individual operations (proprietorships), partnerships, or corporations (family and nonfamily). Agricultural Resource Management Study data indicate that individual operations are the most common type of farm organization. Nine out of ten farms in the 1996 survey were classified as individual operations. Partnerships and corporations make up a very small share of farms. About 89 percent of farm corporations are family corporations, with more than 50 percent of the stock held by people related by blood or marriage.

Individual operations account for the largest share of farmland (71 percent) and gross farm sales (74 percent). Corporate farms have the highest average farm sales. The average value of gross farm sales by corporate farms in 1996 was $246,826, while partnerships averaged $201,205. Gross sales for individual operations averaged $63,159, about one-quarter of the corporate level. Average acreage was also higher for corporate farms (1,165 acres) and for partnerships (856 acres) than for individual operations (373 acres).

Land Tenure

Land tenure describes the farm operator's ownership interest in the land farmed. The major land tenure categories are (1) full owners, who own all the land they operate, (2) part owners, who own some and rent the remainder of their land, and (3) tenants, who rent all of their land or work on shares for others. The majority of farms in the 1996 Agricultural Resource Management Study (53 percent) reported full ownership of the land they operated, while 38 percent owned part and rented part of the farmland they operated. Only 9 percent of operations reported that they rented all of their land.

Part owners generally operate the largest farms, averaging 732 acres in 1996, followed by tenants with 636 acres and full owners with 227 acres per farm. Part owners account for the largest share of acreage operated (61 percent of the total in 1996).

Gross farm sales are also concentrated on part-owner operations (51 percent of gross farm sales in 1996). The average value of gross farm sales for part owners in 1996 was $114,443, about $31,900 less than the average for tenants at $146,335. Gross farm sales for full-owner operations were much smaller, averaging $47,708.

Major Uses of U.S. Cropland

The major uses of U.S. cropland include cropland harvested, summer fallow, land idled in Federal programs, and crop failure. Cropland harvested peaked in 1981 at about 351 million acres. Harvested cropland declined to 287 million acres in 1988 and was expected to reach 321 million acres for 1997. Summer fallow acreage ranges between 22 million and 34 million acres per year. Cropland idled in Federal

Table 2-2.

Number of farms and land in farms: by State and United States, June 1, 1992-97[1]

State	Farms			Land in farms		
	1992	1993	1994	1992	1993	1994
	Number of farms			1,000 Acres		
AL	46,000	46,000	46,000	9,800	10,000	10,200
AK	540	530	520	950	940	930
AZ	7,500	7,400	7,400	35,600	35,500	35,400
AR	45,000	45,000	44,000	15,300	15,300	15,100
CA	82,000	79,000	79,000	30,200	30,000	29,900
CO	25,500	25,500	25,300	32,800	32,800	32,700
CT	4,000	3,800	3,800	410	400	390
DE	2,700	2,500	2,500	590	570	570
FL	39,000	39,000	39,000	10,500	10,300	10,300
GA	46,000	46,000	45,000	12,100	12,100	12,100
HI	4,800	4,800	4,800	1,590	1,590	1,590
ID	21,000	20,500	20,500	13,500	13,500	13,500
IL	81,000	79,000	77,000	28,200	28,100	28,100
IN	65,000	63,000	63,000	16,000	16,000	16,000
IA	103,000	102,000	101,000	33,400	33,300	33,200
KS	67,000	65,000	65,000	47,800	47,800	47,800
KY	91,000	91,000	89,000	14,100	14,100	14,100
LA	29,000	29,000	28,000	8,700	8,600	8,400
ME	7,300	7,300	7,600	1,420	1,400	1,360
MD	15,600	15,000	14,500	2,200	2,200	2,200
MA	6,400	6,200	6,000	630	610	600
MI	54,000	52,000	52,000	10,800	10,700	10,700
MN	88,000	87,000	85,000	29,800	29,700	29,700
MS	39,000	39,000	39,000	12,800	12,800	12,800
MO	107,000	106,000	105,000	30,300	30,200	30,100
MT	24,300	23,800	22,500	60,000	59,800	59,700
NE	56,000	55,000	55,000	47,100	47,100	47,100
NV	2,500	2,400	2,400	8,900	8,900	8,800
NH	2,700	2,500	2,400	440	440	440
NJ	9,000	8,900	8,900	880	870	860
NM	13,500	13,500	13,500	44,200	44,200	44,200
NY	38,000	37,500	36,000	8,200	8,100	7,900
NC	60,000	59,000	58,000	9,500	9,400	9,300
ND	33,000	32,500	32,000	40,400	40,400	40,400
OH	78,000	76,000	75,000	15,300	15,200	15,200
OK	71,000	70,500	70,000	34,000	34,000	34,000
OR	37,500	37,500	38,000	17,500	17,500	17,500
PA	52,000	51,000	51,000	8,000	7,900	7,800
RI	700	700	700	63	63	63
SC	24,500	24,000	23,000	5,200	5,150	5,100
SD	35,000	34,500	34,000	44,200	44,200	44,200
TN	85,000	84,000	83,000	12,100	12,100	12,000
TX	198,000	200,000	200,000	130,000	30,000	129,000
UT	13,200	13,000	13,000	11,300	11,200	11,100
VT	6,400	6,400	6,200	1,430	1,430	1,400
VA	45,000	45,000	46,000	8,700	8,600	8,600
WA	37,000	36,000	36,000	16,000	16,000	15,800
WV	20,000	20,000	20,000	3,700	3,700	3,700
WI	79,000	79,000	79,000	17,300	17,100	16,900
WY	9,200	9,200	9,200	34,600	34,600	34,600
US	2,107,840	2,083,430	2,064,720	978,503	976,463	973,403

—Continued

Table 2-2 continued.

Number of farms and land in farms: by State and United States, June 1, 1992-97[1] (continued)

	Farms			Land in farms		
	1995	1996	1997	1995	1996	1997
	Number of farms			1,000 Acres		
AL	47,000	45,000	45,000	10,200	9,800	9,700
AK	520	510	510	920	920	920
AZ	7,400	7,500	7,500	35,400	35,400	35,400
AR	43,000	43,000	42,500	15,000	15,000	14,800
CA	80,000	82,000	84,000	30,000	30,000	30,000
CO	25,000	24,500	24,500	32,700	32,500	32,500
CT	3,800	3,800	3,900	380	380	380
DE	2,500	2,500	2,400	570	565	565
FL	39,000	40,000	40,000	10,300	10,300	10,300
GA	45,000	43,000	43,000	12,000	11,800	11,800
HI	4,800	4,600	4,600	1,590	1,590	1,590
ID	21,500	22,000	22,000	13,500	13,500	13,500
IL	77,000	76,000	76,000	28,100	28,100	28,000
IN	62,000	60,000	62,000	15,900	15,900	15,900
IA	100,000	98,000	98,000	33,200	33,200	33,200
KS	66,000	66,000	64,000	47,800	47,800	47,800
KY	89,000	88,000	88,000	14,000	14,000	13,900
LA	27,000	27,000	26,500	8,500	8,700	8,500
ME	7,600	7,400	7,300	1,350	1,340	1,340
MD	14,300	13,700	13,000	2,200	2,100	2,100
MA	6,000	6,200	6,200	570	570	570
MI	54,000	53,000	51,000	10,700	10,600	10,500
MN	87,000	87,000	87,000	29,800	29,800	29,800
MS	42,000	44,000	43,000	13,000	12,600	12,500
MO	105,000	104,000	102,000	30,000	30,000	29,900
MT	22,000	22,000	24,000	59,700	59,700	59,600
NE	56,000	56,000	55,000	47,000	47,000	47,000
NV	2,500	2,500	2,500	8,800	8,800	8,800
NH	2,300	2,400	2,400	440	430	430
NJ	9,000	9,200	9,400	850	840	830
NM	13,500	13,500	13,500	44,000	43,700	43,500
NY	36,000	36,000	36,000	7,700	7,700	7,700
NC	58,000	58,000	57,000	9,200	9,200	9,000
ND	32,000	31,000	30,500	40,300	40,300	40,200
OH	74,000	72,000	73,000	15,200	15,100	15,100
OK	71,000	72,000	73,000	34,000	34,000	34,000
OR	38,500	38,500	37,500	17,500	17,500	17,500
PA	50,000	50,000	50,000	7,700	7,700	7,700
RI	700	700	700	63	63	63
SC	22,000	21,500	21,500	5,050	5,000	5,000
SD	33,000	32,500	32,500	44,000	44,000	44,000
TN	81,000	80,000	80,000	12,000	11,800	11,800
TX	202,000	205,000	205,000	129,000	127,000	129,000
UT	13,400	13,400	13,400	11,100	11,000	11,000
VT	6,000	6,000	6,000	1,370	1,350	1,350
VA	47,000	48,000	47,000	8,600	8,600	8,500
WA	36,000	36,000	36,000	15,800	15,700	15,700
WV	20,000	20,000	20,000	3,700	3,700	3,700
WI	80,000	79,000	79,000	16,900	16,800	16,800
WY	9,200	9,100	9,100	34,600	34,600	34,600
US	2,071,520	2,063,010	2,057,910	972,253	968,048	968,338

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or normally would be sold during the year. Source: USDA/ National Agricultural Statistics Service, *Farms and Land in Farms.*

Table 2-3.

Percent of farms and land in farms: by economic sales class, United States, 1996-97[1, 2]

Economic class (gross value of sales)	Percent of total				Average size of farms (acres)	
	Farms		Land			
	1996	1997	1996	1997	1996	1997
$1,000 - $2,499	22.6	23.6	3.0	3.2	62	64
$2,500 - $4,999	14.3	14.2	3.1	3.2	102	106
$5,000 - $9,999	12.6	12.3	4.5	4.3	168	164
$10,000 - $19,999	11.4	11.0	6.5	6.2	268	265
$20,000 - $39,999	10.2	9.9	9.8	9.6	452	456
$40,000 - $99,999	12.6	12.1	19.9	19.0	742	739
$100,000 - $249,999	10.1	10.0	25.2	24.0	1,173	1,129
$250,000 - $499,999	3.8	4.1	12.9	14.0	1,596	1,607
$500,000 +	2.4	2.8	15.1	16.5	2,957	2,773
Total	100.0	100.0	100.0	100.0	470	471

[1]A farm is any establishment from which $1,000 or more of agricultural products were sold or normally would be sold during the year. Source: U.S. Department of Agriculture, National Agricultural Statistics Service.
[2]1996 estimates are for a June 1 reference date. 1997 estimates are for the entire year.

commodity and conservation programs has ranged from none in 1980 and 1981 to 78 million acres in 1983 and 1988. Crop failure generally varies within a range of 5-11 million acres per year. The noticeable differences are often the result of weather conditions such as the drought in 1988, or the flood and wet weather at planting time in 1993.

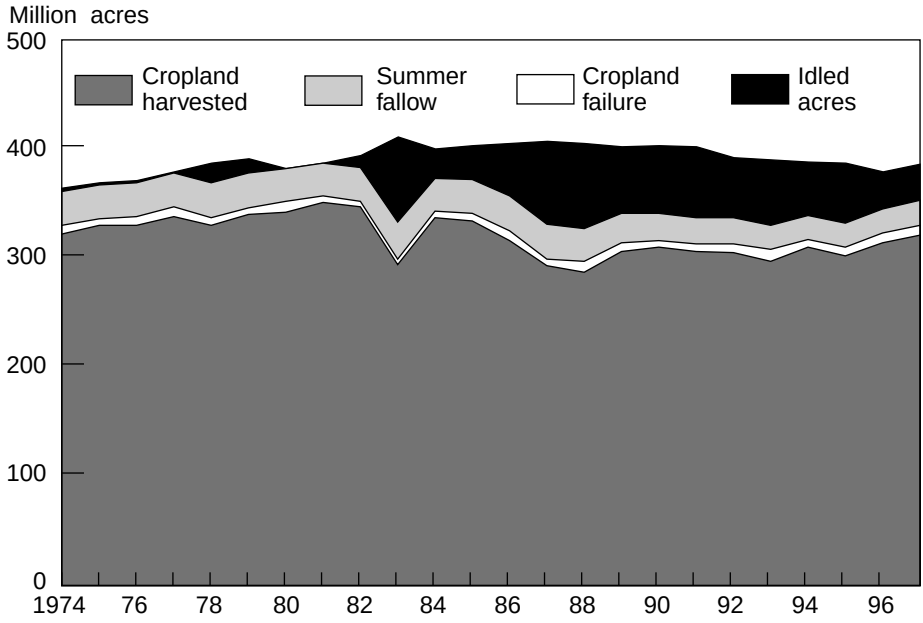
In 1983, the sharp decline in cropland harvested was the result of "PIK" payment-in-kind), a USDA land retirement program that paid for the land retirement with surplus commodities. The idle acreage in 1983 included nearly 49 million acres in the PIK program and more than 29 million acres in the Acreage Reduction Programs and Paid Land Diversion programs.

Acreage Harvested of Major Crops

The harvested acreage of corn in recent years has varied from 51.5 million acres in 1983 to 75.2 million acres in 1985. Wheat acreage has ranged between a high of 80.6 million acres in 1981 to a low of 53.2 million acres in 1988. Barley and oat acreage harvested have been declining since the early 1970's. Acreage has tended to shift away from barley and oats to the more profitable crops. Soybean acreage harvested has fluctuated as the relative prices of soybeans and corn changed and as prices for soybeans in the world market were more or less favorable. Soybean harvested acreage in 1997 of nearly 70 million acres was the second highest on record. Increased planting flexibility provided under the Federal Agriculture Improvement and Reform Act of 1996, as well as favorable relative prices, caused many farmers to expand soybean plantings in 1997.

Figure 2-2.

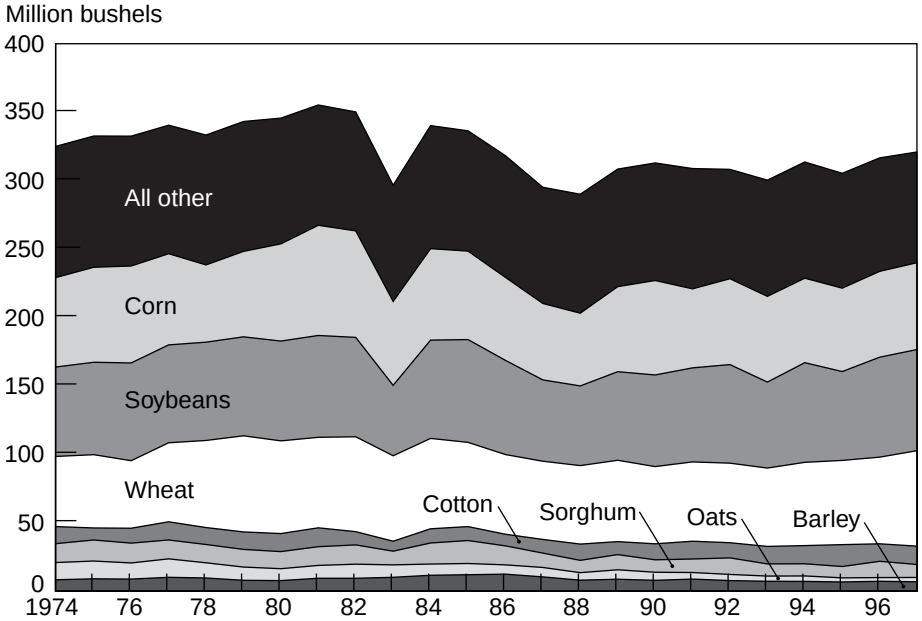
Major uses of U.S. cropland, 1974-97



Note: 1997 figures are preliminary.

Figure 2-3.

Cropland harvested of major crops



Foreign Ownership of U.S. Farmland

Foreign ownership of U.S. agricultural land remained relatively steady from 1981 through 1997—slightly above or below 1 percent of the privately owned agricultural land in the United States.

At the end of 1997, foreign persons owned 14.3 million acres—slightly more than 1 percent of the 1.3 billion acres of privately owned U.S. agricultural land (farm and forest land).

Forest land accounts for 45 percent of all foreign-owned acreage, cropland for 17 percent, pasture and other agricultural land for 35 percent, and nonagricultural land for 3 percent.

Corporations own 79 percent of the foreign-held acreage, partnerships own 12 percent, and individuals own 6 percent. The remaining 3 percent is held by estates, trusts, institutions, associations, and others.

About 61 percent of the reported foreign holdings involve land actually owned by U.S. corporations. The law requires them to register their land holdings as foreign if as little as 10 percent of their stock is held by foreign investors. The remaining 39 percent of the foreign-held land is owned by investors not affiliated with U.S. firms.

A total of 57 percent of foreign-held acreage is owned by investors (including individuals, corporations, partnerships, etc.) from Canada, the United Kingdom, Germany, and France (in descending rank order).

Maine is the State with the largest number of acres (3,037,198) owned by foreign persons. Foreign holdings in Maine account for 17 percent of that States's privately owned agricultural land and 21 percent of all the reported foreign-owned agricultural land nationwide. Four companies own 91 percent of the foreign-held acres in Maine, almost all in forest land. Two of these companies are Canadian, one is a U.S. corporation that is partially French owned, and the fourth is a U.S. corporation that is partially Canadian owned. Outside of Maine, foreign holdings are concentrated in the West and South, each containing 32 percent of all reported foreign holdings of U.S. agricultural land.

These findings are based on reports submitted to USDA under the Agricultural Foreign Investment Disclosure Act of 1978.

Table 2-4.

U.S. agricultural landholdings by country of foreign owner, December 31, 1997

Interests excluding U.S. corporations with foreign shareholders

Country	*Acres*	*Country*	*Acres*
	Number		*Number*
Argentina	12,668	Kuwait	20,188
Australia	8,259	Laos	31
Austria	17,072	Lebanon	12,584
Bahamas	36,310	Liberia	31,091
Bahrain	0	Liechtenstein	133,237
Belgium	66,085	Luxembourg	3,080
Belize	549	Malaysia	7,948
Bermuda	73,560	Mexico	181,343
Bolivia	11	Morocco	1,035
Brazil	10,336	Namibia	106
British Virgin Islands	180,979	Nepal	68
Canada	1,843,244	Netherlands	111,942
Cayman Islands	34,173	Netherlands Antilles	346,092
Chile	2,055	New Zealand	14,011
China	833	Nicaragua	1,378
Colombia	11,601	Norway	4,084
Costa Rica	13,835	Oman	454
Croatia	160	Pakistan	1,366
Cuba	58	Panama	119,421
Cyprus	516	Peru	308
Czech Republic	347	Philippines	3,938
Denmark	13,766	Poland	147
Dominican Republic	2,108	Portugal	4,146
Ecuador	951	Russia	782
Egypt	1,562	St. Vincent	2,637
El Salvador	128	Saudi Arabia	31,956
Finland	80	Senegal	10
France	129,878	Singapore	504
Gambia	294	Somalia	11
Germany	756,498	South Africa	2,673
Gibraltar	678	Spain	5,593
Greece	60,091	Sweden	56,806
Guatemala	1,102	Switzerland	295,842
Guyana	35	Syria	2,689
Honduras	1,018	Taiwan	8,852
Hong Kong	12,442	Tanzania	10,143
Hungary	103	Thailand	1,835
India	1,834	Trinidad & Tobago	94
Indonesia	1,423	Turkey	38
Iran	2,343	Turks Island	3,292
Ireland	10,406	United Arab Emirates	2,678
Israel	951	United Kingdom	503,843
Italy	39,181	Uruguay	10,807
Ivory Coast	119	Venezuela	21,689
Jamaica	567	Vietnam	152
Japan	207,367	Zimbabwe	230
Jordan	1,580	Multiple 1/	51,295
Kampuchea	31	Third tier 2/	13,498
Korea (South)	1,696		
		Subtotal 3/	5,586,830

See footnotes at end of table.

—Continued

Table 2-4—continued.

U.S. agricultural landholdings by country of foreign owner, December 31,1997

U.S. corporations with foreign shareholders

Country	*Acres*	*Country*	*Acres*
	Number		*Number*
US/Andorra	3,741	US/Lebanon	411
US/Argentina	4,056	US/Liberia	24,644
US/Australia	5,064	US/Libyan Arab Republic	280
US/Austria	50,574	US/Liechtenstein	107,570
US/Bahamas	66,269	US/Luxembourg	270,725
US/Barbados	41	US/Malaysia	300
US/Belgium	94,000	US/Malta	500
US/Bermuda	11,528	US/Mexico	256,586
US/Brazil	13,119	US/Namibia	92
US/Brit. Virgin Islands	302,715	US/Netherlands	370,911
US/Canada	1,869,009	US/Netherlands Antilles	208,887
US/Cayman Islands	32,274	US/New Hebrides	883
US/Chile	9,948	US/New Zealand	49,403
US/China	13,091	US/Nicaragua	282
US/Colombia	13,740	US/Norway	9,709
US/Costa Rica	807	US/Pakistan	423
US/Denmark	8,318	US/Panama	127,291
US/Dominican Republic	589	US/Paraguay	236
US/Ecuador	1,632	US/Peru	1,253
US/Egypt	3,061	US/Philippines	8,790
US/El Salvador	607	US/Portugal	1,683
US/Finland	195,057	US/Qatar	219
US/France	1,132,190	US/Saudi Arabia	11,598
US/Germany	882,256	US/Singapore	92,191
US/Greece	5,249	US/South Africa	6,862
US/Guatemala	412	US/Spain	16,957
US/Guyana	334	US/Sweden	7,937
US/Honduras	37	US/Switzerland	340,764
US/Hong Kong	130,498	US/Taiwan	46,148
US/Indonesia	644	US/Thailand	252
US/Iran	1,861	US/Trinidad & Tobago	20
US/Iraq	800	US/Turkey	753
US/Ireland	2,126	US/United Arab Emirates	4,747
US/Israel	414	US/United Kingdom	1,090,384
US/Italy	109,211	US/Uruguay	695
US/Japan	322,744	US/Venezuela	40,370
US/Jordan	434	US/Multiple	177,541
US/Kenya	32	US/Third Tier	173,755
US/Korea (South)	85		
US/Kuwait	8,330	Subtotal 4/	8,748,949
		Total all landholdings	14,335,779

[1]A report is processed as “multiple” when no single country predominates—for example, an equal partnership between a Canadian and a German.
[2]A report is processed as “third tier” if three or more levels of ownership are reported with no foreign interests stated.
[3]Total interests excluding U.S. corporations with foreign shareholders.
[4]Total interest of U.S. corporations with foreign shareholders.

Source: USDA, ERS, Agricultural Foreign Investment Disclosure Act (AFIDA) data.

Table 2-5.

U.S. agricultural landholdings of foreign owners, by State, December 31, 1997

State or Territory	*Foreign-owned agricultural land*	*State or Territory*	*Foreign-owned agricultural land*	*State or Territory*	*Foreign-owned agricultural land*
	Acres		*Acres*		*Acres*
Alabama	608,065	Louisiana	346,993	Oklahoma	59,676
Alaska	195	Maine	3,037,198	Oregon	232,915
Arizona	351,571	Maryland	51,694	Pennsylvania	103,669
Arkansas	156,796	Massachusetts	2,643	Puerto Rico	839
California	937,430	Michigan	315,548	Rhode Island	17
Colorado	728,140	Minnesota	222,835	South Carolina	176,671
Connecticut	1,216	Mississippi	201,050	South Dakota	41,747
Delaware	5,878	Missouri	71,291	Tennessee	91,356
Florida	682,402	Montana	491,084	Texas	1,209,759
Georgia	504,564	Nebraska	74,881	Utah	58,476
Hawaii	180,073	Nevada	436,190	Vermont	84,490
Idaho	22,920	New Hampshire	18,919	Virginia	129,474
Illinois	202,607	New Jersey	23,198	Washington	192,180
Indiana	98,539	New Mexico	786,463	West Virginia	176,225
Iowa	32,923	New York	286,445	Wisconsin	33,472
Kansas	63,979	North Carolina	233,001	Wyoming	235,539
Kentucky	119,617	North Dakota	24,081		
		Ohio	188,845	Total	14,335,779

Source: USDA, ERS, Agricultural Foreign Investment Disclosure Act data.

3. The U.S. Farm Sector

Farm Labor

Labor use on U.S. farms has changed dramatically over the past several decades. Average annual farm employment dropped from 9.9 million in 1950 to 2.9 million in 1997. This decrease resulted largely from the trend toward fewer and larger farms, increased farm mechanization and other technological innovations, and higher off-farm wages. However, farm employment appears to have stabilized in recent years as increases in mechanization and labor-saving technology have leveled off and the downward trend in farm numbers has slowed.

Family workers, including farm operators and unpaid workers, accounted for 69 percent of farm labor in 1997, while hired farmworkers accounted for 31 percent. Service workers, including crew leaders and custom crews, accounted for 9 percent of all workers on farms in 1997.

The average wage rate for hired farmworkers in the United States in 1997 was $7.36 per hour. Wages varied by State, ranging from a low of $5.69 per hour in Wyoming to a high of $10.13 per hour in Hawaii.

Labor comprises a significant portion of total farm production expenses. The 1992 Census of Agriculture reported the expenditures for hired and contract labor on U.S. farms were $15.3 billion in 1992, or almost 12 percent of total farm production expenses. About 36 percent of all farms had hired labor expenses and 12 percent had contract labor expenses.

The importance of labor varied significantly by farm type and size of farm. The proportion of total farm production expenses attributed to hired and contract labor was greatest on horticultural specialty farms (45 percent), fruit and tree nut farms (40 percent), and vegetable and melon farms (37 percent). These types of farms are the least mechanized, and many of the commodities they produce are still harvested by hand. At the other extreme, labor expenses comprised less than 5 percent of all production expenses on beef cattle, hog, sheep, poultry, and cash grain farms.

Larger farms are more likely to have labor needs in excess of that provided by the family farm. Farms of 260 or more acres, which accounted for only 32 percent of all farms, had 70 percent of all labor expenses in 1992. In terms of sales class, the 27 percent of all farms with $50,000 or more in value of products sold accounted for 95 percent of all labor expenses.

Agricultural Credit

Farm business debt at the end of 1996 was $156.2 billion, up $5.1 billion from 1995. Farm real estate debt rose $2.4 billion from 1995 to $81.9 billion at the end of 1996. Farm business non-real-estate debt was $74.2 billion at the end of 1996, up 4 percent from 1995. The increase in farm debt in 1996 is slightly higher than the recent trend of modest growth in outstanding loan balances.

Farmers and lenders, despite concern about reduced short-term profitability in some livestock enterprises, maintain confidence in the long-run profitability of agriculture. The availability and use of credit play a significant role in the sustained profitability of farm enterprises. In this regard, a symbiotic relationship exists between agricultural producers and their lenders; the health of one depends on the condition of the other.

Loans made to agricultural producers are classified as real estate and non-real-estate loans in the farm sector accounts. Real estate loans generally have terms of 10 to 40 years, and are ordinarily used to purchase farmland or to make major capital improvements to farm property. Non-real-estate loans are typically made for loan terms of less than 10 years, with the term depending on the purpose of the loan. Seasonal operating loans are made for less than 1 year, while loans to purchase machinery and equipment or livestock may run for 7 years or more.

At the end of 1996, the Farm Credit System held $25.8 billion in farm business real estate loans and $14 billion in non-real-estate loans. In total, the Farm Credit System held about 25 percent of farm business loans. While the Farm Credit System has lagged behind commercial banks in increasing loan balances and in gaining market share, it continues to report improved financial performance. Favorable interest rate spreads improved their earnings during 1990-96. Improved borrower financial conditions have translated into improved Farm Credit System performance.

Commercial banks held about 40 percent of all farm business debt by the end of 1996, accounting for $23.4 billion in real estate loans (28 percent of total) and $39.8 billion in nonreal estate debt (52 percent). Life insurance companies maintained their presence in the agricultural credit market, as their total farm business debt rose slightly to $9.5 billion, giving them a 12-percent share of the farm business mortgage market. Farm Service Agency (which includes part of the former Farmers Home Administration) direct loans to farm businesses dropped by $1 billion in 1996. The "Individuals and others" classification is composed primarily of sellers financing the sale of farmland, input suppliers, farm machinery finance corporations, and some minor lending agencies. These accounted for $18 billion in real estate loans and $17.4 billion in non-real-estate loans at the end of 1996.

Table 3-1.

Farm business debt, selected years

	Farm debt outstanding, December 31											
	1950	*1960*	*1970*	*1980*	*1985*	*1990*	*1991*	*1992*	*1993*	*1994*	*1995*	*1996*
Real estate debt:					*$ Billion*							
Farm Credit System	0.8	2.2	6.4	33.2	42.2	26.0	25.4	25.5	25.0	24.7	24.9	25.8
Life insurance companies	1.1	2.7	5.1	12.0	11.3	9.7	9.6	8.8	9.0	9.0	9.1	9.4
Banks	0.8	1.4	3.3	7.8	10.7	16.3	17.5	18.8	19.7	21.2	22.4	23.4
Farm Service Agency	0.2	0.6	2.2	7.4	9.8	7.7	7.1	6.4	5.9	5.5	5.1	4.7
Individuals and others	2.1	4.5	10.5	29.3	28.1	15.2	15.7	16.1	16.8	17.6	18.1	18.5
Total	5.2	11.3	27.5	89.7	100.1	74.9	75.1	75.6	76.3	78.0	79.6	81.9
Non-real-estate debt:												
Banks	2.4	4.7	10.5	30.0	33.7	31.3	32.9	32.9	34.9	36.7	37.7	38.3
Farm Credit System	0.5	1.5	5.3	19.8	14.0	9.8	10.2	10.3	10.5	11.2	12.5	14.0
Farm Service Agency	0.3	0.4	0.7	10.0	14.7	9.4	8.2	7.1	6.2	6.0	5.1	4.4
Individuals and others	2.5	4.5	4.8	17.4	15.1	12.7	13.0	13.2	14.2	15.2	16.2	17.4
Total	5.7	11.1	21.3	77.1	77.5	63.2	64.3	63.6	65.9	69.1	71.5	74.2
Total, all	10.9	22.4	48.8	166.8	177.6	138.1	139.4	139.3	142.2	147.1	151.0	156.2

Source: USDA, Economic Research Service, Resource Economics Division.

The Balance Sheet

Farm business asset values are estimated to have totaled $1,034.9 billion on December 31, 1996, an increase of 5 percent over the preceding year. Farm business debt rose 3 percent during 1996, totaling $156.2 billion at year's end. As a result, farm business equity is estimated to have risen 3 percent. Average equity per farm on December 31, 1996, is estimated to have been $426,000.

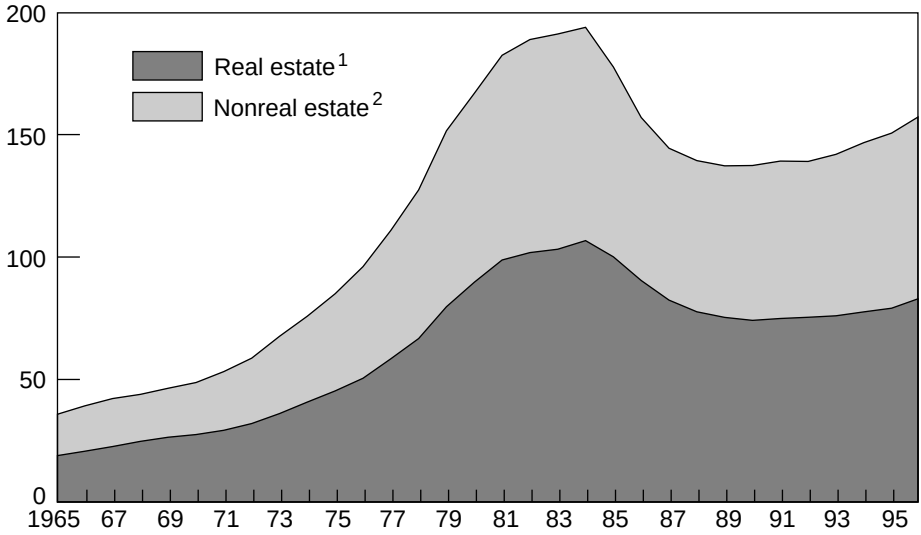
The resulting debt-to-asset ratio for 1996 (expressed as a percentage) decreased from 15.3 to 15.1. This ratio is substantially below the peak of 24 percent reached in 1985.

Real estate assets accounted for 78 percent of the value of farm business assets at the end of 1996. Real estate assets were expected to have increased 6 percent during the year. The average real estate value per farm was $390,000 on December 31, 1996.

Non-real-estate assets are estimated to have increased 2 percent during 1996. Decreases in value were for machinery and motor vehicles, purchased inputs, and financial assets. The value of crops stored, and of livestock and poultry were estimated to have increased in 1996.

Figure 3-1.

Farm business debt

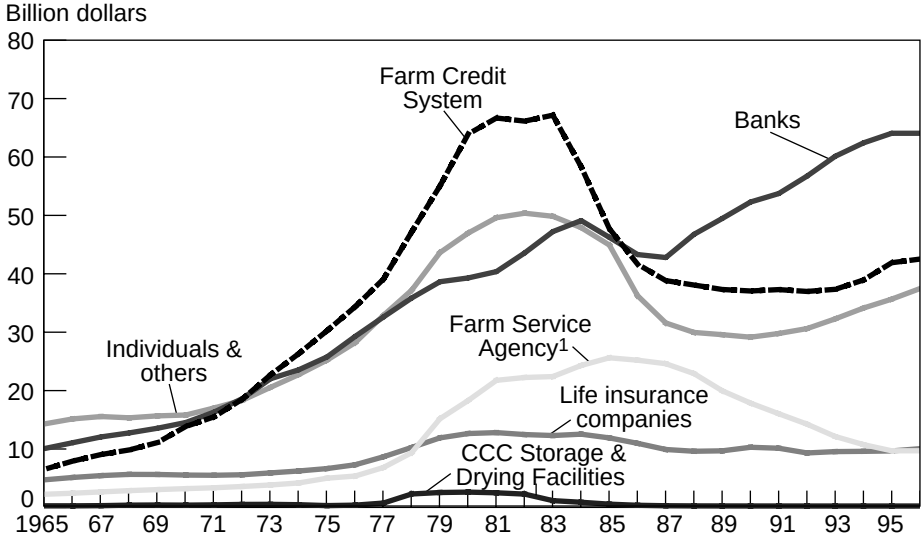


[1]Debt secured by farm real estate. [2]Debt for operating purposes.

Source: USDA, Economic Research Service, Resource Economics Division

Figure 3-2.

Farm business debt by lender



[1] Includes the former Farmers Home Administration's loans.
Individuals and others include Commodity Credit Corporation real estate loans.

Source: USDA, Economic Research Service, Resource Economics Division.

Farm business real estate debt increased slightly in 1996, standing at $81.9 billion at the end of the year. Non-real-estate debt rose 4 percent to $74.2 billion. On December 31, 1996, commercial banks held 40 percent of farm business debt, and the Farm Credit System held 26 percent.

Table 3-2.

Farm business assets, debt, and equity [1]

Item	*1960*	*1970*	*1980*	*1990*	*1996*
		Billion			
Assets	171.0	273.0	965.9	819.7	1,034.9
Real estate	123.3	202.4	782.8	623.3	805.4
Nonreal estate [2]	47.7	70.6	183.0	196.4	229.5
Debt	22.4	48.8	166.8	138.1	156.2
Real estate [3]	11.3	27.5	89.7	74.9	81.9
Nonreal estate [4]	11.1	21.2	77.1	63.2	74.2
Equity (assets minus debt)	148.6	224.3	799.0	681.5	878.7

[1]As of December 31. [2]Crop inventory value is value of non-CCC crops held on farms plus value above loan rate for crops held under CCC. [3]Includes CCC storage and drying facilities loans. [4]Excludes value of CCC crop loans.
Source: USDA, Economic Research Service, Resource Economics Division.

Net Value-Added, Net Farm Income, and Net Cash Income

Net value-added and net farm income reached record levels in 1996, rising substantially from 1995. **Net value-added** for 1996 was $19.1 billion more than in 1995, up 25 percent, and $9.5 billion greater than its previous high in 1994. Net value-added represents the total value of the farm sector's output of goods and services (less payments to other, nonfarm, sectors of the economy) and production agriculture's addition to national output.

The $22.6-billion rise in final output (crop output, animal output, and services and forestry) far exceeded the $3.4 billion increase in out-of-pocket costs in 1996. The value of 1996 crop output soared $17 billion, reflecting rebounds in both acreage and yield for major crops, both of which had declined in 1995, following 1994's record harvest. The total value of livestock production in 1996 was $4.4 billion higher than the previous year, the first increase in 3 years. Substantial increases in the sales of hogs, poultry, and dairy products more than offset a $4-billion decline in cattle sales.

Compensation to hired workers was 6.1 percent more than in 1995 and interest expenses increased by 3.9 percent. The earnings of nonoperator landlords were up 19.3 percent in 1996.

Net farm income, which jumped $15.4 billion from 1995 to 1996, is that portion of net value-added earned by farm operators (defined as those individuals and entities who share in the risks of production). In fact, the major share of the 1996 increment to net value-added accrued to farm operators. Typically it is farm operators who ben-

efit most from the increases and absorb most of the declines arising from short-term, unanticipated weather and market conditions. However, due to the rise in earnings of farm employees, lenders, and landlords, net farm income rose less in 1996 than the increase in overall net value-added.

Net cash income rose by $8.8 billion, a 17.1-percent increase from 1995 to 1996. Net cash income reflects the cash earnings generated by the farm business which are available for debt servicing, capital purchases, and distribution to farm households to cover family living expenses. Net cash income, unlike net farm income, does not include the value of home consumption, changes in inventories, capital replacement, or implicit rent and expenses related to the farm operator's dwelling. These categories do not reflect cash transactions during the current year.

Farm Household Income

Farm operators have been surveyed through the annual Agricultural Resource Management Study (formerly the Farm Costs and Returns Survey) about the finances and production on their farms since 1985. Beginning in 1988 USDA collected additional information about the operators' households. In 1996, the most recent year for which the survey data are available, about 98 percent of farms were covered in the household definition. Included are those run by individuals, legal partnerships, and family corporations. Nonfamily corporations, cooperatives, and institutional farms are not included in the household definition.

Like many other U.S. households, farm households receive income from a variety of sources, one of which is farming. The 1996 average household income for farm operators households was $50,360, which is on par with the average U.S. household. About 84 percent of the average farm operator's household income comes from off-farm sources, and many operators spent most of their work efforts in occupations other than farming. Off-farm income includes earned income such as wages and salaries from an off-farm job and net income from an off-farm business. Off-farm income also includes unearned income, such as interest and dividends, and Social Security.

For the majority of farm operator households, off-farm income is critical. Most U.S. farms are small (less than $50,000 in gross sales) and are run by households that depend mainly on off-farm income. About 39 percent of operators with small farms reported a nonfarm major occupation in 1996, and another 27 percent were retired. Most operators of larger farms reported farming as their major occupation, and their households were more likely to depend on farm income. In 1996, slightly more than a quarter of farm households operated commercial-size farms with sales of more than $50,000. These households provided most of U.S. farm production. However, even in households with the largest farms (sales of at least $500,000), off-farm income averaged $34,950 per household.

Average household income and dependence on off-farm income also vary among types of farm households. For example, 6 percent reported negative household income for 1996. On average, these households lost $36,060 from farming during the year. About 28 percent had household income of $50,000 or more, with farm income

Table 3-3.

Value added to the U.S. economy by the agricultural sector via the production of goods and services, 1993-96[1]

Item	1993	1994	1995	1996	Year-to-year change Amount	Year-to-year change Percent
			$ Million			Percent
Final crop output	81,967	100,286	96,655	113,512	16,857	17.4
Food grains	8,180	9,545	10,417	11,550	1,133	10.9
Feed crops	20,211	20,351	24,282	28,114	3,831	15.8
Cotton	5,250	6,738	6,851	7,461	610	8.9
Oil crops	13,220	14,657	15,466	17,756	2,290	14.8
Tobacco	2,948	2,656	2,548	2,796	248	9.7
Fruits and tree nuts	10,284	10,335	11,074	11,714	640	5.8
Vegetables	13,435	13,902	14,891	14,349	(542)	(3.6)
All other crops	13,953	14,895	15,170	15,686	515	3.4
Home consumption	69	72	104	92	(13)	(12.3)
Value of inventory adjustment [2]	(5,582)	7,135	(4,149)	3,996	8,145	
Final animal output	91,691	89,682	87,617	91,963	4,346	5.0
Meat animals	50,823	46,785	44,828	44,382	(445)	(1.0)
Dairy products	19,243	19,935	19,894	22,834	2,940	14.8
Poultry and eggs	17,326	18,445	19,069	22,326	3,258	17.1
Miscellaneous livestock	2,779	2,995	3,214	3,371	158	4.9
Home consumption	451	409	365	333	(32)	(8.8)
Value of inventory adjustment [2]	1,070	1,112	248	(1,284)	(1,532)	
Services and forestry	16,583	17,882	19,375	20,737	1,362	7.0
Machine hire and customwork	1,865	2,071	1,928	2,154	226	11.7
Forest products sold	2,555	2,743	2,939	2,918	(21)	(0.7)
Other farm income	4,609	4,392	5,213	5,894	680	13.0
Gross imputed rental value of farm dwellings	7,554	8,676	9,294	9,771	477	5.1
Final agricultural sector output	190,241	207,849	203,647	226,212	22,565	11.1
LESS: Intermediate consumption outlays	100,565	104,906	109,011	112,387	3,376	3.1
Farm origin	41,194	41,277	41,628	42,495	867	2.1
Feed purchased	21,431	22,631	23,829	25,234	1,405	5.9
Livestock and poultry purchased	14,597	13,270	12,335	11,148	(1,187)	(9.6)
Seed purchased	5,165	5,376	5,463	6,112	649	11.9
Manufactured inputs	23,147	24,398	26,175	28,393	2,218	8.5
Fertilizers and lime	8,398	9,180	10,033	10,934	901	9.0
Pesticides	6,723	7,225	7,726	8,525	799	10.3
Petroleum fuel and oils	5,350	5,312	5,448	5,736	289	5.3
Electricity	2,676	2,682	2,968	3,198	230	7.7
Other intermediate expenses	36,225	39,230	41,208	41,499	291	0.7
Repair and maintenance of capital items	9,193	9,083	9,458	10,304	845	8.9
Machine hire and customwork	4,420	4,790	4,792	4,692	(100)	(2.1)
Marketing, storage, transportation expenses	5,648	6,821	7,180	6,818	(363)	(5.0)
Contract labor	1,771	1,805	1,969	2,129	160	8.1
Miscellaneous expenses	15,192	16,731	17,808	17,557	(251)	(1.4)
PLUS: Net government transactions	6,863	974	74	30	(45)	(60.3)
+ Direct Government payments	13,402	7,879	7,253	7,286	32	0.4
- Motor vehicle registration and licensing fees	362	415	462	428	(33)	(7.3)
- Property taxes	6,177	6,490	6,717	6,828	111	1.6
Gross value added	96,539	103,918	94,711	113,854	19,144	20.2
LESS: Capital consumption	18,378	18,688	18,914	18,930	15	0.1
Net value added	78,161	85,230	75,796	94,925	19,128	25.2
LESS:Factor payments	35,066	36,958	39,057	42,730	3,673	9.4
Employee compensation (total hired labor)	13,235	13,503	14,347	15,219	872	6.1
Net rent received by nonoperator landlords	11,009	11,720	11,984	14,293	2,309	19.3
Real estate and non-real-estate interest	10,822	11,735	12,726	13,218	492	3.9
Net farm income	43,095	48,271	36,739	52,194	15,455	42.1

[1]Final sector output is the gross value of the commodities and services produced within a year. Net value added is the sector's contribution to the national economy and is the sum of the income from production earned by all factors of production. Net farm income is the farm operators' share of income from the sector's production activities. The concept presented is consistent with that employed by the Organization for Economic Cooperation and Development.

[2]A positive value of inventory change represents current-year production not sold by December 1. A negative value is an offset to production from prior years included in current-year sales.

Source: USDA,Economic Research Service, Resource Economics Division.

Table 3-4

Farm income indicators, U.S., 1993-96

Item	1993	1994	1995	1996	Year-to-year change Amount	Year-to-year change Percent
			$ Million			Percent
Gross farm income	203,643	215,728	210,901	233,498	22,597	10.7
Gross cash income	200,081	198,324	205,037	220,590	15,553	7.6
Farm marketings	177,650	181,239	187,704	202,339	14,635	7.8
Crops	87,480	93,079	100,700	109,425	8,725	8.7
Livestock and products	90,170	88,160	87,004	92,914	5,910	6.8
Government payments	13,402	7,879	7,253	7,286	32	0.4
Farm-related income	9,029	9,206	10,080	10,966	885	8.8
Noncash income	8,073	9,157	9,764	10,196	432	4.4
Value of home consumption	519	481	469	425	(45)	(9.6)
Rental value of dwellings	7,554	8,676	9,294	9,771	477	5.1
Operator and other dwellings [1]	7,125	8,241	8,732	9,156	424	4.9
Hired laborer dwellings	429	434	563	615	52	9.3
Value of inventory adjustment	(4,512)	8,247	(3,901)	2,712	6,613	
Total production expenses	160,548	167,457	174,161	181,303	7,142	4.1
Intermediate product expenses	99,156	103,515	107,504	110,687	3,183	3.0
Farm origin	41,194	41,277	41,628	42,495	867	2.1
Feed purchased	21,431	22,631	23,829	25,234	1,405	5.9
Livestock and poultry purchased	14,597	13,270	12,335	11,148	(1,187)	(9.6)
Seed purchased	5,165	5,376	5,463	6,112	649	11.9
Manufactured inputs	23,147	24,398	26,175	28,393	2,218	8.5
Fertilizer and lime	8,398	9,180	10,033	10,934	901	9.0
Pesticides	6,723	7,225	7,726	8,525	799	10.3
Fuel and oil	5,350	5,312	5,448	5,736	289	5.3
Electricity	2,676	2,682	2,968	3,198	230	7.7
Other	34,816	37,840	39,701	39,799	98	0.2
Repair and maintenance	9,193	9,083	9,458	10,304	845	8.9
Other miscellaneous	25,623	28,757	30,242	29,495	(747)	(2.5)
Interest	10,822	11,735	12,726	13,218	492	3.9
Real estate	5,489	5,782	6,042	6,357	315	5.2
Non-real-estate	5,333	5,954	6,685	6,862	177	2.6
Contract and hired labor expenses	15,006	15,308	16,316	17,348	1,032	6.3
Net rent to nonoperator landlords [2]	11,009	11,720	11,984	14,293	2,309	19.3
Capital consumption	18,378	18,688	18,914	18,930	15	0.1
Property taxes	6,177	6,490	6,717	6,828	111	1.6
NET FARM INCOME [3]	43,095	48,271	36,739	52,194	15,455	42.1
Gross receipts of farms	196,518	207,487	202,169	224,341	22,173	11.0
Farm production expenses	156,490	162,981	169,348	176,064	6,716	4.0
Nonfactor payments	121,773	126,420	130,714	133,769	3,055	2.3
Intermediate product expenses	98,332	102,566	106,551	109,476	2,925	2.7
Capital consumption	16,164	16,321	16,312	16,187	(125)	(0.8)
Property taxes	5,506	5,727	5,882	5,977	96	1.6
Contract labor	1,771	1,805	1,969	2,129	160	8.1
Factor payments	34,717	36,561	38,634	42,295	3,661	9.5
Interest	10,473	11,338	12,303	12,783	479	3.9
Hired labor compensation	13,235	13,503	14,347	15,219	872	6.1
Net rent to nonoperator landlords	11,009	11,720	11,984	14,293	2,309	19.3
RETURNS TO OPERATORS [4]	40,027	44,506	32,821	48,277	15,457	47.1
Gross cash income	200,081	198,324	205,037	220,590	15,553	7.6
Cash expenses	141,247	147,600	153,860	160,649	6,789	4.4
Cash expenses, excluding net rent	128,883	134,501	140,483	144,952	4,469	3.2
Intermediate product expenses	98,332	102,566	106,551	109,476	2,925	2.7
Interest	10,473	11,338	12,303	12,783	479	3.9
Cash labor expenses	14,573	14,870	15,746	16,716	969	6.2
Property taxes	5,506	5,727	5,882	5,977	96	1.6
Net rent to nonoperator landlords [5]	12,364	13,099	13,377	15,697	2,321	17.3
NET CASH INCOME	58,834	50,724	51,178	59,941	8,763	17.1

[1] Value added to gross income. Value added to net farm income equals difference in net farm income and returns to operators.

[2] Includes landlord capital consumption.

[3] Statistics in and above the Net Farm Income line represent the farm sector, defined as including farm operators' dwellings located on farms. Statistics below the Net Farm Income line represent only the farm businesses to the exclusion of the operators' dwellings.

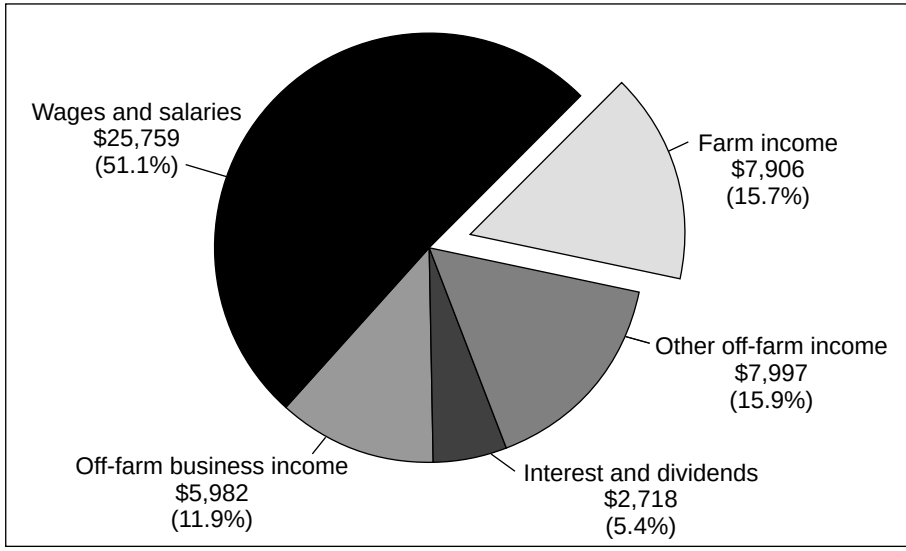
[4] Returns to operators is equivalent to net farm income excluding the income and expenses associated with farm operators' dwellings.

[5] Excludes landlord capital consumption.

Source: USDA/Economic Research Service, Resource Economics Division.

Figure 3-3.

Sources of income for average farm operator household, 1996

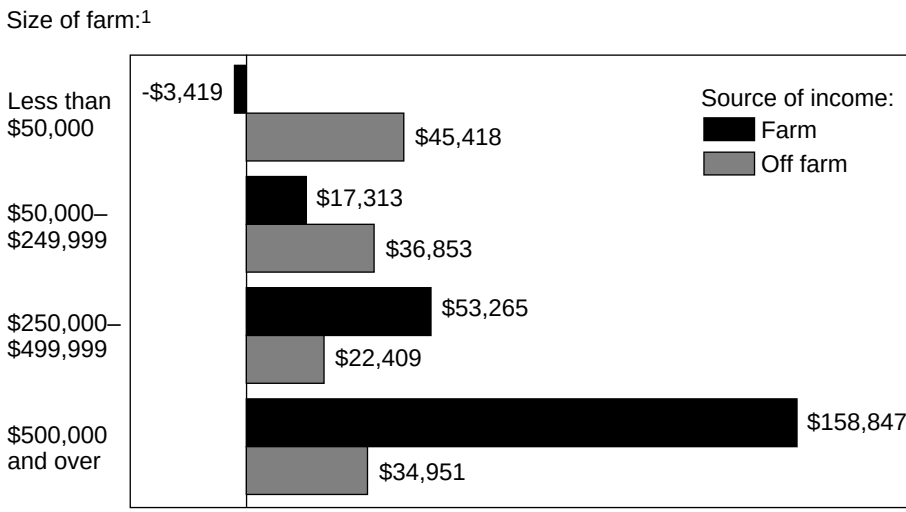


Source: USDA, Economic Research Service.

Resource Economics Division, 1996 Agricultural Resource Management Study.

Figure 3-4.

Average farm and off-farm income for farm operator households, by size of farm, 1996



[1] Based on gross value of farm sales, which includes farm businesses', share landlords', and production contractors' shares of agricultural production.

Source: USDA Economic Research Service, Resource Economics Division, 1996 Agriculture Resource Management Study.

Table 3-5.

Farm operator households and household income, by selected characteristics, 1996

Item	Number of households	Average household income [1]	Share from off-farm sources [2]
	Number	Dollars	Percent
All operator households	2,036,810	44,392	89.4
Household income class:			
Negative	170,331	(28,968)	(40.4)
0-$9,999	210,182	5,470	183.0
$10,000-$24,999	443,779	17,643	112.7
$25,000-$49,999	668,579	36,507	96.2
$50,000 and over	543,938	113,918	71.7
Operator's major occupation:			
Farm or ranch work	903,820	40,342	64.8
Other	797,718	53,425	108.9
Retired	335,272	33,815	94.9
Operator's age class:			
Less than 35 years	168,825	32,506	93.4
35-44 years	407,345	47,266	89.3
45-54 years	476,807	51,953	91.6
55-64 years	469,052	50,421	87.7
65 years or older	514,780	33,518	87.2
Operator's educational level:			
Less than high school	425,612	30,173	94.4
High school	819,087	41,479	87.3
Some college	443,374	48,726	85.8
College	348,736	63,075	93.1

[1]The household income of farm operator households includes the net cash farm income that accrues to the farm operation, less depreciation, as well as wages paid to household members for work on the farm, net income from farmland rentals, and net income from another farm business, plus all sources of off-farm income accruing to the household. In cases where the net income from the farm was shared by two or more households, the net cash income was allocated to the primary operator's household based on the share that the operator reported receiving.

[2] Income from off-farm sources is more than 100 percent of total household income if farm income is negative.

Source: USDA, Economic Research Service, Resource Economics Division, 1996 Agricultural Resource Management Study.

averaging $41,509. Among occupational categories, households of operators who reported occupations other than farming or retired had the highest average household income, largely from off-farm sources. Data on operators' age show that households associated with the oldest and youngest operators had the lowest average household income. Data on operators' educational level show significant increases in average income with each higher educational level.

Net Farm Income by State

Many of the 50 States experienced a recovery in net farm income in 1996 from the substantial declines of the prior year. In 1995, net farm income was down substantially in most States and particularly in the Corn Belt, Northern Plains, and the Southern Plains regions. A decrease in the value of crop output, compared to 1994's record harvest, accounted for most of the lower income in the Corn Belt and Northern Plains, while higher production expenses appear to be more responsible for the income change in the Southern Plains Region. In 1996, *net value-added from production* in the agricultural sector rose by $2.1 billion in Iowa, the most of any State. This was an increase of 45 percent, but seven additional States had percentage increases of at least that much: Missouri (89%), Illinois (61%), South Dakota (60%), North Dakota (59%), Minnesota (59%), Indiana (46%), and Nebraska (45%). Nationally, cash receipts from sales of corn, soybeans, hogs, and milk were each up by more than $2 billion in 1996 and are among the leading commodities in these eight States, with the exception of North Dakota. Located in the country's bread basket and geographically contiguous, the eight States accounted for 55 percent of the $15.6 billion increase in U.S. net farm income accruing to producers. Producers in North and South Dakota also benefitted from increased wheat sales.

California continues to lead the Nation in cash receipts and farm income by substantial amounts, reflecting both its substantial land mass and its commodity mix, which is heavily weighted towards commodities with high value of production per acre. California's net farm income in 1996 rebounded to $5.6 billion, up from $4.6 billion in 1995. Iowa with $4.0 billion, representing a gain of $1.8 billion, earned the second largest net farm income in 1996. Two additional States earned more than $3 billion in net farm income in 1996—North Carolina ($3.4) and Nebraska ($3.1), and five more States exceeded $2 billion—Texas, Illinois, Minnesota, Georgia, and Arkansas. In contrast, in 1995, only four States topped the $2 billion mark—California ($4.6), North Carolina ($2.7), Texas ($2.5), and Iowa ($2.2).

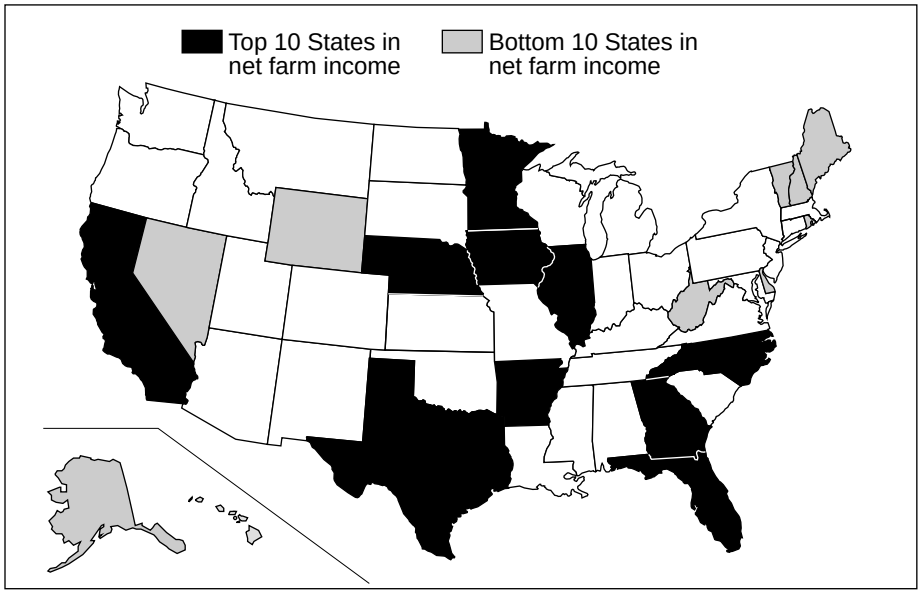
Florida, Kansas, and Washington round out the top dozen States in 1996 ranked by net farm income. These dozen States accounted for more than 60 percent of the Nation's net farm income. Of these States, only Florida failed to achieve a higher net farm income in 1996 than in the previous year. Collectively, net farm income for the top 12 States in 1996 was $9.6 billion above 1995. Illinois and Washington entered the top 12 grouping in 1996, displacing Kentucky and Ohio which had been ninth and twelfth in the 1995 ranking. Missouri, Illinois, Indiana, and Minnesota more than doubled their net farm income in 1996 over that earned in the previous year. An extensive set of value-added\farm income tables for States dating from 1949 is available on the ERS World Wide Web site *(www.econ.ag.gov).*

State Rankings by Cash Receipts

The top 10 States in cash receipts for all commodities in 1996 were California, Texas, Iowa, Nebraska, Illinois, Minnesota, Kansas, North Carolina, Florida, Wisconsin. The share of total cash receipts derived from crop or livestock sales varied greatly among these 10 top-ranked States.

Figure 3-5.

Net farm income, 1996



Source: USDA, Economic Research Service, Resource Economics Division

California led the Nation in crop sales with $17.1 billion, and was the top producing State for 8 of the sector's top 25 commodities: dairy products, greenhouse and nursery products, eggs, hay, grapes, tomatoes, lettuce, and almonds. California vaulted from third to first place in egg sales with a 27-percent rise in a single year. Three-quarters of California's farm sales were from crops; fruits and nuts 27 percent, vegetables 23 percent, and greenhouse and nursery 10 percent.

Florida's pattern of cash receipts is similar to California's, with vegetables, fruits and nuts, and greenhouse and nursery accounting for 69 percent of agricultural sales. By contrast, 60 percent of Texas' cash receipts were from livestock, and two-thirds of that was cattle and calves. More than 8 percent of the Nation's livestock sales value was attributed to Texas. Iowa's cash receipts are mostly opposite those of Texas, as crops comprise 58 percent of the total and livestock 42 percent. Feed grains and oilseeds represented 56 percent of Iowa's 1996 sales, while hogs accounted for 23 percent. Iowa leads the Nation in both corn and hog sales.

Cattle and calves remained the top ranked commodity in generation of cash receipts for 1996, even though their sales fell by $2.9 billion or 8.4 percent. In fact, the sales of cattle and calves have declined by $8.2 billion or 21 percent since 1993 due to lower prices. Texas led in cattle and calf receipts with $5.3 billion, down 1 billion dollars (15%) from the prior year. Nebraska ($4.1 billion) and Kansas ($4 billion) were the second and third leading producers of cattle. An extensive set of ranking tables is available on the ERS World Wide Web site *(www.econ.ag.gov).*

Table 3-6

States ranked by cash receipts, 1996 [1]

State	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
	Rank	Cash receipts	Rank	Cash receipts	Rank	Cash receipts	1	2	3	4	5
		Million dollars									
Alabama	26	3,174	15	2,363	34	811	Broilers	Cattle and calves	Cotton	Chicken eggs	Greenhouse/nur.
Alaska	50	29	50	6	50	23	Greenhouse/nur.	Dairy products	Potatoes	Hay	Cattle and calves
Arizona	32	2,146	31	839	27	1,308	Cattle and calves	Dairy products	Cotton	Lettuce	Cantaloups
Arkansas	11	5,887	9	3,357	14	2,530	Broilers	Soybean	Rice	Cotton	Chicken eggs
California	1	23,310	2	6,213	1	17,096	Dairy products	Greenhouse/nur.	Grapes	Cotton	Cattle and calves
Colorado	17	4,229	12	2,759	25	1,470	Cattle and calves	Wheat	Corn	Dairy products	Hogs
Connecticut	42	489	43	237	40	252	Greenhouse/nur.	Dairy products	Aquaculture	Chicken eggs	Cattle and calves
Delaware	39	757	37	573	44	184	Broilers	Soybean	Corn	Greenhouse/nur.	Dairy products
Florida	9	6,131	28	1,188	5	4,942	Oranges	Greenhouse/nur.	Cane for sugar	Dairy products	Tomatoes
Georgia	12	5,687	10	3,279	16	2,408	Broilers	Cotton	Peanuts	Chicken eggs	Greenhouse/nur.
Hawaii	44	483	48	66	38	417	Cane for sugar	Pineapples	Greenhouse/nur.	Macadamia nuts	Dairy products
Idaho	25	3,410	26	1,329	19	2,081	Potatoes	Dairy products	Cattle and calves	Wheat	Hay
Illinois	5	9,050	16	2,061	3	6,989	Corn	Soybean	Hogs	Cattle and calves	Dairy products
Indiana	14	5,558	20	1,895	9	3,663	Corn	Soybean	Hogs	Chicken eggs	Dairy products
Iowa	3	12,853	3	5,457	2	7,396	Corn	Hogs	Soybean	Cattle and calves	Dairy products
Kansas	7	7,869	5	4,570	11	3,299	Cattle and calves	Wheat	Corn	Sorghum grain	Soybean
Kentucky	22	3,550	21	1,719	21	1,831	Tobacco	Horses/mules	Cattle and calves	Corn	Soybean
Louisiana	31	2,342	34	687	23	1,655	Cotton	Cane for sugar	Soybean	Rice	Corn
Maine	43	485	42	262	42	224	Potatoes	Dairy products	Chicken eggs	Aquaculture	
Maryland	36	1,534	30	901	35	633	Broilers	Greenhouse/nur.	Dairy products	Corn	Soybean
Massachusetts	45	478	46	109	39	369	Greenhouse/nur.	Cranberries	Dairy products	Apples	Sweet corn
Michigan	20	3,643	25	1,448	18	2,195	Dairy products	Corn	Greenhouse/nur.	Soybean	Cattle and calves
Minnesota	6	8,809	8	4,168	6	4,641	Corn	Soybean	Dairy products	Hogs	Cattle and calves
Mississippi	24	3,463	19	1,934	24	1,529	Broilers	Cotton	Soybean	Aquaculture	Chicken eggs
Missouri	16	4,950	13	2,450	15	2,500	Soybean	Corn	Hogs	Cattle and calves	Broilers
Montana	33	2,027	32	797	29	1,230	Wheat	Cattle and calves	Barley	Hay	Sugar beets
Nebraska	4	9,454	4	5,277	7	4,177	Cattle and calves	Corn	Hogs	Soybean	Wheat

—continued

Table 3-6

States ranked by cash receipts, 1996[1] (continued)

State	Total		Livestock and products		Crops		State's top ranking commodities by value of cash receipts				
	Rank	Cash receipts	Rank	Cash receipts	Rank	Cash receipts	1	2	3	4	5
		Million dollars									
Nevada	47	286	45	153	45	133	Cattle and calves	Hay	Dairy products	Potatoes	Onions
New Hampshire	48	161	47	72	47	89	Dairy products	Greenhouse/nur.	Apples	Cattle and calves	Sweet corn
New Jersey	38	801	44	196	36	605	Greenhouse/nur.	Dairy products	Peaches	Blueberries	Chicken eggs
New Mexico	34	1,709	27	1,197	37	512	Cattle and calves	Dairy products	Hay	Chili peppers	Onions
New York	27	3,043	17	2,045	31	998	Dairy products	Greenhouse/nur.	Apples	Corn	Cattle and calves
North Carolina	8	7,831	6	4,427	10	3,404	Hogs	Broilers	Tobacco	Greenhouse/nur.	Turkeys
North Dakota	23	3,532	38	537	13	2,996	Wheat	Cattle and calves	Barley	Sunflower	Sugar beets
Ohio	15	5,122	18	1,945	12	3,177	Soybean	Corn	Dairy products	Greenhouse/nur.	Hogs
Oklahoma	21	3,566	14	2,439	30	1,126	Cattle and calves	Wheat	Broilers	Hogs	Greenhouse/nur.
Oregon	28	2,977	35	657	17	2,320	Greenhouse/nur.	Wheat	Cattle and calves	Dairy products	Hay
Pennsylvania	18	4,143	11	2,865	28	1,278	Dairy products	Cattle and calves	Greenhouse/nur.	Chicken eggs	Mushrooms
Rhode Island	49	83	49	11	49	72	Greenhouse/nur.	Dairy products	Chicken eggs	Sweet corn	Cattle and calves
South Carolina	35	1,602	33	737	33	865	Broilers	Tobacco	Greenhouse/nur.	Cotton	Turkeys
South Dakota	19	3,684	23	1,633	20	2,051	Cattle and calves	Corn	Soybean	Wheat	Hogs
Tennessee	30	2,372	29	998	26	1,374	Cattle and calves	Cotton	Soybean	Dairy products	Broilers
Texas	2	13,053	1	7,758	4	5,295	Cattle and calves	Cotton	Dairy products	Greenhouse/nur.	Broilers
Utah	37	873	36	646	41	227	Cattle and calves	Dairy products	Hay	Wheat	Greenhouse/nur.
Vermont	41	535	40	437	46	98	Dairy products	Cattle and calves	Greenhouse/nur.	Maple products	Christmas trees
Virginia	29	2,378	24	1,478	32	900	Broilers	Dairy products	Cattle and calves	Turkeys	Tobacco
Washington	13	5,681	22	1,664	8	4,017	Apples	Dairy products	Wheat	Cattle and calves	Potatoes
West Virginia	46	388	41	308	48	80	Broilers	Cattle and calves	Dairy products	Turkeys	Chicken eggs
Wisconsin	10	6,062	7	4,288	22	1,773	Dairy products	Corn	Cattle and calves	Soybean	Hogs
Wyoming	40	662	39	478	43	184	Cattle and calves	Hay	Sugar beets	Wheat	Sheep and lambs

[1] All cash receipts data are in million dollars.

Source: USDA, Economic Research Service, Resource Economics Division.

Table 3-7.

Ten leading States in cash receipts for top 25 commodities, 1996

Commodity [1]	Rank	Value	Top 10 states by their value of cash receipts									
			1	2	3	4	5	6	7	8	9	10
		$ Million	State and $ million									
			CA	TX	IA	NE	IL	MN	KS	NC	FL	WI
Total		202,339	23,310	13,053	12,853	9,454	9,050	8,809	7,869	7,831	6,131	6,062
			TX	CA	IA	NE	KS	NC	WI	MN	AR	GA
Livestock & poultry	1	92,814	7,758	6,213	5,457	5,277	4,570	4,427	4,288	4,168	3,357	3,279
			CA	IA	IL	TX	FL	MN	NE	WA	IN	NC
Crops	2	109,425	17,096	7,396	6,989	5,295	4,942	4,641	4,177	4,017	3,663	3,404
			TX	NE	KS	CO	IA	OK	CA	SD	MN	MT
Cattle and calves	1	31,138	5,331	4,082	3,995	2,072	1,461	1,446	1,145	946	925	656
			CA	WI	NY	PA	MN	TX	MI	WA	ID	OH
Dairy products	2	22,834	3,717	3,262	1,693	1,662	1,362	921	807	788	653	651
			IA	IL	NE	IN	MN	OH	KS	WI	TX	MO
Corn	3	21,573	4,290	3,546	2,491	1,784	1,704	947	783	707	684	670
			IA	IL	MN	IN	OH	MO	NE	AR	SD	KS
Soybeans	4	16,211	2,892	2,784	1,618	1,453	1,126	996	828	763	561	455
			GA	AR	AL	NC	MS	TX	DE	MD	VA	CA
Broilers	5	13,906	2,205	2,122	1,635	1,310	1,197	726	524	513	466	457
			IA	NC	MN	IL	NE	IN	MO	OH	KS	SD
Hogs	6	12,644	3,004	1,749	1,116	1,039	856	830	652	398	328	325
			CA	FL	NC	TX	OH	OR	MI	PA	GA	OK
Greenhouse\nursery [2]	7	10,887	2,224	1,140	889	838	517	442	422	318	273	263
			ND	KS	MT	WA	SD	ID	MN	OK	CO	NE
Wheat	8	9,956	1,607	1,184	861	775	520	484	413	398	391	338
			TX	CA	GA	MS	AR	LA	NC	AZ	TN	AL
Cotton	9	7,461	1,810	1,191	782	726	625	520	343	341	276	260
			CA	OH	GA	IN	AR	PA	TX	IA	AL	NC
Chicken eggs	10	4,757	367	359	348	320	300	295	291	247	225	218
			CA	WA	OR	ID	CO	TX	NM	PA	OK	KS
Hay	11	3,574	565	231	220	198	169	166	155	116	102	97

—continued

Table 3-7.

Ten leading States in cash receipts for top 25 commodities, 1996 (continued)

Commodity [1]	Rank	Value	Top 10 states by their value of cash receipts									
			1	2	3	4	5	6	7	8	9	10
		$ Million	State and $ million									
			NC	MN	MO	AR	CA	VA	IN	SC	PA	IA
Turkeys	12	3,056	612	427	249	232	222	204	151	108	103	102
			NC	KY	TN	SC	VA	GA	OH	FL	PA	IN
Tobacco	13	2,796	1,021	813	219	215	188	176	34	31	22	22
			ID	WA	CA	OR	WI	ND	CO	MN	ME	MI
Potatoes	14	2,699	716	470	179	164	154	132	124	119	103	94
			CA	WA	NY	AZ	PA	OR	MI	AR	GA	OH
Grapes	15	2,334	2,154	58	44	20	17	15	14	5	4	2
			WA	CA	NY	MI	PA	VA	NC	OH	ID	OR
Apples	16	1,846	1,098	147	138	107	49	39	24	24	22	17
			KS	TX	NE	MO	OK	AR	IL	CO	LA	SD
Sorghum grain	17	1,813	678	558	203	111	62	47	37	26	26	17
			FL	CA	AZ	TX	n.a	n.a	n.a	n.a	n.a	n.a
Oranges	18	1,798	1,291	493	8	7						
			CA	FL	OH	GA	SC	IN	VA	NJ	MI	TN
Tomatoes	19	1,603	908	382	47	44	34	25	25	24	21	18
			AR	CA	LA	TX	MS	MO	n.a	n.a	n.a	n.a
Rice	20	1,575	644	320	246	181	133	51				
			CA	AZ	NJ	FL	NM	OH	CO	WA	NY	n.a
Lettuce	21	1,427	1,084	306	13	7	6	5	4	2	1	
			MN	ID	ND	CA	MI	MT	WY	CO	NE	OR
Sugar beets	22	1,017	303	184	165	95	66	52	37	37	31	16
			CA	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a	n.a
Almonds	23	1,009	1,009									
			ND	ID	MT	MN	WA	CA	WY	CO	OR	UT
Barley	24	992	303	155	153	73	70	47	30	27	24	23
			GA	TX	AL	NC	FL	VA	OK	NM	SC	AZ
Peanuts	25	969	389	171	119	96	59	59	59	10	8	1

n.a.=not applicable.

[1]The 25 leading commodities ranked by value of farm marketings. 2/ Excludes mushrooms.

Source: USDA/Economic Research Service, Resource Economics Division.

Government Payments by Program and State

Government payments of $7.3 billion in 1995 and 1996 were the lowest they had been since 1982. Total payments in both years were only 8 percent below those of 1994 but 41 percent lower than the $13.4 billion in 1993. Direct government payments were expected to begin declining after 1996, but are now expected to begin declining in 1998. Payments in 1996 and later years were to have reflected production flexibility payments provided under the 1996 Farm Act, but unanticipated adjustments for deficiency payments owed to farmers in 1996 and repayments owed by farmers under the previous farm program are included in 1996 payments and the influence also extended into 1997. After 1997, the influence of the deficiency repayment adjustments should be concluded and the payment totals will begin to follow the declining levels of production flexibility contract payments specified in the 1996 Farm Act. The payment totals will be constrained by the funding set forth in the Federal Agriculture Improvement and Reform Act of 1996 (the 1996 Act) through the year 2002.

The 1996 Act fundamentally redesigned income support and supply management programs for producers of wheat, corn, grain sorghum, barley, oats, rice, and upland cotton. Government payments to producers who signed up for the program are now fixed and are scheduled to decline through 2002. Dairy policy was also changed as price support is to be phased out and milk marketing orders consolidated. The 1996 Act also altered the sugar and peanut programs. Farmers are freer to alter their crop production in response to relative price signals from the marketplace. Farm income is likely to become more variable under the Act in response to year-to-year changes in the supply and demand for commodities. Marketing alternatives to manage price and production risk are becoming more important for many farmers.

Number of Farms and Net Cash Income by Sales Class

The number of farms decreased slightly to 2,063,910 in 1996. Almost three quarters of all U.S. farms have annual sales of less than $50,000, while approximately 1 percent of all farms have sales greater than $1 million. Farms with over $250,000 in sales account for less than 8 percent of all farms but dominate American agricultural output. These large farms sell over 65 percent of the Nation's livestock and over 66 percent of the crops. They have nearly 64 percent of the gross cash income compared with 59 percent of the cash expenses. In 1996 they accounted for more than 78 percent of the Nation's net cash income from farming. Approximately 42 percent of direct Government payments went to these farms

Table 3-8.

Government payments, by program and State, 1996[1]

State	Feed grain	Wheat	Rice	Cotton	Wool Act	Conservation[2]	Miscellaneous[3]	Total
					$ 1,000			
Alabama	314	(212)	0	(4,119)	16	28,813	50,665	75,476
Alaska	(23)	(0)	0	0	3	1,091	187	1,258
Arizona	17	(1,166)	0	(7,082)	523	1,422	63,569	57,283
Arkansas	(93)	(8,170)	68,240	(7,374)	72	14,201	294,995	361,872
California	(563)	(4,526)	34,272	(13,668)	3,088	16,997	258,141	293,741
Colorado	(3,450)	(17,015)	0	0	2,521	80,423	113,142	175,621
Connecticut	(106)	0	0	0	9	331	1,558	1,792
Delaware	(353)	(149)	0	0	1	372	5,017	4,889
Florida	134	(41)	5	(351)	2	7,737	15,162	22,648
Georgia	358	(1,509)	0	(3,025)	13	29,990	88,626	114,452
Hawaii	0	0	0	0	0	390	190	580
Idaho	(4,477)	(19,910)	0	0	1,591	39,629	98,939	115,773
Illinois	(66,086)	(8,978)	0	0	196	63,879	397,683	386,693
Indiana	(23,350)	(4,150)	0	0	86	33,177	207,871	213,633
Iowa	(112,123)	(77)	0	0	728	170,112	443,027	501,668
Kansas	(14,443)	(87,920)	0	(1)	448	153,081	503,824	554,988
Kentucky	(1,394)	(2,224)	8	0	44	25,302	52,931	74,666
Louisiana	324	(410)	26,744	(9,225)	4	8,454	150,544	176,435
Maine	(55)	0	0	0	26	2,943	1,724	4,638
Maryland	(1,123)	(619)	0	0	46	2,363	16,971	17,638
Massachusetts	(27)	0	0	0	17	441	1,116	1,547
Michigan	(9,308)	(4,476)	0	0	231	22,959	100,166	109,571
Minnesota	(42,070)	(24,769)	0	0	589	98,814	316,142	348,706
Mississippi	136	(1,261)	13,103	(15,530)	4	37,324	151,124	184,901
Missouri	(2,313)	(9,615)	5,611	(1,666)	350	113,753	183,107	289,227
Montana	(6,295)	(41,494)	0	0	3,504	102,825	182,179	240,718
Nebraska	(47,314)	(17,668)	0	0	422	76,793	376,504	388,738
Nevada	(26)	(148)	0	0	352	654	1,773	2,605

—continued

Table 3-8.

Government payments, by program and State, 1996[1] (continued)

State	Feed grain	Wheat	Rice	Cotton	Wool Act	Conservation[2]	Miscellaneous[3]	Total
New Hampshire	(3)	0	0	0	15	424	657	1,094
New Jersey	(125)	(84)	0	0	13	298	3,147	3,250
New Mexico	(534)	(1,676)	0	(514)	2,526	19,183	40,006	58,989
New York	(2,045)	(943)	0	0	156	6,359	39,750	43,277
North Carolina	(197)	(1,342)	0	(1,369)	36	8,495	70,005	75,628
North Dakota	(12,319)	(77,769)	0	0	961	106,213	336,332	353,417
Ohio	(10,239)	(7,266)	0	0	401	27,638	152,545	163,079
Oklahoma	(673)	(43,050)	63	(2,431)	443	49,937	232,405	236,693
Oregon	(588)	(9,793)	0	0	1,054	28,571	53,958	73,202
Pennsylvania	(1,539)	(302)	0	0	216	8,263	30,462	37,100
Rhode Island	(1)	0	0	0	2	61	94	156
South Carolina	770	(1,452)	0	(1,858)	1	12,544	32,858	42,865
South Dakota	(2,267)	(15,981)	0	0	2,809	68,851	176,130	229,543
Tennessee	(87)	(1,889)	22	(4,291)	25	23,325	62,689	79,793
Texas	(6,536)	(20,639)	26,727	(32,341)	24,621	163,461	609,160	764,454
Utah	(436)	(1,196)	0	0	2,565	9,811	10,242	20,986
Vermont	(76)	(0)	0	0	34	1,335	2,720	4,012
Virginia	(502)	(920)	0	(39)	223	6,877	24,738	30,377
Washington	(2,203)	(30,491)	0	0	260	54,896	132,841	155,304
West Virginia	(144)	(20)	0	0	136	1,944	2,621	4,537
Wisconsin	(10,483)	(644)	0	0	181	48,903	118,832	156,789
Wyoming	(456)	(1,260)	0	0	4,127	11,060	10,903	24,374
United States	(384,393)	(473,223)	174,795	(104,884)	55,689	1,792,720	6,219,973	7,280,678

[1]Includes both cash payments and payments-in-kind (PIK).

[2]Includes amount paid under agriculture and conservation programs (Conservation Reserve, Agricultural Conservation, Emergency Conservation, and Great Plains Program).

[3]Includes Production Flexibility Contracts Payments under the 1996 Farm Act. Other programs included in the miscellaneous category are Rural Clean Water, Forestry Incentive Annual, Dairy Indemnity, Dairy Termination, Extended Warehouse Storage, Extended Farm Storage, Livestock Emergency Assistance, Interest Payments, Disaster, Loan Deficiency, Market Gains, Naval Stores Conservation, Milk Marketing Fee, Options Pilot, Emergency Feed, Rice Marketing, Payment Limitation Refund, Additional Interest, Arkansas Beaver Lake, Noninsured Assistance, Interest on NAP, Karnal Bunt Fungus, Production Flexibility, Disaster Reserve, and Environment Quality Incentives.

Source: USDA, Economic Research Service, Resource Economics Division.

Table 3-9.

Direct Government payments, by program, United States, 1950-96[1]

Year	Feed grains	Wheat	Rice	Cotton	Wool	Conservation [2]	Miscellaneous [3]	Total
					$ Million			
1950	np	np	np	np	np	246	37	283
1951	np	np	np	np	np	246	40	286
1952	np	np	np	np	np	242	33	275
1953	np	np	np	np	np	181	32	213
1954	np	np	np	np	np	217	40	257
1955	np	np	np	np	np	188	41	229
1956	np	np	np	np	54	220	280	554
1957	np	np	np	np	53	230	732	1,015
1958	np	np	np	np	14	215	859	1,088
1959	np	np	np	np	82	233	367	682
1960	np	np	np	np	51	223	429	703
1961	772	42	np	np	56	236	387	1,493
1962	841	253	np	np	54	230	368	1,746
1963	843	215	np	np	37	231	370	1,696
1964	1,163	438	np	39	25	236	278	2,179
1965	1,391	525	np	70	18	224	235	2,463
1966	1,293	679	np	773	34	231	267	3,277
1967	865	731	np	932	29	237	284	3,078
1968	1,366	747	np	787	66	229	268	3,463
1969	1,643	858	np	828	61	204	199	3,793
1970	1,504	871	np	919	49	208	166	3,717
1971	1,054	878	np	822	69	173	149	3,145
1972	1,845	856	np	813	110	198	140	3,962
1973	1,142	474	np	718	65	72	136	2,607
1974	101	70	np	42	[4]	192	125	530
1975	279	77	np	138	13	193	107	807
1976	196	135	[4]	108	39	209	47	734
1977	187	887	130	89	5	328	192	1,818
1978	1,172	963	3	127	27	239	499	3,030
1979	494	114	59	185	33	197	294	1,376
1980	382	211	2	172	28	214	276	1,285
1981	243	625	2	222	35	201	605	1,933
1982	713	652	156	800	46	179	946	3,492
1983	1,346	864	278	662	84	188	5,874	9,296
1984	367	1,795	192	275	118	191	5,493	8,431
1985	2,861	1,950	577	1,106	98	189	924	7,705
1986	5,158	3,500	423	1,042	112	254	1,325	11,814
1987	8,490	2,931	475	1,204	144	1,531	1,972	16,747
1988	7,219	1,842	465	924	117	1,607	2,306	14,480
1989	3,141	603	671	1,184	81	1,771	3,436	10,887
1990	2,701	2,311	465	441	96	1,898	1,386	9,298
1991	2,649	2,166	550	407	154	1,858	431	8,215
1992	2,499	1,403	512	751	188	1,899	1,916	9,168
1993	4,844	1,909	650	1,226	173	1,967	2,633	13,402
1994	1,447	1,156	337	826	202	1,978	1,933	7,879
1995	3,024	587	784	30	98	1,896	834	7,253
1996 [5]	(384)	(473)	175	(105)	56	1,793	6,220	7,281

np = no program.

[1]Components may not add due to rounding. Includes both cash payments and payments-in-kind (PIK).

[2]Includes Great Plains and other conservation programs.

[3]Through 1970, total amounts are for Soil Bank Programs, which was discontinued in 1971. Starting with 1971, amounts include all other programs.

[4]Less than $500,000.

[5]Commodity specific payments in 1996 reflect final deficiency payments due farmers under previous law, as well as repayments by farmers of unearned deficiency payments disbursed in advance of final determination. Production flexibility payments under the 1996 Farm Act are included in the miscellaneous category.

Source: USDA, Economic Research Service, Resource Economics Division.

Table 3-10.

Number of farms and net cash income by size class, 1996[1]

Item	$1,000,000 and over	$500,000 to $999,999	$250,000 to $499,999	$100,000 to $249,999	$50,000 to $99,999	$20,000 to $49,999	Less than $20,000
			Thousands				
Number of farms	22	43	98	215	160	230	1,297
			Million dollars				
Gross cash income	63,505	33,870	43,563	42,155	16,393	10,883	10,221
Cash receipts from marketings	61,284	31,830	40,127	38,067	14,675	9,325	7,031
Crops	31,107	17,304	24,265	21,705	7,946	4,434	2,663
Government supported	8,835	11,522	18,277	17,590	5,774	3,490	1,599
Nonsupported	22,272	5,783	5,988	4,115	2,172	945	1,064
Livestock	30,176	14,525	15,862	16,363	6,730	4,891	4,367
Government payments	607	927	1,535	1,875	804	702	836
Farm-related income	1,614	1,113	1,902	2,212	914	856	2,354
Cash expenses	38,812	24,200	30,859	32,020	12,305	8,832	13,621
Net cash income	24,692	9,669	12,704	10,135	4,089	2,052	(3,400)
			Percent				
Percent of total:							
Number of farms	1.1	2.1	4.8	10.4	7.7	11.1	62.8
Gross cash income	28.8	15.4	19.7	19.1	7.4	4.9	4.6
Cash receipts from marketings	30.3	15.7	19.8	18.8	7.3	4.6	3.5
Crops	28.4	15.8	22.2	19.8	7.3	4.1	2.4
Government supported	13.2	17.2	27.2	26.2	8.6	5.2	2.4
Nonsupported	52.6	13.7	14.1	9.7	5.1	2.2	2.5
Livestock	32.5	15.6	17.1	17.6	7.2	5.3	4.7
Government payments	8.3	12.7	21.1	25.7	11.0	9.6	11.5
Farm-related income	14.7	10.1	17.3	20.2	8.3	7.8	21.5
Cash expenses	24.2	15.1	19.2	19.9	7.7	5.5	8.5
Net cash income	41.2	16.1	21.2	16.9	6.8	3.4	-5.7

—*continued*

Table 3-10.

Number of farms and net cash income by size class, 1996[1] (continued)

Item	$1,000,000 and over	$500,000 to $999,999	$250,000 to $499,999	$100,000 to $249,999	$50,000 to $99,999	$20,000 to $49,999	Less than $20,000
			Dollars				
Per farm operation: [1]							
Gross cash income	2,899,244	790,552	444,114	196,307	102,624	47,373	7,881
Cash receipts from marketings	2,797,845	742,938	409,080	177,273	91,869	40,592	5,421
Crops	1,420,181	403,903	247,375	101,075	49,740	19,301	2,054
Government supported	403,353	268,929	186,327	81,912	36,144	15,190	1,233
Nonsupported	1,016,828	134,974	61,049	19,164	13,595	4,112	821
Livestock	1,377,664	339,035	161,704	76,198	42,129	21,291	3,368
Government payments	27,692	21,639	15,644	8,733	5,034	3,055	645
Farm-related income	73,708	25,975	19,390	10,301	5,721	3,726	1,815
Cash expenses	1,771,945	564,856	314,598	149,113	77,027	38,442	10,503
Net cash income	1,127,299	225,696	129,516	47,195	25,597	8,931	(2,622)

[1]Farm operations may have several households sharing in the earnings of the business (for example, partners or shareholders in the farm corporation). The number of households per farm operation tends to increase as sales per farm increase.

Source: USDA, Economic Research Service, Resource Economics Division.

4. Rural America

Nonmetropolitan Population

Today, the United States is primarily metropolitan. People who live in large cities and their suburbs account for 80 percent of the total population. Nonmetropolitan people outside large cities and submetro counties numbered about 54.3 million in 1997. Although nonmetro population continues to increase, its proportion of the total population has fallen slightly over the last several decades because the metro population grew even more rapidly.

A metro area, by definition, must have an urban nucleus of a least 50,000 people, and may include fringe counties that are linked to that nucleus because their workers commute to the central area. All other counties are nonmetro.

After 1970, most nonmetro counties that were losing population in the 1960's began to grow again because of job development, commuting, or the development of retirement communities that drew retirees in from other areas. However, after 1980, low farm income and a slump in mining and manufacturing employment led to a slow but widespread decline in nonmetro population, generally in the same areas that declined before 1970. Some nonmetro counties, though, grew enough as retirement or recreation areas, or from their proximity to metro jobs, to produce overall nonmetro population growth during the decade.

Since 1990, there is evidence once again of increased retention of people in nonmetro areas. From 1990 to 1996, the population of nonmetro counties grew at an annual pace more than double that of the 1980's, with far fewer counties declining. This change has affected all types of counties and most regions of the country. Improvement in nonmetro economic conditions is thought to be generally responsible for this change. But, recreation and retirement counties continue to be the most rapidly developing group. Declining population is still characteristic of areas that are dependent on farming, three-fourths of which have continued to have more people moving out than in.

Age and Race

Age distributions reflect past demographic events (births, deaths, and migrations) and provide important clues about future changes in the labor supply and the demand for goods and services. The age distribution of the U.S. population is still dominated by the post-World War II rise in fertility rates known as the baby boom, whose members were born in 1946-64. From the time the youngest "baby boomers"

graduated from high school and began their entry into the labor force in 1982 until the oldest members reach 65 in 2011, the United States has had and will continue to have a favorable balance of people in income-producing age groups. All parts of the country benefit from the current age structure.

Because of migration, which consists primarily of young adults and their children, metro areas captured a much higher percentage of the baby boomers. The higher metro percentage of working-age adults has been a persistent pattern for most of this century. Metro/nonmetro differences among the youngest and oldest have become increasingly large. In a reversal of previous trends, the birth rates in metro areas in the last 5 years have been greater than in nonmetro areas. In large measure, this reversal is due to the delayed childbearing among women in the large metro baby boom segment. Birth rates for nonmetro women are higher at younger ages, particularly for women in their twenties, an age group not well represented in nonmetro areas.

Increases in life expectancy over the past 50 years and the aging of the large population segment born in the 1920's increased the proportion of elderly between 1970 and 1997. The percentage of the population over age 75 rose dramatically, especially in nonmetro areas. Retirement migration to nonmetro areas, coupled with historically high levels of nonmetro outmigration of young adults and their children, placed a higher proportion of older people in nonmetro areas: the percentage of nonmetro population age 65 or older was 15 percent in 1997, compared with 12 percent in metro areas. For the first time since 1960, children under 10 outnumber preteens and teenagers in metro areas. This is not true for nonmetro areas.

In 1990, 8.7 million nonmetro residents belonged to one of four minority groups, Blacks, Hispanics, Asians (including Pacific Islanders), and Native Americans. Blacks made up close to two-thirds of the nonmetro minority population in 1980, but their share declined as other groups grew much faster during the 1980's. Minorities constituted 14 percent of the total nonmetro population in 1980, but they accounted for 50 percent of the people added during the 1980's. Their 15 percent rate of growth was more than five times the rate for Whites. For all minorities except Native Americans, however, growth rates were even higher in metro areas during the 1980's, so that the share of U.S. minorities living in nonmetro areas declined slightly from 16 to 14 percent. Minorities are still much more likely than Whites to live in metro areas, but their presence in nonmetro areas is increasing.

Table 4-1.

Nonmetro population by race and ethnicity, 1980-90

Race/ethnic group	1980	1990	Increase 1980-90	1980	1990	Increase 1980-90
	Thousands			Percent		
White	46,753	47,863	1,110	25.4	24.7	2.4
Minority	7,624	8,688	1,064	16.5	14.1	14.0
Black	4,770	4,923	153	18.0	16.4	3.2
Hispanic[1]	1,786	2,329	543	12.2	10.4	30.4
Native American[2]	759	971	212	49.5	49.6	27.9
Asian	309	465	156	8.3	6.4	50.5

[1]Hispanics can be of any race.
[2]Native Americans include American Indians, Eskimos, and Aleuts.
Source: 1980 and 1990 Censuses of Population.

Nonmetropolitan Industry and Job Growth

Nonmetro areas gained jobs at a rate comparable to that of metro areas during the 1970's, but fell far behind metro growth during the 1980's. Nonmetro areas suffered more in the two recessions of the early 1980's and benefited less from the 1982-89 recovery than did metro areas. As a result, employment growth was considerably slower in nonmetro (1.3 percent annually) than in metro areas (2.5 percent annually) during 1979-89. More encouraging is the most recent performance of rural areas. In contrast to the 1980's trend, rural areas weathered the 1990-91 recession better than metro areas did. In nonmetro areas, total jobs grew at a 1.6 percent annual rate during 1989-95; in metro areas, jobs grew at a 1.3 percent annual rate. Most of the nonmetro growth was in services-producing industries (1.8 million out of 2.4 million new jobs). Goods-producing industries contributed 312,000 new nonmetro jobs while 616,000 goods-producing jobs were lost by metro areas.

The number of rural services-producing jobs grew faster during the 1970's (3 percent annually) than during the 1980's (2.1 percent annually) and the early 1990's (2.4 percent annually). Among the services-producing industries, general services—such as hotel accommodations, hair cuts, car repair, and entertainment—provided the largest number of new rural jobs (1 million) during 1989-95. Nonmetro retail trade firms added 621,000 new jobs, growing slightly faster (2.5 percent annually) than they had grown in the two previous decades (2.4 percent annually in the 1970's; 1.9 percent annually in the 1980's). In manufacturing, the largest goods-producing industry, nonmetro areas added jobs during 1989-95 while metro areas continued to lose jobs.

Table 4-2.

Nonmetro and metro job growth in selected industries, 1969-95, selected years

Industry	*1969*	*1979*	*1989*	*1995*	*Annual average change 1989-95*
		Thousands			*Percent*
Nonmetro total	17,718	21,719	24,068	26,499	1.6
Goods-producing	7,486	8,542	8,225	8,537	0.6
Manufacturing	3,593	4,218	4,237	4,439	0.8
Service-producing	7,145	9,587	11,846	13,664	2.4
Services	2,723	3,627	5,011	6,017	3.1
Government	3,088	3,591	3,997	4,298	1.2
Metro total	73,278	91,634	113,867	122,791	1.3
Goods-producing	22,750	24,648	24,682	24,066	-0.4
Manufacturing	16,953	17,279	15,761	14,787	-1.1
Service-producing	37,775	52,180	72,408	81,412	2.0
Services	13,997	20,447	32,225	38,757	3.1
Government	12,753	14,806	16,777	17,312	0.5

Source: U.S. Department of Commerce, Bureau of Economic Analysis

Table 4-3.

Nonmetro job growth by industry, 1969-95, selected years

Industry	*1969*	*1979*	*1989*	*1995*	*Annual average change 1989-95*
		Thousands			*Percent*
Nonmetro	17,718	21,719	24,068	26,499	1.6
Goods-producing	7,486	8,542	8,225	8,537	0.6
Farming	2,564	2,352	1,969	1,831	-1.2
ASFF[1]	166	242	356	469	4.7
Mining	361	550	433	376	-2.3
Construction	802	1,180	1,231	1,422	2.4
Manufacturing	3,593	4,218	4,237	4,439	0.8
Service-producing	7,145	9,587	11,846	13,664	2.4
TCPU[2]	727	907	974	1,066	1.5
Wholesale trade	424	755	783	850	1.4
Retail trade	2,546	3,232	3,905	4,526	2.5
FIRE[3]	725	1,066	1,173	1,206	0.5
Services	2,723	3,627	5,011	6,017	3.1
Government	3,088	3,591	3,997	4,298	1.2

[1]Agricultural services, forestry, and fishing
[2]Transportation, communication, and public utilities
[3]Finance, insurance, and real estate
Source: U.S. Department of Commerce, Bureau of Economic Analysis.

Nonmetropolitan Employment and Wages

In 1997, 25.7 million people 16 years old and older were in the nonmetropolitan work force, either at work or looking for work. On average, 1.3 million or 5.2 percent of these workers were unemployed during the year. Unemployment rates are particularly high among nonmetro minorities and teenagers. In 1997, 15.4 percent of teenagers, 11.6 percent of Blacks, and 8.5 percent of Hispanics in nonmetro areas were unemployed. The official unemployment rate excludes those jobless people not actively seeking work, but who indicate they want or are available for work (marginally attached workers), and part-time workers who want full-time jobs. The nonmetro adjusted unemployment rate, which includes marginally attached workers and involuntary part-time workers, was 9.5 percent.

Nonmetro unemployment fell from 7.2 percent in 1992 to 5.2 percent in 1997, as rural areas participated in the continuing national economic expansion; the 1997 rate was the lowest in 23 years. During the 1980's, unemployment rates were consistently higher in nonmetro areas than in metro. Although the nonmetro rate dipped below the metro rate for a few years after the 1990-91 recession, metro and nonmetro unemployment rates were similar in 1997 (4.9 and 5.2 percent, respectively). The nonmetro adjusted unemployment rate has remained higher than the metro rate throughout the 1990's. In 1997, the nonmetro unadjusted rate of 9.5 percent was somewhat above the 8.7 percent metro rate.

Nonmetro earnings failed to keep pace with inflation during the 1980's. The inflation-adjusted, average nonmetro weekly earnings for wage and salary workers fell 12.6 percent between 1979 and 1990, from $483 to $422 (1997 dollars). Average metro weekly earnings fell a smaller 1.4 percent between 1979 and 1990. As a result, the metro/nonmetro average weekly earnings gap grew by 73.6 percent, increasing from $72 to $125 (1997 dollars). From 1990 to 1997, however, nonmetro weekly earnings increased 3.3 percent, to $436 (1997 dollars), while metro earnings were nearly unchanged, rising only 0.5 percent. About one-fifth of the widening of the metro/nonmetro earnings gap that occurred in the 1980's closed after 1990.

Table 4-4.

Average weekly earnings for metro and nonmetro wage and salary workers, 1979-97

	United States	*Metro*	*Nonmetro*	*Rural wage gap*
			(1997 dollars)	
1979	533	555	483	72
1990	522	547	422	125
1997	530	550	436	114
			(Percent)	
1979-90 change	-2.1	-1.4	-12.6	73.6
1990-97 change	1.5	0.5	3.3	-8.8

Table 4-5.

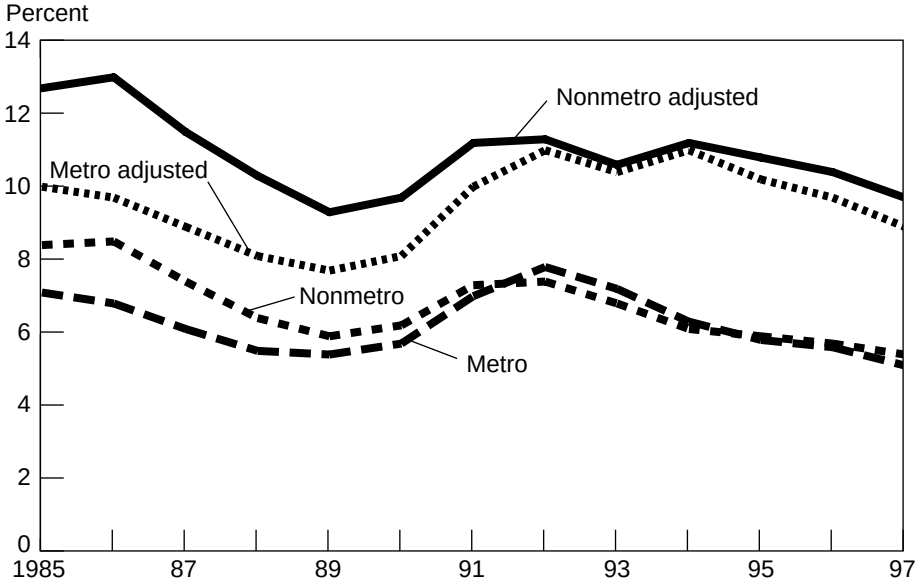
Unemployment rates among various metro and nonmetro groups, 1997

	Nonmetro	*Metro*	*United States*
		Thousands	
Civilian labor force	25,689	110,608	136,297
Total employment	24,360	105,199	129,558
Unemployed	1,330	5,410	6,810
Unemployment rate:			
		Percent	
All civilian workers	5.2	4.9	5.0
Men	5.1	4.9	4.9
Women	5.4	5.0	5.1
Teenagers	15.4	16.4	16.2
White	4.4	3.7	3.8
Black	11.6	9.9	10.1
Hispanic	8.5	7.8	7.9
Adjusted unemployment rate[1]	9.5	8.7	8.9

[1]Unemployment rate adjusted to include marginally attached workers and workers employed part-time for economic reasons.
Source: Current Population Survey, Bureau of the Census.

Figure 4-1.

Unemployment rates by residence, 1985-1997



Source: Current population survey.

Nonmetropolitan Income and Poverty

Nonmetropolitan median household income, registering $28,089 in 1996, remained unchanged from 1995 to 1996 when adjusted for inflation. The median income of metropolitan households increased 1.3 percent to $37,640, widening the income gap between nonmetro and metro households. Nonmetro household income lagged behind metro household income by 25.4 percent in 1996. Median household incomes also reflect the economic disadvantage of nonmetro minorities, families headed by women, and women living alone (table 4-6).

The poverty rate in nonmetro America stood at 15.9 percent in 1996, essentially unchanged from the previous year, and higher than the metro poverty rate of 13.2 percent. The nonmetro poverty rate has been quite stable over the last 8 years, remaining within a range of 1.6 percent (figure 4-2). The nonmetro-metro poverty gap, at 2.7 percentage points, widened for the second consecutive year. Over half of the nonmetro poor (52 percent) live in the South, a disproportionate concentration compared with the South's 44 percent of the total nonmetro population.

Nonmetro poverty rates continued to be higher than metro poverty rates across demographic groups (figure 4-3). Families headed by women experienced the highest poverty rates of all family types (41.1 percent in nonmetro areas and 34.4 percent in metro), and a high proportion of nonmetro women living alone were also poor (30.4 percent). Over one-fifth of nonmetro children lived in poor families.

The poverty rates among nonmetro minorities were much higher than those of nonmetro Whites and substantially higher than those of metro minorities. The poverty rate was highest for nonmetro Blacks (35.2 percent), followed by nonmetro Native Americans (33.7 percent) and nonmetro Hispanics (33.4 percent). Despite the higher incidence of poverty among nonmetro minorities, almost two-thirds of the nonmetro poor were non-Hispanic Whites, because of the large White majority in the nonmetro population. Over the past 10 years, the Hispanic share of the nonmetro poor has nearly doubled, growing from 5.8 percent in 1986 to 11.1 percent in 1996.

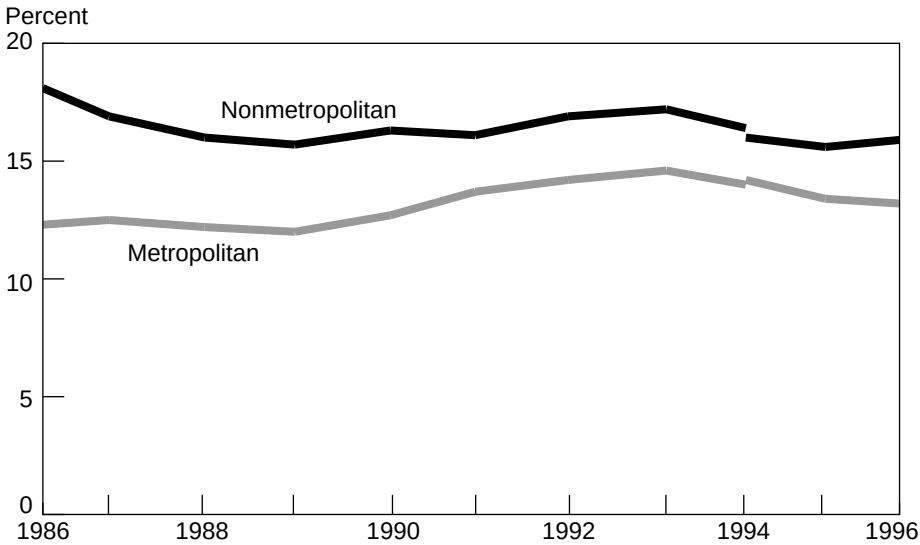
Rural Public Services

Rural local governments face special problems in providing services for their citizens. The following are rural characteristics that affect how rural local governments provide services:

- **Isolation,** the geographic separation of rural areas from metropolitan centers, leads to low utilization rates for rural public services, inadequate response times for emergency services, and the detachment of service delivery professionals from their colleagues.
- **Low population density** means higher per unit costs of some services and the inability to supply specialized help (for example, for the handicapped) because the area cannot support the services for so few clients.
- **Lack of fiscal resources** puts many rural communities in a financial squeeze with resulting service deprivation for local residents.

Figure 4-2.

Poverty rate by residence, 1986-96

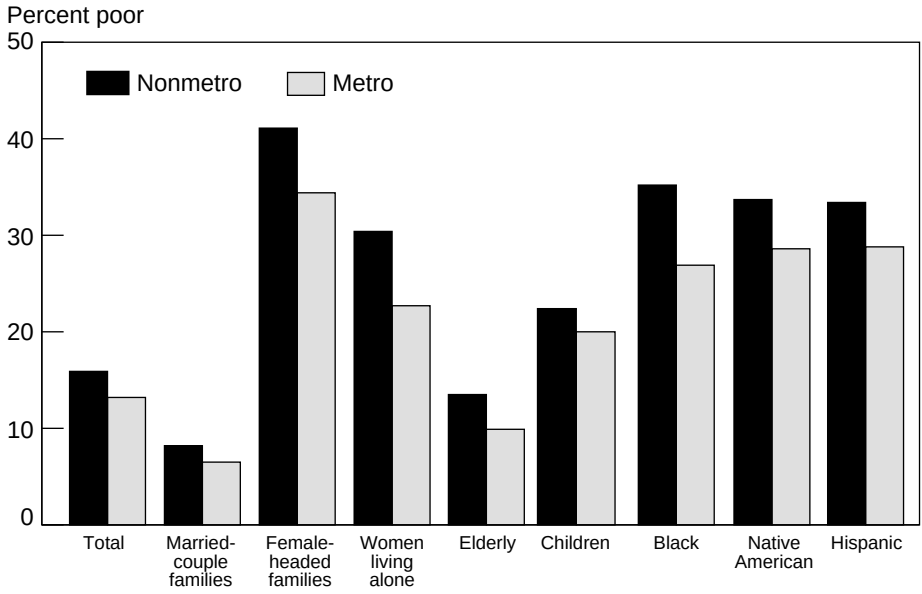


Note: Change of metropolitan status of some counties caused a discontinuity in the data in 1994.

Source: Prepared by ERS using data from the Bureau of the Census' Consumer Income P-60 series (1986-96).

Figure 4-3.

Poverty rates by population group, 1996



Source: U.S. Bureau of the Census Current Population Survey.

- The **lack of an adequate supply of trained personnel** has several implications for service delivery in rural communities. Critical functions may go understaffed, scarce employees are often overworked, service quality and quantity suffer, and long-range planning becomes difficult.

Isolated rural communities often suffer from medical services and facilities that are of lower quality than those found in metro areas. Even if medical care services were evenly distributed across the Nation, and were of equal quality, it is likely that nonmetro residents with chronically low incomes would still have serious difficulty receiving adequate care in a complex medical system where access is based mainly on the ability to pay.

Because many rural communities are small and isolated, and lack financial resources and trained personnel, similar problems are encountered in the provision of other rural public services. Various approaches have been taken to deal with these problems:

- Some communities contract with private-sector firms to provide services. For example, 36 percent of rural localities contract out legal services to for-profit firms rather than perform such services themselves.
- Some communities that want to attract new residents and businesses may find it beneficial to cooperate with other towns and share in the cost of furnishing services they cannot afford by themselves. Rural communities can work together in a variety of ways, and mutual aid is one way. Such an approach is commonly used for fire and police protection.
- Another approach is for one community to sell a particular service to another. About 23 percent of isolated rural governments contract with other governments for solid waste disposal, about 19 percent for the operation of libraries, and 18 percent for assessing taxes.
- Still another method of cooperation is joint action, especially for large projects such as building and operating hospitals or airports. Various methods of dividing costs and creating joint committees or governing boards are worked out for such projects.

Although most rural community residents do not enjoy the same level of public services available to urban area residents, much progress has been made in improving some rural services over the last 30 years. Rising incomes and increased aid from higher level governments have made possible more and better programs for rural governments.

The management capacity of rural governments to plan and carry out these programs has improved. For example, in the 1960's and 1970's a nationwide system of multicounty substate regional agencies was developed to help rural communities plan for and manage their new population growth.

Still, the institutional base of rural governments is more fragile than that of urban areas, and these isolated governments remain more vulnerable to external changes than do metropolitan governments.

Table 4-6

Median household income by family type and race/ethnicity

	Nonmetro	Metro	Nonmetro-Metro gap[1]
	——————-Dollars——————-		Percent
Total	28,089	37,640	25.4
By family type:			
Two-parent	38,908	53,310	27.0
Female-headed	17,653	22,585	21.8
Female living alone	12,865	17,534	26.6
Male living alone	20,807	29,507	29.5
By race/ethnicity:			
White non-Hispanic	30,018	42,015	28.6
Black	16,882	25,232	33.1
Hispanic	20,115	25,456	21.0
Native American	20,306	26,354	22.9

[1]Percent by which nonmetro income is lower than metro.
Source: Prepared by ERS using data from the March 1997 Current Population Survey.

Federal Funding for Rural Area Development

In FY 1996, Federal funds reaching nonmetro counties averaged $4,523 per person, while metro counties averaged $5,243 per person (table 4-7). However, significant regional differences exist. The nonmetro Midwest received the least amount of Federal funds, $4,241 per person, while the nonmetro Northeast and South received slightly higher amounts per person. The nonmetro West received the highest amount of Federal funds, $4,811 per person (table 4-8).

Federal funding includes grants, loans, and other payments to support agriculture, forest management, housing, transportation, education, health, public assistance, Social Security, veterans' benefits, defense, energy, and so on. Figures on the metro-nonmetro distribution of funds are based on the share of Federal funds that can be reliably traced to county levels. Interest on the national debt has been excluded for analytic purposes.

Nonmetro counties received a large share of their funds from income security programs, especially retirement and disability programs. About 43 percent of nonmetro funds were for such programs, compared with 32 percent of the metro funds. The nonmetro West received the highest amounts of per capita loans, salary and wages, and procurement contracts. However, the nonmetro West received only about 38 percent of its Federal funds per person for retirement and disability programs, compared to about 42 percent for the nonmetro Northeast, 44 percent for the nonmetro South, and 45 percent for the nonmetro Midwest.

Table 4-7.

Federal funds per capita, FY 1996

Object class of funds	*All counties*	*Metro counties*	*Nonmetro counties*
		Dollars	
All Federal funds, including loans	5,097	5,243	4,523
Salaries and wages	630	700	356
Procurement contracts	676	777	279
Direct payments to individuals	2,642	2,617	2,840
For retirement and disability	1,749	1,700	1,942
Other than retirement & disability	913	917	898
Other direct payments	31	17	84
Grants	692	699	668
Loans	406	434	297
Direct loans	44	25	115
Guaranteed loans	362	409	182
All expenditures, excluding loans	4,691	4,809	4,226

Note: Details may not add due to rounding.
Source: Prepared by the Economic Research Service using data from the U.S. Bureau of the Census.

Table 4-8.

Distribution of Federal funds per capita in the nonmetro regions, FY 1996

Object class of funds	*Northeast*	*Midwest*	*South*	*West*
		Dollars		
All Federal funds, including loans	4,622	4,241	4,597	4,811
Salaries and wages	424	288	314	566
Procurement contracts	370	176	254	501
Direct payments to individuals	2,858	2,724	3,019	2,547
For retirement and disability	1,961	1,905	2,010	1,809
Other than retirement & disability	897	819	1,009	738
Other direct payments	19	145	58	77
Grants	744	573	691	741
Loans	209	334	260	381
Direct loans	53	164	105	83
Guaranteed loans	156	170	155	298
All expenditures, excluding loans	4,413	3,907	4,337	4,430

Note: Details may not add due to rounding.
Source: Prepared by the Economic Research Service using data from the U.S. Bureau of the Census.

5. U.S. Department of Agriculture

USDA is the third-largest civilian Department of the U.S. Government, overseeing a variety of agencies, Government corporations, and other entities that employ more than 100,000 people at over 15,000 locations in all 50 States and 80 countries.

The Department has undergone a historic reorganization to improve coordination among its broad range of programs and agencies. This reorganization, which affects headquarters and field structures, was authorized by the Department of Agriculture Reorganization Act of 1994 (Pub. L. 103-354), signed into law in October 1994.

The reorganization focused the Department's work under the following seven mission areas, which are described in chapters 6-12 of this Agriculture Fact Book:

Rural Development
Farm and Foreign Agricultural Services
Food, Nutrition, and Consumer Services,
Food Safety,
Natural Resources and Environment,
Research, Education, and Economics, and
Marketing and Regulatory Programs.

Some programs serve the entire Department of Agriculture, including all mission areas. Among these are the Assistant Secretary for Administration (Departmental Administration), Office of the Chief Economist, Office of Inspector General, Office of the Chief Financial Officer, and Office of the Chief Information Officer, all of which report directly to the Secretary of Agriculture. The Office of Congressional and Intergovernmental Affairs serves as liaison between the Department and Members of Congress and their staffs, State and local governments, and Indian tribes and their members.

Departmental Administration

Departmental Administration (DA) provides leadership and guidance to ensure that USDA is managed effectively, efficiently, and fairly in its administrative programs and services. The Departmental Administration Staff Offices provide support to policy officials of the Department, and overall direction and coordination for the administrative programs and services of the Department. In addition, DA manages the Headquarters Complex and provides direct customer service to Washington, DC, employees.

Office of Civil Rights

The Office of Civil Rights provides overall leadership, oversight, direction, and coordination for USDA civil rights and equal employment opportunity programs. The goal of this office is to ensure equal opportunity for women, minorities, and persons with disabilities in the work force, and to ensure equal opportunity in the delivery of USDA programs and services to all customers without regard to race, sex, national origin, disability, and other protected bases for certain programs and activities.

This office is responsible for ensuring program delivery compliance, and for evaluating USDA agency programs and activities for civil rights concerns. The Office of Civil Rights has full responsibility for investigating and adjudicating complaints.

The Office of Civil Rights proactively promotes civil rights at USDA, provides guidance and oversight to USDA agencies, and conducts compliance reviews and audits to ensure enforcement of all applicable civil rights laws, rules, and regulations. USDA's civil rights policy, developed in 1998, requires that all employees treat coworkers and customers fairly and equitably, with dignity and respect.

Office of Human Resources Management

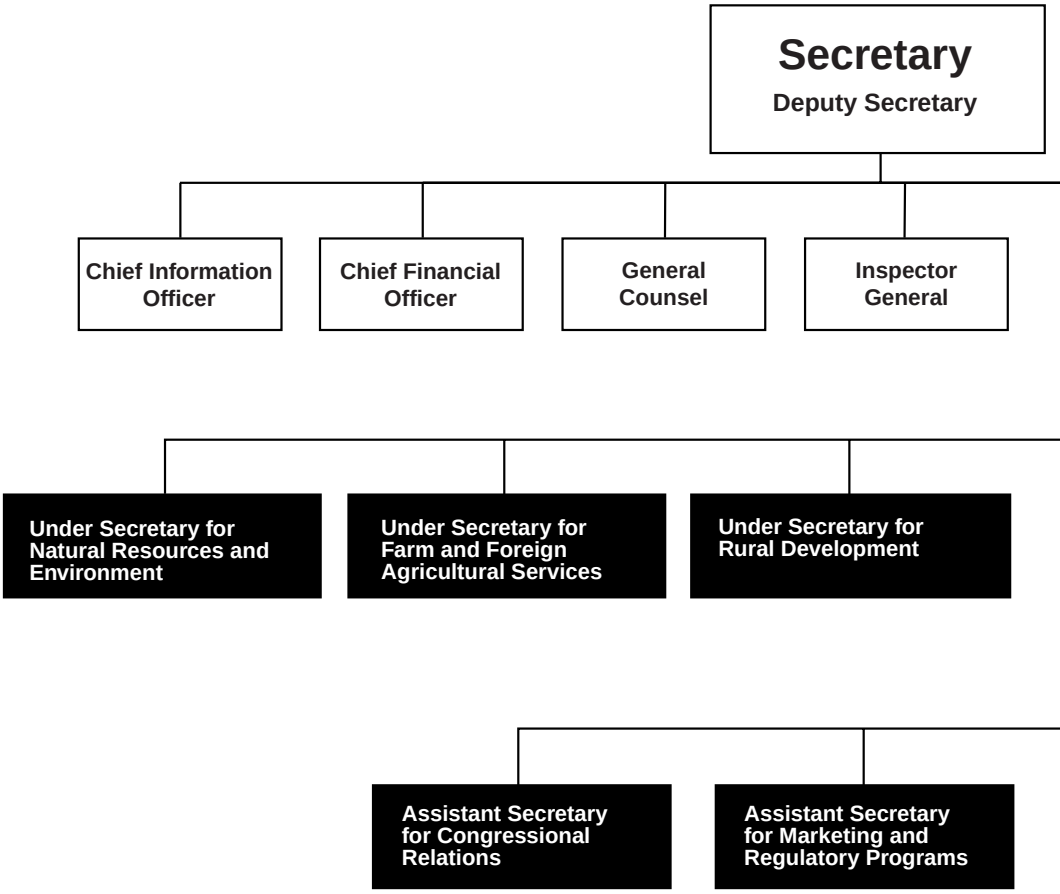
The Office of Human Resources Management (OHRM) provides overall direction, leadership, and oversight of USDA human resources management programs and initiatives. OHRM establishes departmental human resources management policy and represents USDA in governmentwide initiatives. It develops and administers guidelines, principles, and objectives supporting human resources management, safety and health management, and labor management partnership for USDA. In addition, OHRM provides operational human resources management services for the Office of the Secretary, USDA Staff Offices, and the Departmental Administration offices.

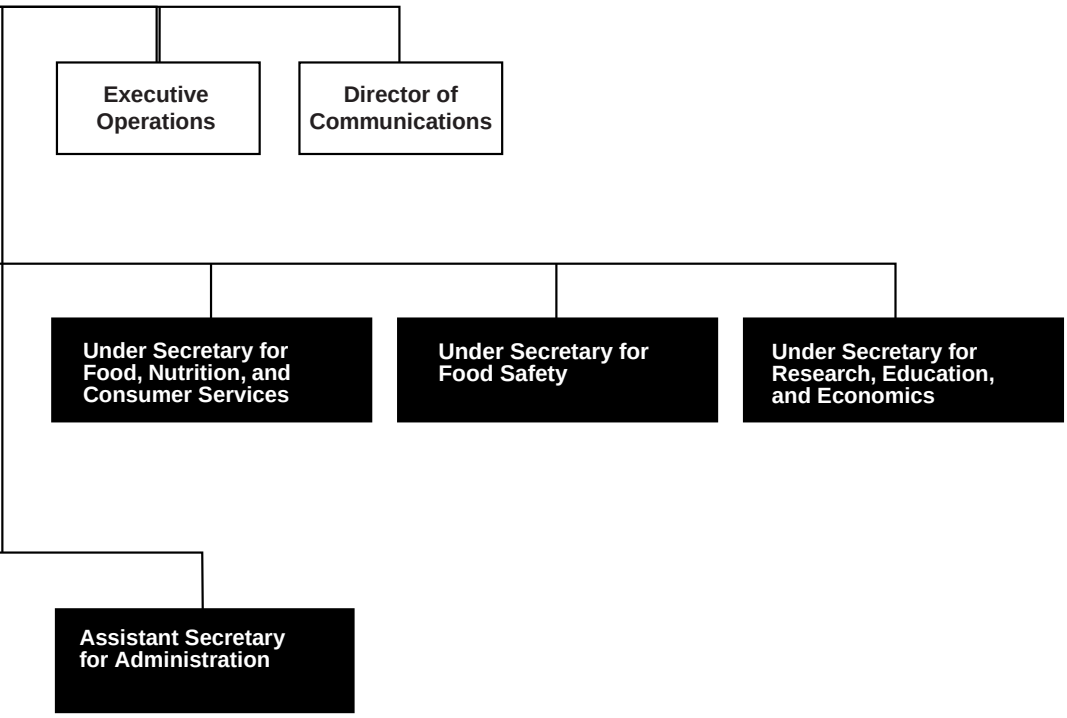
OHRM manages an employee career management program to assist USDA employees. The program was enhanced in 1997-98 by enabling field employees to access information available at two resource centers. Access by telephone, fax, and e-mail was provided to field employees, who can now use such services as individual career counseling via the telephone, review and critique of résumés and other application forms via the fax, and dissemination of information materials.

OHRM also provides leadership for the Program Manager of the USDA National Scholars Program, in cooperation with the USDA 1890 Task Force and the USDA's National Scholars Program, in cooperation with the 1890 Historically Black Land-Grant Institutions, to recruit students interested in careers in agriculture. In addition, OHRM administers the USDA Summer Intern Program and 10 other student internships, which employed a total of 4,201 students in 1998. Of those students employed, 16 percent were African American, 9.6 percent were Hispanic, 4.1 percent were Asian, and 4 percent were Native American or Alaskan Native. Also included in this group were 27 students with severe disabilities.

In addition, OHRM administers the Summer Intern Program and 10 other student internships, which employed a total of 4,201 students in 1998. This is an increase of more than 35 percent from the prior year. Of the students employed, 16 percent were African American, 9.6 percent were Hispanic, 4.1 percent were Asian, and 4 percent were American Indian or Alaskan Natives. Also included in this group were 27 students with disabilities.

U.S. Department of Agriculture Headquarters Organization




Executive Operations
Director of Communications
Under Secretary for Food, Nutrition, and Consumer Services
Under Secretary for Food Safety
Under Secretary for Research, Education, and Economics
Assistant Secretary for Administration

August 1997

Table 5-1.

Number of USDA employees, 1948-98

Year	Number of USDA employees[1]	Year	Number of USDA employees[1]
1948	60,815	1974	101,430
1949	63,063	1975	103,779
1950	67,560	1976	109,276
1951	66,150	1977	113,085
1952	62,825	1978	118,563
1953	62,492	1979	122,809
1954	63,309	1980	125,185
1955	64,191	1981	117,440
1956	69,423	1982	111,853
1957	74,215	1983	109,773
1958	77,264	1984	108,598
1959	79,998	1985	106,665
1960	81,585	1986	102,997
1961	85,238	1987	102,579
1962	89,168	1988	106,552
1963	94,527	1989	109,567
1964	94,781	1990	110,754
1965	94,548	1991	110,357
1966	98,688	1992	113,405
1967	102,175	1993	112,457
1968	105,628	1994	108,132
1969	101,848	1995	108,620
1970	100,860	1996	106,272
1971	102,698	1997[2]	101,656
1972	104,540	1998 (projected)[2]	99,866
1973	104,104		

[1]Full-time equivalent (FTE). For example, two half-time employees would count as one FTE.
[2]1997 and 1998 figures are taken from the 1998 Budget Summary prepared by USDA's Office of Budget and Program Analysis.

Table 5-2.

Where do USDA employees work?

State	Number of USDA employees[1]	State	Number of USDA employees[1]
Alabama	1,140	Montana	2,586
Alaska	870	Nebraska	1,415
Arizona	1,648	Nevada	342
Arkansas	1,840	New Hampshire	284
California	7,239	New Jersey	519
Colorado	2,540	New Mexico	1,324
Connecticut	156	New York	1,097
Delaware	207	North Carolina	1,776
District of Columbia	6,714	North Dakota	747
Florida	1,637	Ohio	806
Georgia	2,404	Oklahoma	904
Hawaii	429	Oregon	4,716
Idaho	2,552	Pennsylvania	1,440
Illinois	1,551	Rhode Island	35
Indiana	744	South Carolina	899
Iowa	1,789	South Dakota	800
Kansas	1,090	Tennessee	1,020
Kentucky	1,099	Texas	3,496
Louisiana	2,877	Utah	1,411
Maine	234	Vermont	229
Maryland	2,970	Virginia	2,002
Massachusetts	337	Washington	2,264
Michigan	1,132	West Virginia	666
Minnesota	1,626	Wisconsin	1,430
Mississippi	1,904	Wyoming	725
Missouri	3,923		

Territory	Number of employees[1]	Territory	Number of employees[1]
American Samoa	6	Marshall Islands	1
Commonwealth of Northern Mariana Islands	7	Puerto Rico	551
Guam	31	Trust Territories of the Pacific	1
		U.S. Virgin Islands	28

Table 5-2.

Where do USDA employees work? (continued)

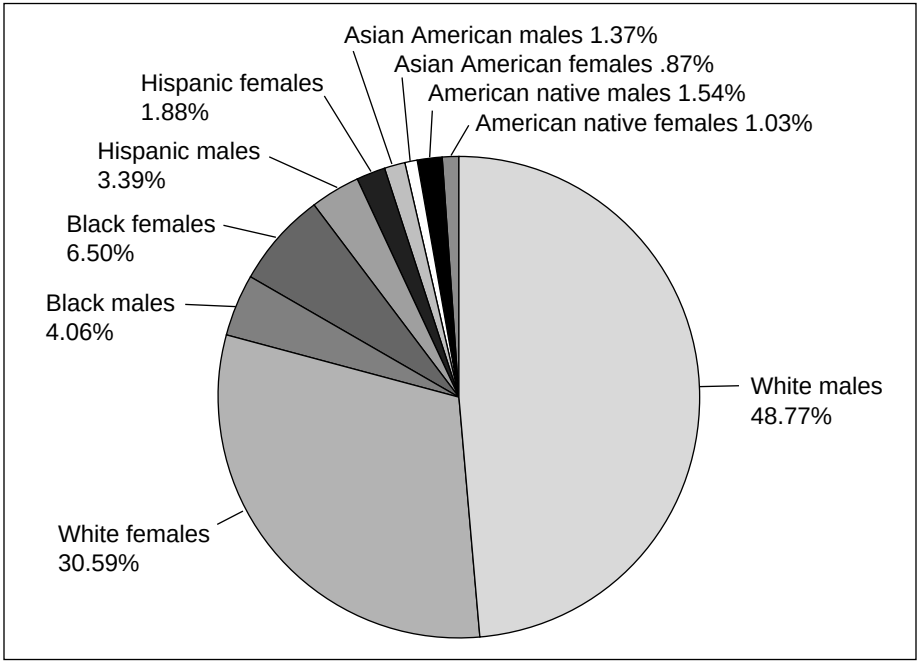
Country	*Number of USDA employees*[1]	*Country*	*Number of USDA employees*[1]
Argentina	3	Mexico	21
Australia	2	Federated States of Micronesia	10
Austria	6	Morocco	1
Bahamas	2	Netherlands	2
Belgium	6	New Zealand	1
Bermuda	1	Nicaragua	4
Brazil	3	Nigeria	1
Bulgaria	1	Pakistan	1
Canada	2	Republic of Palau	3
Chile	3	Panama	8
China	7	Peru	1
Colombia	1	Philippines	2
Costa Rica	5	Poland	2
Dominican Republic	3	Russia	5
Egypt	2	Saudi Arabia	1
Ethiopia	1	Singapore	1
France	6	South Africa	3
Germany	4	Spain	2
Guatemala	4	Sweden	1
Hong Kong	1	Switzerland	6
India	1	Thailand	2
Indonesia	3	Turkey	2
Italy	4	Ukraine	1
Ivory Coast	1	United Kingdom	1
Japan	9	Venezuela	3
Kenya	2	Vietnam	1
Republic of Korea	4		
Malaysia	1		

[1]Permanent, full-time employees.

■ *In 1998, USDA had nearly 1,000 employees with targeted disabilities in permanent full-time positions.*

Figure 5-1

USDA workplace profile by race and gender group, 1998



Office of Procurement and Property Management

The Office of Procurement and Property Management (OPPM) provides leadership and policy guidance concerning procurement, property management, energy conservation, disaster management, and coordination of emergency programs. OPPM also promotes and establishes USDA policy for alternative fuel vehicles, and the purchase of biobased, environmentally preferable, and recycled products.

OPPM is working to simplify and reduce the cost of procurement, and to improve access to information about procurement and property management policy for businesses and other members of the public. The cost of procurement has been reduced by expanding the use of commercial credit cards to make small purchases. At the end of FY 1997, over 16,000 credit cards had been issued to qualified holders throughout USDA. OPPM posts USDA procurement and property management policy and procedures on the Departmental Administration web site *(www.usda.gov/da.html).* Businesses interested in selling to USDA can view "Doing Business with USDA" at the web site. OPPM also posts information about disaster relief at this web site.

Office of Operations

Mail

Smokey Bear receives more mail than any other individual in the Department. Each year, USDA receives over 180 million pieces of mail, and at the Washington, DC, headquarters alone, over 21 million pieces of mail are handled each year—for an average of about 84,000 pieces of mail processed each workday.

The headquarters mail operation is an active employer of those with disabilities. Over one-third of its employees are people with disabilities. Working closely with private and public placement organizations, the division has succeeded in bringing these employees into the work force. In recognition of its success in hiring the disabled, the division has received numerous government and private-sector awards.

The mail center is one of USDA's Reinvention Laboratories supporting Vice President Gore's National Performance Review, in which the Department has taken an active role. One advance is the implementation of computer-assisted mail sorting systems, which will improve efficiency and reduce by five the number of employees needed for this staff. Also, USDA is taking the lead in developing Government-wide mail management initiatives that are projected to save over $2 million.

Washington Area Strategic Space Plan

The Washington Area Strategic Space Plan has been developed to address USDA Washington metropolitan area work space needs well into the 21st century. It is a strategy for moving employees from leased space (at 18 locations) into Government-owned space in Beltsville, MD, and a modernized South Building headquarters complex in Washington, DC. The first component of the plan, the construction of the 350,000-square-foot Beltsville Office Facility (BOF), was completed in December 1997. Approximately 600 employees occupied the complex as of August 1998, and relocation to the BOF will continue until the four buildings are fully occupied.

The four-building complex is equipped with a state-of-the-art telecommunications infrastructure designed into the base building construction. Other features include a full-service cafeteria, the National Agricultural Research Center Credit Union, and a health unit. A Child Development Center, fitness center, sundry store, nursing mothers room, and telecommuting center are planned.

The second component of the plan is to modernize the 1.3-million-square-foot, 60-year-old South Building, which is in need of renovation to make it a modern, safe office environment. The project will be completed in eight phases. The first-phase construction contract was awarded on July 30, 1998. Construction of Phase I should take approximately 1 year.

Office of Small and Disadvantaged Business Utilization

Public Law 95-507, enacted October 1978, required the establishment of Offices of Small and Disadvantaged Business Utilization (OSDBU) in every Federal agency. USDA established its OSDBU on June 26, 1979. OSDBU provides departmentwide leadership and oversight for implementing and executing Small Business Programs prescribed under Sections 8 and 15 of the Small Business Act of 1958 as amended. It

also has implementation responsibilities for Executive Order (E.O.) 12432, Minority Business Enterprise Development, and E.O. 12138, Women-Owned Business Enterprise Development.

OSDBU develops policy to enhance the utilization of small, minority, and women-owned businesses in the contract and program opportunities of USDA. It analyzes procurement trends and develops initiatives to improve contract awards to small, minority, and women-owned businesses. It provides outreach to raise awareness and solicit small business interest in USDA programs, and it monitors and reports the percentage of contract awards by USDA to small, minority, and women-owned businesses.

OSDBU's goal is to provide information, guidance, and technical assistance to ensure continuous growth in the rate of small business participation in USDA programs and procurements.

If you are interested in business opportunities with the Department of Agriculture, visit our web site at *www.usda.gov/da/smallbus.html* or call (202) 720-7117 for more details.

Office of the Chief Economist

The Office of the Chief Economist advises the Secretary of Agriculture on policies and programs affecting U.S. agriculture and rural areas. This advice includes assessments of USDA program proposals, legislative proposals, and economic developments of importance to agriculture and rural areas. In addition, the Office of the Chief Economist is responsible for several programs, described below, that coordinate activities across USDA agencies.

The World Wide Web address for the Office of the Chief Economist is *http://www.usda.gov/oce/*

World Agricultural Outlook Board

The World Agricultural Outlook Board is USDA's focal point for forecasts and projections of global commodity markets. Each month the Board brings together interagency committees of experts to forecast the supply, use, and prices of major commodities in the United States and abroad. The committees also clear agricultural forecasts published by other USDA agencies. This teamwork ensures that USDA forecasts are objective and consistent.

Because the weather is vital to crop forecasts, specialists from the Board work side-by-side with weather forecasters from the National Oceanic and Atmospheric Administration to monitor the weather and assess its effect on crops. Their work provides timely information on potential changes in global production. In related work, the Board also coordinates department-wide activity on long-term economic projections, remote sensing, and climate.

The World Wide Web address for the World Agricultural Outlook Board is *http://www.usda.gov/oce/waob/waob.htm*

Office of Risk Assessment and Cost-Benefit Analysis

This office is responsible for coordinating, reviewing, and approving all risk assessments and cost-benefit analyses of mitigation measures associated with major regulations of the Department. Major regulations are economically significant (with an impact of at least $100 million each year) and have a primary effect on human health, human safety, or the environment. The office provides direction to USDA agencies on appropriate methods for these analyses and serves as a focal point on matters relating to risk assessment in interagency reviews.

The World Wide Web address for the Office of Risk Assessment and Cost-Benefit Analysis is *http://www.usda.gov/oce/oracba/oracba.htm*

Agricultural Labor Affairs

The coordinator of agricultural labor affairs is a focal point for agricultural labor policy in USDA. Areas of concern include immigration, the H-2A temporary agricultural worker program, worker protection standards for pesticide use, farm labor supply, and agricultural employment issues.

The World Wide Web address for this office is *http://www.usda.gov/oce/oce/labor-affairs/affairs.htm*

Sustainable Development

The director of sustainable development coordinates USDA policies and programs in sustainable development, including sustainable agriculture, forestry, and rural communities. The director chairs a sustainable development council within USDA and serves as a liaison for Federal sustainable development activities.

The World Wide Web address for this office is *http://www.usda.gov/oce/oce/sustainable-development/sustain.htm*

Global Change

Global climate change, whether from natural causes or human activity, could have important consequences for farming, forestry, and rural areas. The Global Change Program Office functions as the USDA-wide coordinator of global change program and policy issues facing the Department. The Office coordinates activities with other agencies, interacts with the legislative branch on climate change issues, and represents USDA in international climate change discussions. It also is a source of objective assessment of the economic effects of climate change and proposed mitigation strategies on agriculture and forestry.

The World Wide Web address for this office is *http://www.usda.gov/oce/oce/global-change/global.htm*

Office of Inspector General

USDA's Office of Inspector General (OIG), the first civilian OIG in the Federal Government, was established in 1962 and became fully operational in 1963. OIG conducts and supervises audits and investigations relating to USDA's programs and operations. It provides leadership and coordination and recommends policies for

activities that will prevent and detect fraud and abuse and promote economy, efficiency, and effectiveness in USDA programs and operations. Furthermore, OIG keeps the Secretary and Congress fully informed of problems and deficiencies related to administration of USDA programs and operations, and of the actions designed to correct such problems and deficiencies.

During the period April 1, 1997, through March 31, 1998, audit and investigative efforts resulted in approximately $107.6 million in recoveries, collections, fines, restitutions, claims established, administrative penalties, and costs avoided. Management agreed to put an additional $102.7 million to better use. OIG also identified $913.2 million in questioned costs that cannot be recovered. Investigative efforts resulted in 624 indictments and 604 convictions.

OIG began work on Presidential initiatives to improve the efficiency of three USDA programs. The first initiative, Operation Talon, is already resulting in the large-scale arrest of fugitive felons who are illegally receiving food stamps. Operation Talon was designed to locate and apprehend fugitives who were receiving food stamps, and was made possible by legislative changes in welfare reform. As of June 12, 1998, a total of 2,884 fugitive felons had been arrested, most of whom were current or former food stamp recipients. The fugitives arrested during Operation Talon have included dangerous felons wanted for murder, child molestation, rape, and kidnapping, and over one-third of those arrested were sought in connection with violent crimes or illegal drug activity. At a White House press announcement in December 1997, Vice President Al Gore announced the results of the first phase of Operation Talon. Following the announcement, OIG and the Food and Nutrition Service informed all States of the benefits of conducting similar matches.

The second Presidential initiative is detecting significant fraud committed by a number of Child and Adult Care Food Program sponsors around the country. For example, an official of a California sponsoring organization was sentenced to 3 years in prison, and her husband, the second sponsor official, was sentenced to 2 years. The couple was ordered to pay $2.2 million in restitution. Two additional sponsor officials were sentenced to 7 months each in prison and ordered to pay a total of $60,000 in restitution.

The third Presidential initiative, which is being conducted jointly with the Rural Housing Service, is aimed at uncovering misuse of funds and hazardous living conditions in the Rural Rental Housing Program. Recent passage of amendments to the Housing Act of 1949 enabled the Inspector General and the Under Secretary for Rural Development to take aggressive action to identify and refer for prosecution those owners/managers and management companies who fraudulently charge expenses to their projects while allowing their projects to physically deteriorate.

Office of the Chief Information Officer

The USDA Secretary's Memorandum 1030-30 established the Office of the Chief Information Officer (OCIO). The CIO is independent of any other office or agency of the Department and reports directly to the Secretary. Its mission is to

strategically acquire and use information and technology resources to improve the quality, timeliness, and cost-effectiveness of USDA service delivery to customers.

The OCIO has primary responsibility, under the Clinger-Cohen Act of 1996, to supervise and coordinate the design, acquisition, maintenance, use, and disposal of information technology by USDA agencies; to monitor the performance of USDA information technology programs and activities; and to ensure that USDA information management is consistent with the principles of the Paperwork Reduction Act and information security and privacy requirements. The CIO consults with the Department's Chief Financial Officer to ensure that USDA's information technology programs and activities are carried out in a cost-effective manner, and that financial and related program information is reliable, consistent, and timely. The CIO also deals with top-level officials in the Office of Management and Budget and other Federal agencies, and testifies before Congressional committees.

The OCIO is composed of an information resources management policy staff and an operations staff, known as the National Information Technology Center (NITC). NITC provides information management services and technology to support the missions of USDA and its agencies, the Federal Aviation Administration, and other Government clients. The NITC centralized computing facility of mainframe and client/server platforms, software, and support represents "leading edge" capability, consistency, and reliability. The applications that run in the NITC environment are national in scope and importance, directly serving approximately 70,000 end users.

Office of the Chief Financial Officer

The Chief Financial Officer has responsibility for oversight of all financial management activities relating to USDA programs and operations. The Office of the Chief Financial Officer (OCFO) directs, manages, provides policy guidance, and coordinates financial management activities and operations. It ensures compliance throughout the Department with applicable accounting standards and principles, and ensures adequate controls over asset management, including cash management operations, real property, equipment, and inventories. Through partnerships, it provides financial management leadership and service to support quality program delivery in the Department.

OCFO is responsible for developing and maintaining an integrated departmental accounting and financial management system which provides complete, reliable, consistent, and timely financial information that is responsive to the needs of program managers. OCFO is also responsible for ensuring auditable financial statements.

OCFO operates the largest automated administrative servicing operation in the Federal Government—the National Finance Center (NFC) in New Orleans, LA. The NFC processes salary and benefit payments for more than 450,000 Federal employees, performs administrative services for more than 100 Federal departments and agencies, and acts as recordkeeper for the Federal Government's Thrift Savings Plan (TSP). The TSP currently services a $65 billion account for 2.3 million Federal employees and retiree members.

Office of Congressional and Intergovernmental Relations

Office of Congressional Relations

USDA's Office of Congressional Relations serves as the Department's primary liaison with Members of Congress and their staffs, providing information on the Department's legislative agenda, budget proposals, programs, and policies.

Office of Intergovernmental Affairs

The Office of Intergovernmental Affairs (OIA) works closely with the Nation's governors and State Commissioners of Agriculture, and other State and local elected officials, on various issues relating to their States. OIA is responsible for disseminating information on programs involving the implementation of USDA policies and procedures applicable to the Department's intergovernmental relations.

OIA participates with the Secretary, Deputy Secretary, and the Assistant Secretary for Congressional Relations in the overall planning, formulation, and direction of the activities of the office relating to intergovernmental affairs. OIA serves as the USDA liaison with the White House and other executive branch agencies and Departments with respect to intergovernmental affairs

American Indian and Alaska Native Programs

The Director of Native American Programs, located in the Office of Intergovernmental Affairs, is USDA's primary contact with tribal governments and their members. The director serves as the principal adviser and representative on all matters related to USDA policy and programs which affect and are available to American Indians and Alaska Natives. The director also chairs USDA's Native American Working Group, which reports to the Secretary and provides advice, support, and other assistance to the director. In 1992, USDA adopted an American Indian and Alaska Native policy which guides USDA's interactions with Indian tribes.

USDA provides a wide range of programs and services in all mission areas to American Indian and Alaska Native communities. In recent years, the Department has reached out to inform American Indians and Alaska Natives about USDA programs and services available to them, to deliver programs more effectively to Indian tribes, and to initiate new programs in response to the needs of Indian tribes. In October 1997, USDA published *Guide to USDA Programs for American Indians and Alaska Natives* to improve tribal communities' access to USDA programs. The guide is also available on the USDA home page at the following address: *www.usda.gov/news/pubs/indians/open.htm*

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6. Rural Development: Creating Opportunity for Rural Americans

USDA Rural Development is forging new partnerships with rural America by funding development projects and providing technical assistance and information to create quality jobs, services, housing, and utilities. Revitalizing rural America It is essential if it is to maintain or regain its posture as a place where millions of rural people can achieve the American dream. This need is evident from the following:

- More than 52 million people live in rural areas of the United States, 15.9 percent of whom live in households with income below the Federal poverty level.
- 55 percent of the nonmetropolitan population lives in counties with no town of even 10,000 residents; half of those people reside in remote areas that lack direct access to metropolitan areas.
- During the last 20 years, the number of family and hired workers employed on farms has decreased by 35 percent, although farm employment appears to have stabilized in recent years as advances in mechanization and labor-saving technology have leveled off and the decline in farm numbers has slowed. Today, only 24 percent of all rural employment is in farm and farm-related industries. The relocation of new businesses or industries to rural areas can help sustain the economic viability of rural areas as they adjust to changes in agricultural employment. Between 1990 and 1997, more than 75 percent of the approximately 2,300 nonmetro counties experienced some employment growth.
- Census figures from 1960-90 reveal that 535 rural counties endure persistent poverty, with more than 20 percent of their residents living below the poverty level.

USDA Rural Development is comprised of three agencies. The Rural Utilities Service (RUS) addresses rural America's need for basic services such as clean running water, sewers and waste disposal, electricity, and telecommunications. The Rural Housing Service (RHS) addresses rural America's need for single-family and multi-family housing as well as health facilities, fire and police stations, and other community facilities. The Rural Business-Cooperative Service (RBS) provides help to rural areas that need to develop new economic opportunities, allowing businesses and cooperatives to remain viable in a changing economy.

In addition, the Federal Government is seeking to form partnerships with other entities— such as State, local, and tribal governments, private and nonprofit organizations, and member-owned cooperatives—to revitalize rural areas. Rural Development programs are provided across the Nation through 47 State offices and 800 area and local offices.

How Rural Development Works

The following examples illustrate how USDA Rural Development is working to serve rural citizens and bolster the quality of life in rural communities:

- In Oklahoma, a long-term rehabilitation facility was financed with the help of an $11 million guaranteed Rural Development loan. This 64-bed facility will provide full service to trauma patients in a 20-county area of Oklahoma, Texas, and Arkansas. The project will create a variety of professional and semiprofessional job opportunities, increase business and revenues to small businesses and service establishments, and provide an economic boost to the surrounding communities.
- Residents of a rural Missouri town are looking forward to getting something never before available in their community: a sewer system. Funded by USDA Rural Development, the sewer system will provide service to 103 customers when completed. The project includes construction of a complete sanitary sewer collection and pumping system.
- A rural North Dakota electric cooperative received a Rural Development grant to establish a revolving loan fund. The first loan was made to a hospital authority to aid in constructing and equipping a new outpatient clinic and service center to update the existing hospital facility. The project benefits residents of the town and surrounding counties who will receive health care from the new hospital and clinic.
- Agriculture Secretary Dan Glickman and a group of USDA employees helped raise walls at a Maryland rural housing development which will soon be home for 22 families or individuals, most of whom thought they would never share in the American dream of homeownership. The single-family homes are being built under Rural Development's Self-Help Housing program, in which groups of low-income rural people become homeowners through the investment of "sweat equity."
- A consortium of eight rural schools in California will use Rural Development funds to purchase equipment needed to create a distance-learning video conferencing system. The eight schools will be connected with one another and many higher educational institutions. Through this network, the schools will be able to share resources, reduce expenses, provide advanced classes for seniors, increase all class offerings for K-12, and improve the reading and language skills of younger students. The teachers will be able to communicate with others in their field of study, thus eliminating teacher isolation. Also, by connecting with area colleges, adults will gain continuing-education opportunities. It is anticipated that 3,296 students, not counting the adults, will benefit from this project.
- The Kentucky Department of Agriculture is concerned about the impact of changes in the Federal tobacco program on small farmers in the State. It obtained a Rural Development grant that provides assistance to groups that present a viable business plan to market alternative crops. USDA cooperative experts are also working with three vegetable marketing cooperatives in the

State to develop business plans for operations in 1998, and will continue to provide training to management and directors in the future.

- A businessman was leasing a building to run a tire center in the Scott/McCreary Enterprise Community in Tennessee. His business was doing well until the construction of a new highway, which cut his parking lot in half. He started losing customers, was to the point of having to take out a second mortgage on his home, and even had to lay off some of his employees. He applied for an Intermediary Relending Program (IRP) loan and was able to relocate and double his work force, and his parking area.

The following overviews describe the three Rural Development Agencies and their main programs.

Rural Business-Cooperative Service

Creation of viable new and improved businesses and cooperatives in rural America is the top priority of the Rural Business-Cooperative Service (RBS). This agency works through partnerships with public and private community-based organizations to provide financial assistance, business planning, and technical assistance to rural businesses. It also conducts research into rural economic issues, including rural cooperatives, and provides educational material to the public

Business and Industry (B&I) Loan Guarantees help finance rural business and industry projects that create employment opportunities and improve the economic and environmental climate in rural communities, including pollution abatement and control. Loan guarantees are made for projects that foster lasting community benefits and bolster existing private credit structures. Priority for B&I loan guarantees is given to applications for loans from rural areas or cities of 25,000 or less, with loans limited to areas not within the outer boundary of a city having a population of 50,000 or more and its immediately adjacent urban area. Loans are limited to $25 million for any one borrower.

Direct Business and Industry (B&I) Loans are made to public, private, and cooperative organizations, Indian tribes or tribal groups, corporate entities, or individuals to improve the rural economy. The program is an economic-stimulus tool which can help rural areas in greatest need.

Intermediary Relending Program Loans finance business facilities and community development projects in rural areas, including cities of less than 25,000. Loans to intermediaries support new business facilities and community development projects in rural areas.

Rural Economic Development Loans and Grants promote rural economic development and job creation projects, including feasibility studies, startup costs, and other reasonable project expenses. The maximum amount of a grant or loan is $330,000. Loans have a maximum term of 10 years and are repaid without interest. These loans and grants are available to existing Rural Utilities Service electric and telecommunications borrowers.

Rural Business Enterprise Grants assist public bodies, nonprofit corporations, and federally recognized Indian tribal groups to finance and develop small and

emerging private business enterprises located in rural areas. Grant funds may be used to acquire and develop land and to construct buildings, plants, equipment, access streets and roads, parking areas, and utility and service extensions. In addition, funds may be used for refinancing, fees for professional services, technical assistance, startup costs and working capital, financial assistance to a third party, production of television programs targeted to rural residents, and rural distance-learning networks.

Rural Cooperative Development Grants finance the establishment and operation of centers for cooperative development. The program enhances the economy of rural areas by developing new cooperatives and fostering improved operations for existing co-ops.

The **Appropriate Technology Transfer for Rural Areas** program provides information to farmers and other rural users on a variety of sustainable agricultural practices, including crop and livestock operations. It helps agriculture by giving reliable, practical information on production techniques and practices that reduce costs and that are friendly to the environment. Farmers can request information via a toll-free telephone number.

The **National Sheep Industry Improvement Center** promotes strategic development activities to strengthen and enhance production and marketing of sheep, goats, and their products in the United States. The center, which has a board of directors to oversee its activities, operates a revolving fund for loans and grants.

The **Research on Rural Cooperative Opportunities and Problems** program provides funding for cooperative research agreements with universities, State agencies, and nonprofit associations. Information and research findings from these projects are published by the institution or by USDA Rural Development.

Cooperative Services helps improve the performance of the Nation's cooperatives and promotes understanding and use of the cooperative form of business. By working together for their mutual benefit in cooperatives, rural residents are often able to reduce costs for production supplies and consumer goods, obtain services that might otherwise be unavailable, and achieve greater returns for their products. Cooperative Services accomplishes its mission by (1) responding to requests for technical assistance from rural residents who want to organize a cooperative or improve operations of an existing cooperative, (2) providing information and educational materials relating to cooperatives, (3) conducting research on cooperative financial, structural, managerial, policy, member governance, legal, and social issues, and (4) collecting and disseminating statistics to support research and technical assistance work.

The mission of the **Alternative Agricultural Research and Commercialization Corporation (AARC)** is to expedite the commercialization of new industrial products made from—or new uses for—agricultural and forestry materials and animal byproducts. The corporation makes repayable investments in small businesses in rural areas. Repayments go into a revolving fund for investment in other projects. Applicants are expected to match AARC funds with an equal amount of funding from other sources.

Rural Business Opportunity Grants can be made annually for up to $1.5 million to provide technical assistance training and planning for business and economic development in rural areas.

A **Rural Venture Capital Demonstration Program** is being developed to provide a guarantee for projects that serve as a catalyst to attract private investments in businesses in rural areas. The amount of the guarantee may not exceed 30 percent of any pool of funds provided by up to 10 community development venture capital organizations.

Rural Housing Service

Decent, safe, sanitary, affordable housing and essential community facilities are indispensable to vibrant rural communities. USDA's Rural Housing Service (RHS) has the responsibility to make these essential elements available to rural Americans. RHS programs help finance new or improved housing for more than 70,000 moderate- or low-income families each year. These programs also help rural communities finance construction, enlargement, or improvement of fire stations, libraries, hospitals, clinics, day-care centers, industrial parks, and other essential community facilities.

In October 1996, a Centralized Service Center in St. Louis, MO, opened to provide automated loan servicing to RHS single-family housing borrowers. This effort is considered a showcase project for the reinvention of government, intended to make government services work better and cost less. The service greatly expands services to borrowers while substantially reducing the staff needed to operate the program nationally.

Home Ownership Loans provide opportunities and assistance to low-income households in rural communities, helping them to purchase, construct, repair, or relocate a home. Borrowers are offered 33-year loans at fixed interest rates as low as 1 percent, depending on the family's adjusted income. Moderate-income rural residents can be assisted with loan guarantees offered through private lenders. The loans, both direct and guaranteed, can cover up to 100 percent of market value or acquisition cost, whichever is less.

Home Improvement and Repair Loans and Grants enable very-low-income rural homeowners to remove health and safety hazards from their homes and to make homes accessible for people with disabilities. Loans have a maximum interest rate of 1 percent. Grants are available for people age 62 and older who cannot afford to repay a loan. A combination of funds from a loan and grant can be used by eligible elderly residents. Housing preservation grants are made to nonprofit groups and government agencies to finance rehabilitation of rental units for low-income residents.

Rural Rental Housing Loans finance construction of rental and cooperative housing for low-income individuals and families, including elderly or disabled persons. Loans have a maximum term of 30 years, can equal up to 100 percent of the appraised value or development cost, whichever is less, and can be used to construct new housing or to purchase or rehabilitate existing structures.

Rental Assistance payments subsidize rent costs to ensure that low-income tenants will pay no more than 30 percent of their income for rent.

Community Facilities Loans, Loan Guarantees, and Grants finance the construction, enlargement, extension, or other improvements for community facilities providing essential services in rural areas and towns with a population of 50,000 or less. Funds are available to public entities such as municipalities, counties, special-purpose districts, Indian tribes, and nonprofit corporations.

Rural Utilities Service

Rural Utilities Service (RUS) programs touch the lives of tens of millions of rural Americans daily. Through project financing and technical assistance, RUS builds infrastructure to provide rural businesses and households with modern telecommunications, electricity, and water. Today, this also means bringing the "information superhighway" to rural America.

The **Water 2000 Initiative** is an ambitious undertaking to extend safe, dependable drinking water to rural communities. At least 2.2 million rural Americans live with critical quality and accessibility problems with their drinking water, including an estimated 730,000 people who have no running water in their homes. Since it started in 1994, Water 2000 has already improved drinking water quality or provided a public water supply for the first time to some 2.5 million people in more than 1,300 rural communities nationwide.

RUS is a partner with rural business and economic development efforts, providing infrastructure that is the foundation for competitiveness. It is a technical and financial resource in a time of change for rural utilities.

Rural Telecommunications Loans and Loan Guarantees build modern rural communications systems that provide rural areas with "on ramps" to the information superhighway by making financing available for telecommunications facilities. Loans made to rural telephone cooperatives and companies help bring reliable and affordable telecommunications services to more than 15 million rural Americans.

Rural Electric Loans and Loan Guarantees provide reliable, safe, and affordable electricity to rural America by financing power distribution, generation, and transmission systems. Loans are made to nonprofit and cooperative associations, public bodies, and other utilities which serve more than 25 million rural Americans.

Distance Learning and Medical Link Loans and Grants bring distance learning and telemedicine to rural America. Education and adequate medical care are crucial to the survival of rural communities, but are becoming increasingly difficult to provide. This program employs innovative ways to use existing telecommunications infrastructure to extend the reach of educational and medical expertise into communities without that expertise. The new loan program is being developed to further expand rural telecommunications infrastructure.

Water and Waste Disposal Loans and Grants develop water and waste disposal systems (including solid waste disposal and storm drainage) in rural areas and towns with populations of less than 10,000. The funds are available to public entities such as municipalities, counties, special-purpose districts, Indian tribes, and nonprofit

corporations. RUS also guarantees water and waste disposal loans made by banks and other eligible lenders.

Emergency Community Water Assistance Grants help rural communities that have experienced a significant decline in drinking water quantity or quality to make emergency repairs and replace existing facilities. Grants can be made in rural areas and towns with a population of 10,000 or less and a median household income of no more than 100 percent of the State's median nonmetropolitan household income.

Rural Empowerment Zones and Enterprise Communities

USDA Rural Development is involved in an ambitious effort to help revive the economies of some of the Nation's most economically depressed rural areas. USDA Rural Development continues to work closely with three Rural Empowerment Zones (EZ) and 30 Rural Enterprise Communities (EC) which are benefitting from special economic stimulus programs to help overcome persistently high poverty rates. These EZ/EC designations are helping to revitalize local communities by putting Americans to work.

The EZ/EC designations are based on strategic plans developed by local leaders, organizations, State officials, and the private sector. Each EZ and EC designation means special consideration for various Federal programs and other assistance, including social service block grants, new tax-exempt facility bonds, tax incentives for employment, and other special consideration for existing Federal programs.

Communities seeking designation under a second round of EZ/EC were required to file nomination packages by October 9, 1998.

The current Rural Empowerment Zones are:

- Kentucky Highlands (Clinton, Jackson, and Wayne Counties);
- Mid-Delta in Mississippi (Bolivar, Sunflower, Leflore, Washington, Humphries, and Holmes Counties);
- Rio Grande Valley in Texas (Starr, Cameron, Hidalgo, and Willacy Counties).

The 30 Enterprise Communities include counties and towns across the Nation. States with one or more ECs include: Alabama, Arizona, Arkansas, California, Florida, Georgia, Louisiana, Michigan, Mississippi, Missouri, New Mexico, North Carolina, Ohio, Oklahoma, Oregon, Pennsylvania, South Carolina, South Dakota, Tennessee, Virginia, Washington, and West Virginia.

Employers in the EZ qualify for tax credits for each qualified worker who resides in the zone. Each EZ receives $40 million and each EC receives $2.95 million to implement the strategic plans. In addition, each EZ and EC receives priority for certain programs available through Rural Development agencies.

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7. Farm and Foreign Agricultural Services

The Farm and Foreign Agricultural Services mission area includes three agencies: the Farm Service Agency (FSA), the Foreign Agricultural Service (FAS), and the Risk Management Agency (RMA). This mission area serves production agriculture, helping to keep America's farmers and ranchers in business as they face the uncertainties of weather and markets.

These agencies deliver commodity, credit, conservation, and emergency assistance programs that help improve the stability and strength of the agricultural economy, expand overseas markets for U.S. agricultural products, and promote world food security. They also sanction the provision by the private sector of a broad-based crop insurance program and other risk management tools.

The ongoing evolution of the Farm and Foreign Agricultural Services mission area, through reorganization, crop insurance reform, and farm program changes, has profoundly altered the way it operates. The Federal Agriculture Improvement and Reform Act of 1996 replaced the traditional Federal role in some farm programs with the economic forces of the marketplace. The management of risk in this volatile setting has moved more fully to an emerging partnership between Government and the private sector.

The public interest calls for a dynamic, efficient agriculture that provides a sustainable, safe, and affordable food and fiber supply. The challenge is to serve this public interest at a time of diminishing resources and a decreased role for the Federal Government.

Farm Service Agency

FSA Mission

The FSA mission is to ensure the well-being of American agriculture and the American public through efficient and equitable administration of agricultural commodity, farm loan, conservation, environmental, emergency assistance, and domestic and international food assistance programs.

The FSA home page can be found at *http://www.fsa.usda.gov*

FSA Vision

FSA is a customer-driven agency with a diverse and multitalented work force, empowered and accountable to deliver programs and services efficiently, and dedicated to promoting an economically viable and environmentally sound American agriculture.

What is FSA?

FSA was established when USDA was reorganized in 1994, incorporating programs from several agencies, including the Agricultural Stabilization and Conservation Service, the Federal Crop Insurance Corporation (now a separate Risk Management Agency), and the Farmers Home Administration. Though its name has changed over the years, the agency's relationship with farmers dates back to the 1930's.

At that time, Congress set up a unique system under which Federal farm programs are administered locally. Farmers who are eligible to participate in these programs elect a three- to five-person county committee that reviews county office operations and makes many of the decisions on how to administer the programs. This grassroots approach gives farmers a much-needed say in how Federal actions affect their communities and their individual operations. After more than 60 years, it remains a cornerstone of FSA's efforts to preserve and promote American agriculture.

1996 Act

The 1996 Act, which became law April 4, 1996, significantly changed U.S. agricultural policy by removing the link between income support payments and farm prices. Farmers who participated in the wheat, feed grains, cotton, and rice programs in any one of the previous 5 years could enter into 7-year production flexibility contracts and receive a series of fixed annual "transition payments." These payments are independent of farm prices and specific crop production, in contrast to the past, when deficiency payments were based on farm prices and the production of specific crops.

The Federal Government no longer requires land to be idled, nor does it deny payments if farmers switch from their historical crops. The contract, however, requires participating producers to comply with existing conservation plans for the farm, wetland provisions, and planting flexibility provisions, and to keep the land in agricultural uses.

The law provided for a one-time signup, which ended August 1, 1996, for producers to enter into production flexibility contracts. There will be no additional signups except for land coming out of the Conservation Reserve Program. Farmers who entered into a contract are also eligible for market transition loans at local FSA offices.

Marketing Assistance Loan Programs

FSA administers commodity loan programs for wheat, rice, corn, grain sorghum, barley, oats, oilseeds, tobacco, peanuts, upland and extra-long-staple cotton, and sugar.

The agency provides the operating personnel for the Commodity Credit Corporation (CCC), which provides assistance with respect to products of certain agricultural commodities through loans and purchases. This provides farmers with interim financing and helps maintain balanced and adequate supplies of farm commodities and their orderly distribution throughout the year and during times of surplus and scarcity. Instead of immediately selling the crop after harvest, a farmer who grows an eligible crop can store the produce and take out a "nonrecourse" loan for its

value, pledging the crop itself as collateral. Nonrecourse means that the producer can discharge debts in full by forfeiting or delivering the commodity to the Government.

The nonrecourse loan allows farmers to pay their bills and other loan payments when they become due, without having to sell crops at a time of year when prices tend to be at their lowest. Later, when market conditions are more favorable, farmers can sell crops and repay the loan with the proceeds. Or, if the prevailing price of the crop remains below the loan level set by CCC, farmers can keep loan proceeds and forfeit the crop to CCC instead. The repayment rate may also be replaced by USDA to minimize the costs of storing commodities and to allow commodities produced in the United States to be marketed freely and competitively, both domestically and internationally.

CCC loan rates are designed to keep crops competitive in the marketplace. A producer must have entered into a production flexibility contract to be eligible for nonrecourse marketing assistance loans for wheat, feed grains, rice, and upland cotton. Any production of a contract commodity by a producer who has entered into a production flexibility contract is eligible for loans.

Nonrecourse loans are also available for oilseeds, tobacco, peanuts, extra-long-staple cotton, raw cane sugar, and refined beet sugar, regardless of whether the producer has entered into a production flexibility contract. Price support for the marketing quota crops—tobacco and peanuts—is made available through producer loan associations. By law, these programs must operate at no net cost to the U.S. Treasury, and no-net-cost and marketing assessments are applied to both producers and purchasers.

If the tariff rate quota (TRQ) on imported sugar exceeds 1.5 million tons, sugar loans are nonrecourse. If the TRQ is less than that amount, sugar loans are recourse, which means borrowers cannot necessarily discharge their debts in full by simply forfeiting the commodity to the Government.

Commodity Purchase Programs

Forfeitures under nonrecourse commodity loan programs are not the only means by which CCC acquires inventory. Under the dairy price support program, CCC buys surplus butter, cheese, and nonfat dry milk from processors at announced prices to support the price of milk. These purchases help maintain market prices at the legislated support level. The 1996 Act eliminates dairy price support after December 31, 1999.

CCC can store purchased food in over 10,000 commercial warehouses across the Nation approved for this purpose. However, commodity inventories are not simply kept in storage. FSA employees work to return stored commodities to private trade channels. At the agency's Kansas City Commodity Office in Kansas City, Missouri, FSA merchandisers regularly sell and swap CCC inventories using commercial telecommunications trading networks.

Beyond the marketplace, CCC commodities fill the need for hunger relief both in the United States and in foreign countries. FSA employees work closely with USDA's Food and Nutrition Service to purchase and deliver foods for the National School Lunch and many other domestic feeding programs. When donated to "Food

for Peace" and programs administered by voluntary organizations, these U.S. farm products and foods help USDA fight hunger worldwide.

Disaster Assistance Available from FSA

The noninsured crop disaster assistance program (NAP) protects growers of many crops for which Federal crop insurance is not available (see Risk Management Agency). In addition, losses resulting from natural disasters not covered by the crop insurance policy may also be eligible.

NAP assistance is available for crops grown commercially for food and fiber. Floriculture, ornamental nursery products, Christmas tree crops, turfgrass sod, seed crops, aquaculture, and industrial crops are also included.

A NAP crop is eligible when the expected "area yield" for the crop is reduced by more than 35 percent because of a natural disaster. In addition to other criteria, a NAP area must include, at least, five producers of approved crops on separate and distinct farms.

To be eligible for NAP, producers must annually file an acreage and production report with the local FSA office. If a farmer does not report acres and yields by the yearly deadline, NAP assistance may be withheld following a major crop loss.

Emergency Loans

FSA provides emergency loans to help cover production and physical losses in counties declared disaster areas by the President or designated by the Secretary of Agriculture or the FSA Administrator (physical loss loans only). Emergency loans also are available in counties contiguous to such disaster areas. These loans are made to qualifying established family farm operators. Loans for crop, livestock, and non-real-estate losses are normally repaid in 1 to 7 years, and in special circumstances, up to 20 years. Loans for physical losses to real estate and buildings are normally repaid in 30 years, and in special circumstances, up to 40 years.

Other Emergency Assistance

In the aftermath of a natural disaster, FSA makes available a variety of emergency assistance programs to farmers in counties that have been designated or declared disaster areas.

FSA has several programs that are activated, usually by congressional action, during certain types of disasters. Among these are the Tree Assistance Program, which provides payments to eligible tree and vineyard growers who incurred losses due to natural disasters, including losses caused by freeze, excessive rainfall, floods, drought, tornado, and earthquakes.

Another such program, the Livestock Indemnity Program, helps livestock producers who suffered losses from recent natural disasters. It provides a partial reimbursement to eligible producers for livestock losses.

In the event of a national emergency, FSA is responsible for ensuring adequate food production and distribution, as well as the continued availability of feed, seed, fertilizer, and farm machinery.

Emergency Conservation Program

The Emergency Conservation Program provides emergency cost-share funding for farmers to rehabilitate farmland damaged by natural disasters that create new conservation problems which, if not treated, would:

- Impair or endanger the land,
- Materially affect the productive capacity of the land,
- Represent unusual damage which is not the type likely to recur frequently in the same area,
- Be so costly to repair that Federal assistance is or will be required to return the land to productive agricultural use.

The assistance may be used for: removing debris from farmland; grading, shaping, and re-leveling farmland; restoring livestock fences; and restoring irrigation structures.

Success Stories

Indiana Youth Loan Program

Several teenagers in Indiana qualified for FSA rural youth loans. One girl used her loan to buy 10 Dorsett ewes and a ram to establish a breeding flock and to obtain 2 sheep for 4-H show purposes. Another student used her loan proceeds to establish a flock of six ewes and two sheep for show purposes. Both girls, high-school sophomores and first-time FSA borrowers, note that, "Without this program, they would have only been able to purchase one or two of the animals." Another loan involves a repeat borrower who used her loan proceeds to expand her flock to the current level of 24 ewes, 2 rams, and 14 counting lambs. She has been raising and showing sheep for several years. Each year, she has increased the number of shows that she attends and is now starting to participate in several high-profile shows and sales around the Midwest. Based on this reputation, she is starting to sell her animals at higher value club prices and as breeding stock.

A Honey of a Success Story

An Alabama honey producer credits FSA youth and commodity loans with giving him his start more than 15 years ago. He obtained youth loans through FSA's predecessor, FmHA, and recalls that his mother had to sign for the commodity loans that helped him expand his operation. Now the third largest beekeeper in the State, with over 1,600 hives, he has a successful retail business selling processed honey, beeswax candles, and other honey-related byproducts.

FSA Staff to the Rescue

During disasters, FSA is available to help farmers and ranchers save livestock, trees, farmland, and much more.

- *In 1997, after a 6-day snowstorm in New Mexico, over 184,000 head of livestock were stranded for up to 15 days. FSA personnel dropped hay out of airplanes to feed thousands of head of snowbound cattle, sheep,*

and other livestock. The Foundation Livestock Relief Program was activated and assistance was provided to 371 livestock producers. Five emergency loans were approved as well.

- *A major ice storm blanketed the Northeast in January 1998. The storm flattened trees, collapsed farm structures, and snapped power lines. Many FSA personnel spent long hours working to help their neighbors, some by working at a local emergency center, others by hand-delivering generators and hunting down electricians for blacked-out farms.*
- *In California, torrential rain and flooding in February 1998 caused the Governor to declare a state of emergency in 31 counties and inflicted damage to an estimated 90,700 acres. California FSA staff worked overtime to quickly survey the losses and offer Emergency Conservation Program funds to help restore fields and irrigation structures.*

FSA is always standing by, waiting to help U.S. farmers and ranchers survive disasters and return to productivity.

Farm Loans

FSA offers direct and guaranteed farm ownership and operating loan programs to farmers who are temporarily unable to obtain private, commercial credit and who meet other regulatory criteria. Often, these are beginning farmers who cannot qualify for conventional loans because they have insufficient net worth. The agency also helps established farmers who have suffered financial setbacks from natural disasters, or whose resources are too limited to maintain profitable farming operations.

Under the guaranteed farm loan program, the agency guarantees loans made by conventional agricultural lenders for up to 95 percent of principal, depending on the circumstances. The lender may sell the loan to a third party; however, the lender is always responsible for servicing the loan. All loans must meet certain qualifying criteria to be eligible for guarantees, and FSA has the right to monitor the lender's servicing activities. Farmers interested in guaranteed loans must apply to a conventional lender, who then arranges for the guarantee.

For those unable to qualify for a guaranteed loan, FSA also lends directly. Direct loans are made and serviced by FSA officials who also provide borrowers with supervision and credit counseling. Funding authorities for direct loans are limited, and applicants may have to wait until funds become available. To qualify for a direct farm ownership or operating loan, the applicant must be able to show sufficient repayment ability, pledge enough collateral to fully secure the loan, and meet other regulatory criteria.

Conservation Programs

The Conservation Reserve Program (CRP) protects our most fragile farmland by encouraging farmers to stop growing crops on highly erodible and other environmentally sensitive acreage. In return for planting a protective cover of grass or trees on vulnerable property, the owner receives a rental payment each year of a multiyear

contract. Cost-share payments are also available to help establish permanent areas of grass, legumes, trees, windbreaks, or plants that improve water quality and give shelter and food to wildlife.

In the 16th CRP signup, held in 1997, 5.9 million acres of land were accepted into the program. The acreage USDA accepted into the CRP will allow for the restoration of more than 300,000 acres of wetlands and protective upland areas, 57,000 acres of rare and declining habitat, 150,000 acres of trees, and 3 million acres in high-priority conservation areas.

A new conservation program, the Conservation Reserve Enhancement Program, is part of the CRP. This program shields millions of acres of American topsoil from erosion by encouraging the planting of protective vegetation. By reducing wind erosion as well as runoff and sedimentation, it also protects air and groundwater quality and helps improve countless lakes, rivers, ponds, streams, and other bodies of water.

State governments have the opportunity to participate in this groundbreaking environmental improvement effort. USDA provides incentives to agricultural producers to participate, while State governments contribute specialized local knowledge, technical help, and financial assistance. The result is an environmental enhancement effort tailored to the specific environmental needs of each State.

FSA works with USDA's Natural Resources Conservation Service and other agencies to deliver other conservation programs, including the Environmental Quality Incentives Program (EQIP). EQIP helps farmers and ranchers improve their property to protect the environment and conserve soil and water resources. Participants can take advantage of education in new conservation management practices, technical support, cost-share assistance, and incentive payments.

Where To Get More Information on FSA Programs

- Further information and applications for the programs described in this chapter are available at local FSA offices. These are usually listed in telephone directories in the section set aside for governmental/public organizations under "U.S. Department of Agriculture, Farm Service Agency." FSA State offices supervise the agency's local offices and are usually located in the State capital or near the State land-grant university.

- For information on commodity sales and purchases, contact:
  USDA FSA Kansas City Commodity Office
  P.O. Box 419205
  Kansas City, MO 64141-6205
  Telephone: 816-926-6364

- FSA's aerial photographs of U.S. farmlands are used extensively by Government and private organizations and the public. Order forms and an index are available from FSA local offices. For more information on photographic services, including high-altitude photography, contact:
  USDA FSA Aerial Photography Field Office
  P.O. Box 30010
  Salt Lake City, UT 84130-0010
  Telephone: 801-975-3503

Foreign Agricultural Service

The Agency and Its Mission

The Foreign Agricultural Service (FAS) represents the diverse interests of U.S. farmers and the food and agricultural sector abroad. It collects, analyzes, and disseminates information about global supply and demand, trade trends, and emerging market opportunities. FAS seeks improved market access for U.S. products and implements programs designed to build new markets and to maintain the competitive position of U.S. products in the global marketplace.

The agency's mission is to serve U.S. agriculture's international interests by expanding export opportunities for U.S. Agricultural, fish, and forest products and promoting world food security. This mission directly supports USDA's priority of opening, expanding, and maintaining global market opportunities for agricultural producers. It is accomplished by partnering with other USDA and Federal agencies, international organizations, State and local governments, and the U.S. private sector to level the playing field for U.S. agricultural producers and exporters in the global marketplace and ensure a safe, nutritious, and reliable food supply to consumers worldwide.

FAS also carries out food aid and market-related technical assistance programs, and operates a variety of import and export programs. FAS helps USDA and other Federal agencies, U.S. universities, and others enhance the global competitiveness of U.S. agriculture and helps increase income and food availability in developing nations by mobilizing expertise for agriculturally led economic growth.

Formed in 1953 by executive reorganization, FAS is one of the smaller USDA agencies, with about 900 employees. FAS operates worldwide with staff in more than 75 posts covering more than 130 countries. Washington-based marketing specialists, trade policy analysts, economists, and others back up the overseas staff.

In addition, FAS has four domestic outreach offices that provide a complete range of export services to new-to-export companies and trade organizations, to help expand their business knowledge of export opportunities and USDA export assistance programs.

Roughly 70 percent of the annual FAS budget is devoted to building markets overseas for U.S. farm products. This includes the funding for all FAS trade and attache offices overseas, as well as the agency's work with U.S. commodity associations on cooperative promotion projects. The remaining funds cover other trade functions, including gathering and disseminating market information and trade policy efforts. To get a complete picture of the services offered and information available for exporters, FAS invites you to visit its homepage at: *http://www.fas.usda.gov*

U.S. Agricultural, Fishery, and Forest Product Exports

U.S. agricultural, fishery, and forest product exports totaled $67.4 billion in FY 1997, down $2.3 billion or 3 percent from the record set a year earlier. Many factors affect trade. The most important of these are economic growth, currency exchange rates, weather and crop conditions, barriers to market access, changing consumer lifestyles and food preferences, national support programs, and public and private market promotion efforts.

Agricultural, fishery, and forest product exports are vitally important to the Nation's economy. Exports provide expanded market opportunities and better incomes for agricultural producers, fishery and forest product harvesters, food processing companies, and associated manufacturing, financing, marketing, and transportation firms. Agricultural exports also enhance the Nation's ability to make efficient use of land, labor, and capital resources, and this efficiency increases the United States' comparative advantage in agricultural production.

U.S. agricultural exports alone (excluding fish and forest products) totaled $57.3 billion and created an estimated 974,000 full-time jobs in FY 1997, roughly 17,000 jobs for every $1 billion in products shipped. Many of these jobs were created off the farm. About 362,000 workers, or 10 percent of the U.S. farm labor force, produce agricultural goods for foreign markets. However, beyond farms and ranches, another 612,000 people in rural and urban areas work to process, package, store, market, finance, and ship agricultural exports. USDA economists calculate that, at the very least, each dollar earned from agricultural exports stimulates another $1.32 in business activity for the economy. In FY 1997, U.S. agricultural exports generated $76 billion in additional economic activity.

Agricultural products can be classified as bulk, intermediate, or consumer-oriented. Bulk commodities are essentially unprocessed, such as wheat, corn, soybeans, cotton, and tobacco leaf. Intermediate agricultural products (such as feeds and fodder, wheat flour, vegetable oils, and animal hides) receive some processing, but generally are not ready for final consumption. Consumer-oriented agricultural products include retail foods and beverages that have undergone various degrees of processing, as well as unprocessed products—such as fresh fruits and vegetables—that have relatively high per-unit values due to higher transportation, handling, or storage costs.

Commodity Highlights

U.S. agricultural exports turned in a mixed performance in FY 1997. Value-added intermediate and consumer food export value rose, while bulk commodity sales fell. Intermediate and consumer-oriented products scored another record year.

In FY 1997, U.S. exports of bulk agricultural commodities fell to $24.1 billion, down $4.6 billion from the year before. Increased competition and lower prices in the grain markets accounted for most of the decline. Wheat exports fell to $4.1 billion (down 40 percent) while coarse grain shipments fell to $6.9 billion (down 26 percent).

U.S. exports of intermediate agricultural products rose to a record $12.3 billion in FY 1997, up $1.4 billion. Rising sales of soybean meal (up 34 percent) and soybean oil (up 137 percent) accounted for most of the gain.

U.S. exports of consumer-oriented agricultural products set another record in FY 1997, with $20.8 billion in sales, up 4 percent from the record set just the year before. Snack foods, breakfast cereals and pancake mix, meats, dairy products, eggs and egg products, fruits and vegetables, juices, wine and beer, nursery products, and pet foods all set export records.

Fishery product exports dropped 6 percent to $2.7 billion in FY 1997. Forest product exports rose 5 percent to a record $7.5 billion.

Table 7.1

Top 15 U.S. agricultural, fish, and forest product exports, FY 1997

Product	*Category*	*$billion*
Soybeans	B	7.0
Coarse grains	B	6.9
Wheat	B	4.1
Red meats	C	3.9
Cotton	B	2.7
Poultry meat	C	2.5
Logs & chips	F	2.4
Fruit, fresh	C	2.1
Fruits & vegs., processed	C	2.1
Animal feeds & fodders	I	1.9
Soybean meal	I	1.7
Animal hides & skins	I	1.7
Tobacco, unmanufactured	B	1.6
Hardwood lumber	F	1.4
Tree nuts	I	1.3
Subtotal		**43.3**
Total U.S. exports		**67.4**

B = bulk agriculture, I = intermediate agriculture, C = consumer foods, F = forest products. Fiscal year = Oct 1 - Sept 30.

Major Export Markets

U.S. exports of agricultural, fish, and forest products are shipped worldwide. The top 10 markets for these exports accounted for three-quarters of total U.S. exports in FY 1997. These markets were Japan, the European Union (EU), Canada, Mexico, South Korea, Taiwan, China, Hong Kong, the Russian Federation, and the Philippines.

U.S. fish and forest product exports are more highly concentrated among fewer markets. The top five markets for U.S. fishery product exports—Japan, Canada, the EU, South Korea, and China—accounted for 90 percent of those exports in FY 1997. As for forest product exports, Japan, Canada, the EU, South Korea, and Mexico accounted for 86 percent of sales.

Imports of U.S. Agricultural, Fish, and Wood Products

The United States ranks among the world's largest importers of agricultural, fish, and forest products, along with the European Union and Japan. However, agricultural products make up only a small portion of total U.S. merchandise imports. In FY 1997, the record $55.5 billion total in U.S. purchases of foreign agricultural, fish, and forest products accounted for only 8 percent of all U.S. merchandise imports.

Imports provide consumers with products that are either not produced or not available in sufficient quantities in the United States. Examples of major imported agricultural products include tropical spices, teas, cocoa, coffee, bananas, and rubber. Domestic production of certain other agricultural products is insufficient to meet

Table 7.2.

Top 10 markets for U.S. agricultural, fish, and forest products, FY 1997

Market	*Exports ($billion)*	*Share of total U.S. exports (Percent)*
Japan	15.0	22.3
European Union	10.5	15.6
Canada	8.5	12.6
Mexico	5.4	8.0
South Korea	3.7	5.5
Taiwan	2.8	4.2
China	1.9	2.8
Hong Kong	1.8	2.6
Russian Federation	1.3	1.9
Philippines	.9	1.3
Subtotal	**51.8**	
Total U.S. exports	**67.4**	

year-round U.S. demand. This list includes certain cheeses, olives, olive oil, wool, lumber, shrimp, tuna, and tobacco. Seasonal items, such as fresh and processed fruits and vegetables, are imported during periods when U.S. production cannot fill domestic demand.

Agricultural, fish, and forest product imports provide U.S. consumers with a wider variety of lower-priced goods than would be available solely from the domestic market. Many of these products are used to manufacture high-value foods, beverages, and industrial products. Imports also support domestic jobs in the storage, processing, and distribution industries. U.S. imports provide foreign countries with needed foreign exchange which, in turn, can be used to purchase U.S. products.

Leading imports

Agricultural imports can be divided into three main categories based on level of processing and end-market use: bulk commodities, intermediate products, and consumer-oriented products.

Bulk commodity imports for FY 1997 totaled $8.7 billion, up 14 percent from the previous year. Intermediate products rose 6 percent to $6.8 billion. Consumer-oriented imports rose 10 percent to a record $20 billion, with gains in most major product groups. Fish and seafood rose 12 percent to $7.3 billion, and forest product imports rose 16 percent to a record $12.8 billion.

Table 7.3.

Top 15 U.S. agricultural, fish, and forest product imports, FY 1997

Product	*Category*	*$billion*
Softwood and treated lumber	F	7.1
Coffee, raw	B	3.0
Wine and beer	C	3.0
Shrimp	FS	2.8
Panel products	F	2.2
Red meats, fresh, chilled, frozen	C	2.1
Fruits/vegetables, processed	C	1.9
Vegetables, fresh	C	1.6
Snack foods	C	1.6
Animals, live	I	1.5
Rubber and allied products	B	1.3
Fruits, fresh (excl. bananas)	C	1.3
Bananas and plantains	C	1.2
Raw beet and cane sugar	B	1.0
Nursery products/cut flowers	C	1.0
Subtotal		**32.6**
Total U.S. Imports		**55.5**

B = bulk, I = intermediate, C = consumer-oriented, F = forest, FS = fish & seafood. Fiscal year = October 1 - September 30.

Major suppliers

Although the United States imports products from around the world, the top 10 country suppliers provided 63 percent by value of all U.S. agricultural, fish, and forest product imports in FY 1997. Purchases from Canada rose to a record $17.9 billion, up 13 percent from a year earlier. Major imports from Canada included lumber, panel products, cattle, and red meats. Purchases from Mexico rose 7 percent to a record $4.8 billion, with shipments of fresh vegetables, cocoa beans, tea, lumber, fresh fruits, snack foods, and beer. Indonesia, Italy, Colombia, Chile, France, and China also posted records.

Data and analysis on U.S. agricultural exports are available through the FAS Home Page on the Internet: *http://www.fas.usda.gov*

International Trade Agreements

FAS works closely with other government agencies, including the Office of the U.S. Trade Representative (USTR), to ensure that the trade interests of U.S. producers and processors are protected. For example, FAS played an instrumental role in ensuring that the Uruguay Round trade agreement, signed in 1994, led to lower tariffs and elimination of import bans on agricultural products in over 130 countries. The final agreement also included disciplines on quarantine restrictions, export subsidies, and trade-distorting production subsidies. FAS's trade policy focus now is to monitor and enforce this agreement and others, such as the North American Free Trade Agreement (NAFTA), and to prepare for the next round of global multilateral negotiations based on the success of the Uruguay Round.

Table 7.4.

Top 10 suppliers of agricultural, fish, and forest products, FY 1997

Supplier	*Imports ($billion)*	*Share of U.S. Imports (Percent)*
Canada	17.9	32.0
Mexico	4.8	9.0
Indonesia	2.3	4.1
Thailand	2.2	3.9
Brazil	2.0	3.6
Italy	1.5	2.7
Colombia	1.4	2.5
Chile	1.3	1.8
France	1.3	1.8
China	1.8	1.3
Top 10	**36.0**	**63.2**
World total	**55.5**	**100**

Fiscal year '97 = October 1, 1996 - September 30, 1997.

The vast majority of the thousands of individual commitments made by our trading partners are being implemented faithfully and on time. To ensure that commitments are fulfilled, FAS works with all interested parties to help identify apparent violations and address them at the appropriate level. In addition to working with the USTR, FAS works closely with agencies such as USDA's Animal and Plant Health Inspection Service (APHIS), to field a team with the technical experience needed to resolve problems.

In the past year, for example, the U.S. trade policy team ensured that the Philippines would import pork and poultry, that Korea would open its market for oranges, and that most countries would not block imports of wheat after karnal bunt was discovered on wheat from Arizona and New Mexico. These and many other issues were resolved without initiating a formal World Trade Organization (WTO) legal process, but rather by using bilateral consultations and regular meetings of the WTO. Through the WTO dispute settlement process, the team also won a formal dispute against the European Union regarding its ban on imports of most beef from the United States.

Food Aid Programs

USDA administers a number of foreign food assistance programs in conjunction with the U.S. Agency for International Development. Within USDA, the Foreign Agricultural Service is the leader in developing and executing these programs and initiatives.

For FY 1998, commodity funding available for food aid under Pub. L. 83-480 (P.L. 480) programs totals $818 million, including $295 million for Title I credit sales (including Title I/Food for Progress), $500 million for Title II donations (including Title II/World Food Program), and 23 million for Title III.

Under Title I credit sales, accomplishments in FY 1997 included continuing support for ongoing market development and humanitarian efforts. For example, USDA used the P.L. 480 Title I program to leverage the reduction of Cote d'Ivoire's tariff on brown rice from 15 percent to 5 percent and paddy rice from 10 percent to zero. The reduction is expected to result in increased commercial sales of U.S. rice. USDA also introduced a Title I-funded Food for Progress program in Mongolia. This program provided wheat to Mongolia when there was a shortage in local production due to drought and fires.

Under Title II emergency and private assistance donations program, administered by the U.S. Agency for International Development (USAID), $28 million can be provided as overseas administrative support. For FY 1998, commodities valued at approximately $500 million are planned for donations under Title II, including Title II donations through the World Food Program.

Accomplishments under the Title II program include: the implementation of activities by CARE and "Projects in Agriculture, Rural Industry, Science and Medicine, Inc./Peru (PRISMA)," which include health and nutrition interventions, micro-enterprise development, and agricultural productivity; CARE in Bangladesh to improve infrastructure, including road improvements that have led to increased commerce; and development activities in Ethiopia, including agricultural and credit and savings programs.

The Title III Food for Development program, administered by USAID, provides government-to-government grant food assistance to least-developed countries. Local sales proceeds can be used to support a variety of economic development and related activities in recipient countries. For FY 1998, commodities valued at $23 million are planned for donation under Title III.

Accomplishments under the Title III program include the use of Title III proceeds in Bolivia to finance agricultural research, extension, credit, and marketing services, and to help finance the country's successful immunization program. In Ethiopia, Title III multi-year activities support agricultural policy reforms designed to reduce government interventions. In Eritrea, Title III sales proceeds helped support the Government's rural roads, improving market access to agricultural inputs and products.

Another program, Food for Progress, is carried out using commodities or funds of the Commodity Credit Corporation (CCC) or funds appropriated under Title I, P.L. 480. The program, administered by USDA, provides commodities to needy countries as a reward for undertaking economic or agricultural reform. The Food for Progress program can provide assistance in the administration, sale, and monitoring of food assistance programs to strengthen private sector agriculture in recipient countries.

FY 1998 Food for Progress bilateral agreements using the Title I funding are planned with Albania, Bangladesh, Bosnia-Herzegovina, Kyrgyzstan, Mongolia, Mozambique, and Tajikistan, totaling about $50 million. In addition, a Food for Progress agreement with a private entity using the Title I funding is planned with Russia totaling about $10 million. Food for Progress programs using CCC funds totaling about $94 million are planned with U.S. private voluntary organizations for projects in 25 countries.

About 250,000 metric tons of U.S. agricultural commodities will be donated to Private Voluntary Organizations and Non-Governmental Organizations in 25 countries in FY 1998.

In May 1998, a first-ever Food for Progress Agreement was signed with Africare, a well-known Private Voluntary Organization, for donation of 12,600 metric tons worth of commodities for South Africa. Under the program (total value worth $12.8 million), Africare will sell the commodities in South Africa and use the proceeds toward development of rural enterprise and agricultural development in economically deprived areas.

The Farmer-to-Farmer Program provides short-term U.S. agricultural technical assistance, on a people-to-people basis, to developing and emerging markets countries worldwide. The program is managed by the Office of Private and Voluntary Cooperation, Bureau for Humanitarian Response at USAID. Since 1992, USAID has provided P.L. 480 funding for farmer-to-farmer activities in the Newly Independent States of the former Soviet Union (NIS). More than 2,700 volunteer assignments have been completed in the 12 NIS countries.

Section 416(b) of the Agricultural Act of 1949 authorizes the donation to needy countries of eligible commodities held by CCC. For FY 1998, there are 10,500 metric tons of nonfortified nonfat dry milk available for programming under this program.

Commercial Export Credit Guarantee Programs

The GSM-102 program guarantees repayment of short-term loans (90 days to 3 years) made by U.S. financial institutions to eligible banks in countries or regions that purchase U.S. farm products.

Under the GSM-102 program in FY 1998, about $5.6 billion worth of guarantees were made available for approximately 93 countries, including 11 regional programs—the Andean, Baltic, Caucasus, Central America, Central Europe, East Africa, East Caribbean, Southeast Europe, Southern Africa, West Africa, and West Caribbean regions.

Use of the GSM program on a regional basis has been successful in providing flexibility for sales to be financed by a creditworthy bank in a third country in the region, and in promoting U.S. agricultural exports to new markets. In the Andean region, use of third-country banks has resulted in increased exports of U.S. agricultural commodities. In FY 1997, USDA established a new GSM-102 regional program in East Africa, supporting first-time sales of U.S. wheat, wheat flour, and white corn to the region. Expansion of the program in Turkey aided in a 600-percent increase in U.S. cotton exports to Turkey in 1997.

Guarantees issued under the GSM-103 program can cover financing periods of more than 3 and up to 10 years. This program is designed to help developing nations make the transition from concessional financing to cash purchases. For FY 1997, credit guarantees were made available for sales to buyers in 34 countries, including regional programs for the Central America and Southern Africa regions.

The Supplier Credit Guarantee Program (SCGP) guarantees repayment of short-term loans (up to 180 days) that exporters have extended directly to importers for the purchase of U.S. agricultural commodities and products. SCGP allocations totaled $293 million in coverage for sales to buyers in 34 countries, including regional pro-

grams for the Andean region, the Baltics, Central America, Central Europe, Southeast Asia, and Southeast Europe. Under the announced FY 1998 availability, sales registrations of about $13 million provide coverage to U.S. exporters of goods to Mexico and the Andean, Central American, and Southeast Asian regions.

The program has been targeted at high-value and value-added agricultural products, which are typically sold in smaller sized export transactions. The SCGP has generated significant interest among U.S. exporters and promises to become more widely utilized as the private sector becomes more familiar with it.

The Facility Credit Program extends credit guarantees for export sales of U.S. capital goods and services to improve agriculture-related facilities in emerging markets.

Export Assistance Programs

The Export Enhancement Program (EEP), announced by USDA on May 15, 1985, operates under the authority of the Agricultural Trade Act of 1978 (the 1978 Act). The EEP permits CCC to provide cash bonuses to exporters to make U.S. commodities more competitive in the world marketplace and to offset the adverse effects of unfair trade practices or subsidies.

The Federal Agriculture Improvement and Reform Act of 1996 (the 1996 Act) set the maximum amounts that CCC could make available for the EEP as follows: FY 1996, $350 million; FY 1997, $250 million; FY 1998, $500 million; FY 1999, $550 million; FY 2000, $579 million; FY 2001, $478 million; and FY 2002, $478 million. However, for FY 1998, the Agriculture, Rural Development, Food and Drug Administration, and Related Agencies Appropriations Act, 1998, limited spending under the EEP to $150 million.

Dairy Export Programs

The Dairy Export Incentive Program (DEIP) helps exporters sell certain U.S. dairy products at competitive prices. The DEIP is authorized by the Food Security Act of 1985 (the 1985 Act). The major objective of the program is to develop export markets for dairy products where U.S. products are not competitive because of the presence of subsidized products from other countries.

Section 148 of the 1996 Act amended the 1985 Act to strengthen the DEIP's focus on market development, with the objective of reaching the volume or spending limits on export subsidies that are consistent with U.S. obligations as a member of the World Trade Organization. The DEIP operates on a bid bonus system, with cash bonus payments.

Market Access Program

The Market Access Program (MAP), formerly the Market Promotion Program, is authorized by section 203 of the Agricultural Trade Act of 1978. The MAP is funded at $90 million annually for FY 1996 through 2002 and is designed to encourage the development, maintenance, and expansion of foreign markets for U.S. agricultural commodities. Since its inception, the MAP has provided cost-share funds to approximately 800 U.S. companies, cooperatives, and trade organizations to promote their products overseas.

Foreign Market Development Program

The Foreign Market Development Program, also known as the "Cooperator Program," fosters a trade promotion partnership between USDA and U.S. agricultural producers and processors, represented by nonprofit commodity or trade associations called cooperators. Projects generally fall into one of four categories: market research, trade servicing, technical assistance, and consumer promotions for the retail market. The cooperator program has helped support growth in U.S. agricultural exports by enlisting private sector involvement and resources in coordinated efforts to promote U.S. products to foreign importers and consumers around the world.

International Links

The Foreign Agricultural Service is also responsible for coordinating, supporting, and delivering a diversified program of international agricultural cooperation and development. Its purpose is to enhance the competitiveness of U.S. agriculture, preserve natural resource ecosystems, and pursue sustainable economic development worldwide by mobilizing the resources of USDA and its affiliates.

Scientific Cooperation

Short-term exchange visits between U.S. and foreign scientists, as well as longer term collaborative research, focus on minimizing threats to U.S. agriculture and forestry, developing new technologies, establishing systems to enhance trade, and providing access to genetic diversity essential to maintaining crops that are competitive in the world marketplace.

Technical Assistance

Sponsored by such international donor institutions as the USAID, the World Bank, regional development banks, specialized agencies of the United Nations, and private organizations, technical assistance programs are designed to increase income and food consumption in developing nations, help mitigate famine and disasters, and help maintain or enhance the natural resource base. Technical assistance is provided in areas such as food processing and distribution, plant and animal protection and quarantine, soil and water conservation, and forest management.

Professional Development and Training

Career-related training for foreign agriculturists provides long-term benefits to economic development, magnifying potential because those who learn teach others. Working collaboratively with USDA agencies, U.S. universities, and private sector companies and organizations, FAS designs and implements study tours, academic programs, and short-term courses and training to meet specific needs of foreign agriculturists in a variety of areas such as agribusiness, extension education, natural resources, policy and economics, and human resource development. The programs help expose senior and mid-level specialists and administrators from developing, middle-income, and emerging-market countries to U.S. expertise, goods, and services, in order to promote broad-based development that is mutually beneficial to continued scientific, professional, and trade relationships.

International Organization Liaison

FAS serves as a liaison to coordinate and articulate USDA views on a number of agricultural policy and program issues in international organizations, in order to promote and enhance the interests of USDA and the U.S. agricultural sector. The views of diverse USDA agencies are synthesized into one voice, and that position is then coordinated with other U.S. Government agencies, most importantly the State Department, and represented in international forums.

Trade and Development Missions

FAS promotes a vital, healthy private agricultural sector at home and abroad by organizing marketing workshops, in-country technical team visits, and trade missions that link U.S. and foreign entrepreneurs and help them expand business and trade opportunities.

Risk Management Agency

The mission of the Risk Management Agency (RMA) is to provide and support cost-effective means of managing risk for agricultural producers in order to improve the economic stability of agriculture. Crop insurance is USDA's primary means of assisting farmers following a crop loss. For example, in 1997, nearly $24 billion in protection was provided on over 165 million acres through more than 1.1 million policies. Crop insurance helps farmers recover from crop losses, secure operating loans, and market a portion of their crop aggressively.

In 1997, an estimated 70 percent of acreage planted to major crops was insured. Crop insurance coverage is widely available on all major commodities, such as corn, wheat, and cotton. Coverage is also available on a growing number of fruits, nuts, and vegetable crops. Nationally, 80 crops are insurable, though not everywhere they are grown.

To help ensure greater farmer access to this valuable risk management tool, the Federal Crop Insurance Corporation (FCIC) Board of Directors expanded 28 crop programs into an additional 187 counties for the 1999 crop year. This expansion added to the national total of 28,154 county crop programs in 2,983 counties. Further, RMA continues to develop new pilot programs, such as insurance for cabbage, watermelons, and rangeland. By increasing the number and types of insurance plans, the program will help producers to better manage their production risks.

Multiple-Peril Crop Insurance

Multiple-Peril Crop Insurance (MPCI) policies insure producers against losses due to unavoidable causes such as drought, excessive moisture, hail, wind, frost, insects, and disease. Indemnities are paid on the difference between what was produced and the "yield guarantee" selected by the producer. Yield guarantees are selected by the producer and represent 50, 55, 60, 65 70, 75, and—for some areas and crops—85 percent of a producer's actual production history. The prices used to pay losses are between 60 and 100 percent of the commodity price established annually by RMA.

The Group Risk Plan

The Group Risk Plan (GRP) policies use a county index as the basis for determining a loss. When the county yield for the insured crop, as determined by the National Agricultural Statistics Service (NASS), falls below the "trigger level" chosen by the farmer, an indemnity is paid. Yield levels are available for up to 90 percent of the expected county yield. GRP protection involves less paperwork and costs less than the farm-level coverage described above. However, individual crop losses may not be covered if the county yield does not suffer a similar level of loss.

Revenue Insurance Plans

Revenue Insurance Plans include three plans: Crop Revenue Coverage, Income Protection, and Revenue Assistance. Revenue policies are different from standard MPCI policies in that they provide farmers with a measure of price risk protection in addition to covering yield loss. Two of the policies, Crop Revenue Coverage and Revenue Assurance, were developed by private-sector insurance companies. The Income Protection pilot was developed by RMA. Essentially, these policies guarantee a level of revenue that is determined differently by each of the policies. Indemnities are paid when any combination of yields and prices results in revenue that is less than the revenue guarantee.

Dairy Options Pilot Program (DOPP)

RMA launched an innovative cost-share initiative—the Dairy Options Pilot Program (DOPP)—to help producers create their own financial safety net by purchasing exchange-traded options on the price of their milk. When milk prices fall, producers offset losses based on projected future earnings—in effect, putting a floor under their milk prices.

> *"The new dairy options pilot program is only one step we are taking to help dairy farmers survive under current farm laws. We think it offers promise to help farmers manage the risk they may face from increased price volatility."*
>
> *—Dan Glickman*

During each 6- to 8-month round of DOPP, producers in the seven selected pilot States receive training and hands-on experience in trading their options on either the New York Board of Trade or the Chicago Mercantile Exchange. USDA pays up to 80 percent of the options premium costs and a $30 fee for transactions executed under program guidelines.

Outreach

RMA has intensified its efforts to reach beginning, minority, and limited-resource farmers. Some highlights of these efforts include:

- Creating new policies—such as those for sweet potatoes and rangeland—to meet the needs of minority farmers. Many new vegetable and fruit policies will be tested in pilot programs in the next few years.
- Partnering with the National FFA Foundation to produce risk management video and teaching materials.
- Funding development of risk management curriculums to meet the needs of American Indian agricultural businesses. Instructional material will be delivered through 29 tribal colleges.
- Improving the risk management skills of Hmong and Hispanic farmers in California by funding risk management training.

Risk Management Education

Recent changes to farm policy have increased the risk borne by individual producers. To help them acquire the risk management skills needed to compete and win in the global marketplace, RMA funded over $3 million in educational grants to help farmers and ranchers become active risk managers. The grants support public- and private-sector partnerships working to find improved risk management strategies, develop educational curricula and materials, and train producers and their advisors. The initiative is a cooperative effort by RMA; the Cooperative State Research, Education, and Extension Service; the Commodity Futures Trading Commission; and numerous private-sector agricultural organizations.

> *"This initiative is vitally important, because producers who do the best job of managing risk will be better prepared to compete in the post-Farm Bill market environment."*
>
> *—Dan Glickman*

International Outreach

Increasingly, other countries are examining the crop insurance program as an alternative to farm subsidies. RMA regularly meets with representatives from foreign governments and private organizations to explain the U.S. program. This vital outreach, which is primarily educational, is expected to grow in the future.

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8. Food, Nutrition, and Consumer Services

Food and Nutrition Service

Nutrition is one of USDA's central missions. The Food and Nutrition Service (FNS) administers USDA's nutrition assistance programs, with the mission of providing children and needy families better access to food and a more healthful diet through the food assistance programs and comprehensive nutrition education efforts.

USDA has elevated nutrition and nutrition education to top priorities in all its programs. Rather than simply providing food, FNS also works to empower program participants with knowledge of the link between diet and health.

At the same time, USDA is committed to ensuring that the programs operate accurately and efficiently. FNS works closely with the States to ensure that benefits are received only by those who are eligible, and to catch and punish people who seek to abuse the programs for their own gain.

FNS works in partnership with the States in all its programs. States determine most administrative details regarding participant eligibility and distribution of food benefits, and FNS provides funding to cover most of the States' administrative costs.

FNS was established August 8, 1969, but many of the food programs originated long before it existed as a separate agency.

For FY 1998, the total appropriation for the nutrition assistance programs is $37.2 billion, nearly two-thirds of the entire USDA budget.

Overall, the nutrition programs reach one out of every five Americans. Most of the programs are directed at low-income people or school children. They include:

- The Food Stamp Program
- The National School Lunch Program
- The School Breakfast Program
- The Nutrition Education and Training Program
- The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
- The WIC Farmers Market Nutrition Program
- The Commodity Supplemental Food Program
- The Child and Adult Care Food Program
- The Homeless Children Nutrition Program
- The Summer Food Service Program
- The Special Milk Program
- The Nutrition Program for the Elderly
- The Food Distribution Program on Indian Reservations
- The Emergency Food Assistance Program
- The Nutrition Assistance Program in Puerto Rico and the Pacific Islands

FNS is also the primary Federal agency that delivers food assistance in response to natural disasters and other crises. The agency includes an Office of Consumer Affairs.

The Food and Nutrition Service was formerly known as the Food and Consumer Service.

■ ***Nutrition Program Fact:***
Determining eligibility: Most of USDA's nutrition programs use household income as a guideline for program eligibility. Depending on the program rules, household income of 100 percent, 130 percent, or 185 percent of the Federal poverty level may be used to determine levels of eligibility. For FY 1998, 100 percent of the poverty guideline is $16,050 a year for a family of four; 130 percent is $20,865 a year; and 185 percent is $29,693 a year. Federal poverty guidelines are established by the Office of Management and Budget, and are updated annually by the U.S. Department of Health and Human Services.

The Food Stamp Program

The Food Stamp Program is the cornerstone of USDA's nutrition assistance programs. The program helps low-income households increase their food purchasing power and obtain a better diet. It is the primary source of nutrition assistance for low-income Americans. Initiated as a pilot program in 1961 and made permanent in 1964, the program issues monthly allotments of coupons that are redeemable at retail food stores, or provides benefits through Electronic Benefit Transfer (EBT).

The Food Stamp Program serves the most needy among the Nation's population. More than half of all food stamp participants are children. More than 90 percent of all food stamp households have incomes below the Federal poverty level, and 42 percent have incomes that are half or less of the poverty level. Ten percent have no income at all.

Increasingly, paper food stamp coupons are being replaced by Electronic Benefit Transfer, or EBT, a computerized system in which participants use magnetic strip cards to access their food stamp account at the point of sale. As of March 1998, 16 States were operating EBT systems statewide, and a total of 28 States had operational EBT systems for all or part of their caseload. All other States were in some stage of EBT development. The 1996 welfare reform law requires all States to implement EBT systems by 2002. By eliminating paper coupons and creating an electronic record of every food stamp transaction, EBT is a useful tool in improving program delivery and in reducing certain types of food stamp fraud and trafficking.

EBT is only one component of FNS's commitment to Food Stamp Program integrity. The agency works closely with the States to ensure that they issue benefits in the correct amounts, and only to people who are eligible. EBT has enhanced FNS's ability to catch those who abuse the program by selling their benefits or purchasing nonfood items, and penalties have been increased for people who are caught. In addition, the agency now has broader authority to review the performance of food retail-

ers who participate in the program, and to quickly remove those who fail to follow program rules.

USDA also provides educational materials and financial support to help States integrate nutrition into the Food Stamp Program and to help food stamp recipients make better use of their benefits.

Eligibility: Food stamp eligibility and allotments are based on household size and income, assets, and other factors. A household's gross monthly income cannot exceed 130 percent of the Federal poverty guidelines, and its net income cannot exceed 100 percent of the guidelines. Illegal aliens are not eligible to receive food stamp benefits, and the welfare reform law of 1996 excluded many legal aliens from eligibility as well. In addition, the law limited many unemployed able-bodied adults without dependents to 3 months of benefits in a 36-month period.

Benefits: The level of benefits a household receives is based on its household income. Average monthly benefits were more than $71 per person in 1997. Households with no income receive the maximum monthly allotment of food stamps—$408 for a family of four in FY 1998. The allotment is based on the cost of the Thrifty Food Plan, a low-cost model diet plan. The Food Stamp Program served an average of more than 20 million people each month in the first months of FY 1998.

Funding: The total Food Stamp Program appropriation was $25.1 billion in FY 1998.

■ ***Nutrition Program Fact:***
How EBT works: Electronic Benefit Transfer (EBT) is a computerized system that allows food stamp customers to use a plastic card similar to a bank card to access their food stamp benefits. Eligible recipients have an account established for their monthly benefits. At the grocery checkout, they present the card, which is used to debit their food stamp account for the amount of eligible purchases. The funds are automatically transferred to the retailer's account, and an electronic record is made of the transaction. No money and no food stamps change hands.

The National School Lunch Program

The National School Lunch Program (NSLP) is a federally assisted meal program operating in more than 95,000 public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to more than 26 million children each school day.

The NSLP is usually administered by State education agencies, which operate the program through agreements with local school districts. FNS administers the program at the Federal level. School districts and independent schools that choose to take part in the lunch program receive cash reimbursement and donated commodity assistance from USDA for each meal they serve. In return, they must serve lunches that meet Federal nutrition requirements, and they must offer free and reduced-price lunches to eligible children.

In 1994, to increase the nutritional quality of school meals, FNS launched Team Nutrition. New regulations issued in 1995 updated nutrition standards so that all school meals will meet the recommendations of the Dietary Guidelines for Americans. This is the first full-scale reform of the school lunch program since it was established in 1946. The program also makes training and technical support available to school nutrition and food service staffs.

In support of Team Nutrition, the Healthy Meals for Healthy Americans Act was enacted in 1994, requiring that all school meals conform to the Dietary Guidelines by school year 1996-97. The Healthy Meals for Children Act, in 1996, expanded the range of menu planning options for schools, and reinforced the requirement that all school meals must meet the Dietary Guidelines.

USDA has also placed special emphasis on improving the quality of commodities donated to the National School Lunch Program. The Commodities Improvement Council was established in 1995 to promote the health of school children by improving the nutritional profile of USDA commodities while maintaining USDA's support for domestic agricultural markets. Based on the council's recommendations, USDA reduced the fat, sodium, and sugar content of commodities, and is now offering a wider variety of new low-fat and reduced-fat products.

USDA has also greatly increased the amount of fresh produce provided to schools, and is now offering unprecedented amounts and varieties of fresh fruit and vegetables. A cooperative project with the Department of Defense (DOD) has allowed USDA to increase the variety of produce available to schools by utilizing DOD's buying and distribution system. The Department is also exploring ways to connect schools to small-resource farmers in their areas, to help the schools purchase fresh, local produce directly from the producers.

Eligibility: Any child, regardless of family income level, can purchase a meal through the NSLP. Children from families with incomes at or below 130 percent of the Federal poverty level are eligible to receive free meals. Children from families with incomes between 130 and 185 percent of poverty are eligible for reduced-price meals. Children from families with incomes over 185 percent of poverty pay the full, locally established price.

Benefits: Children receive meals free or at low cost because of USDA support for the school meals programs. Most of the support USDA provides comes in the form of cash reimbursements for meals served. The reimbursement is highest for meals served to students who qualify to receive their meals free, and the lowest reimbursement is for students who pay full price. The cash reimbursement rates for school year 1997-98 are: free, $1.89; reduced price, $1.49; and full price, 18 cents. Schools may charge no more than 40 cents for a reduced-price meal. They set their own prices for full-price meals.

In addition to cash reimbursements, schools are entitled to receive commodity foods, called "entitlement" foods, at an annually adjusted per-meal rate (currently 15 cents) for each meal they serve. Schools can receive additional commodities, known as "bonus" commodities, when these are available from surplus stocks purchased by USDA under price support programs. USDA commodities make up approximately 17 percent of the cost of the food served by the average school food authority. The remaining 83 percent is purchased locally by the school food authority.

Funding: For FY 1998, Congress appropriated $4.2 billion for the National School Lunch Program.

> ■ ***Nutrition Program Fact:***
> *USDA commodity foods make up only about 17 percent of the cost of foods that are served to children in the National School Lunch Program. Nonetheless, nearly 1 billion pounds of food, valued at more than $600 million, was provided to schools by USDA in FY 1997.*

The School Breakfast Program

The School Breakfast Program (SBP) provides cash assistance to States to operate nonprofit breakfast programs in eligible schools and residential child care institutions. The program operates in more than 68,000 schools and institutions, serving a daily average of some 6.9 million children. The program is administered at the Federal level by FNS. State education agencies administer the program at the State level, and local school food authorities operate it in schools.

Eligibility: Any child at a participating school may purchase a meal through SBP. Children from families with incomes at or below 130 percent of the Federal poverty level are eligible for free breakfasts. Children from families with incomes between 130 and 185 percent of the poverty level are eligible for reduced-price breakfasts. Children from families with incomes over 185 percent of poverty pay the full locally established price for their breakfasts.

Benefits: Students receive their meals free or at low cost because USDA supports the School Breakfast Program with cash reimbursements for meals served. For school year 1997-98, schools receive reimbursements of $1.045 for a free meal; 74.5 cents for a reduced-price meal; and 20 cents for a paid meal. Schools may charge no more than 30 cents for a reduced-price breakfast. There is no Federal limit placed on how much a school may charge for breakfast served to students who pay the full price.

Funding: For FY 1998, Congress appropriated $1.3 billion for the SBP.

> ■ ***Nutrition Program Fact:***
> *The vast majority of children who participate in the School Breakfast Program—about 86 percent—receive their meals free or at a reduced price. That compares to 57 percent of children who receive free or reduced-price meals in the National School Lunch Program.*

The Nutrition Education and Training Program and Team Nutrition

The Nutrition Education and Training Program (NET) is a direct grants-to-States program that provides the nutrition education and food service training component of the Child Nutrition Programs. Team Nutrition is a federally directed nutrition promotion and technical assistance effort to support implementation of new nutritional

requirements and menu planning options in the National School Lunch and School Breakfast Programs. NET provides the vehicle to transport Team Nutrition benefits to 94,000 schools across the Nation in an educationally effective and cost-efficient way.

Under NET, all funds are distributed to States. State and local school authorities leverage these limited resources into effective and innovative educational and training programs for children, educators, food service personnel, and parents. Over the past 19 years, NET has promoted an infrastructure and quality standards that support local schools in providing nutritious meals and improving the health and nutrition behavior of our Nation's children. State and local NET coordinators have been responsible for much of the local success of the Team Nutrition effort.

Team Nutrition has been successful in gaining grassroots support for implementation of the new nutritional requirements and menu planning options at the local level, and has provided many high-quality training and technical assistance resources. These resources enable NET to better accomplish its mandated mission to provide technical assistance to food service professionals and teachers, and to educate students on how to be informed consumers who have the necessary knowledge, skills, and attitudes to choose a nutritious diet that can positively affect their long-term health outcomes, as well as their productivity as students and citizens.

Eligibility: All children participating in or eligible to participate in the USDA Child Nutrition Programs may receive nutrition education through NET or Team Nutrition. WIC and food stamp participants may receive nutrition information available through those programs.

Funding: In FY 1998, Congress appropriated $3.75 million for the NET Program, and $8 million for Team Nutrition.

The WIC Program

The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) is a grant program whose goal is to improve the health of low-income, at-risk pregnant, postpartum, and breastfeeding women, infants, and children up to 5 years old, by providing supplemental foods, nutrition education, and access to health care. A few State agencies provide food directly to participants, but most States provide WIC vouchers that can be redeemed at authorized food stores for approved foods.

WIC provides each State with a grant of funds to serve its WIC population. Because of documented successes of the WIC Program in improving the nutritional well-being of participants, it has expanded significantly. In FY 1997, WIC served about 7.4 million people each month.

Eligibility: To be eligible for WIC, an applicant must meet State residency requirements, meet an income standard (or be a member of a family receiving Food Stamps, Medicaid, or Temporary Assistance for Needy Families), and have been determined by a health professional to be at nutritional risk.

Benefits: In most States, WIC participants receive vouchers that allow them to purchase a monthly food package specially designed to supplement their diets. The foods provided are high in protein, calcium, iron, and vitamins A and C. WIC foods include iron-fortified infant formula and infant cereal; iron-fortified adult cereal; vita-

min C-rich fruit or vegetable juice; eggs, milk, and cheese; and peanut butter, dried beans, or peas. Special therapeutic formulas and foods are provided when prescribed by a physician for a specified medical condition.

The Food and Nutrition Service also encourages WIC mothers to breastfeed their babies whenever possible, because it is the preferred infant feeding method. Women who exclusively breastfeed their babies receive an enhanced WIC food package that includes tuna and carrots, as well as increased quantities of other WIC foods.

Funding: The appropriation for the WIC program in FY 1998 was $3.9 billion.

■ ***Nutrition Program Fact:***
A 1990 USDA study showed WIC to be effective in five study States in improving the health of newborns and infants as well as mothers. Every $1.77 spent on WIC prenatal care, the study reported, saved up to $3.13 in Medicaid costs.

■ ***Nutrition Program Fact:***
FNS requires all States to take bids from or negotiate with manufacturers for the best rebate on each can of WIC infant formula purchased. In 1997, infant formula rebates amounted to over $1.3 billion nationwide.

■ ***Nutrition Program Fact:***
USDA estimates that WIC serves 45 percent of babies born in the United States.

■ ***Nutrition Program Fact:***
The Centers for Disease Control and Prevention cited the WIC program as a major ally in promoting immunization among WIC's low-income children.

The WIC Farmers' Market Nutrition Program

The WIC Farmers' Market Nutrition Program (FMNP), established in 1992, is funded through the WIC appropriation. The program has two goals: To provide fresh, nutritious, unprepared food, such as fruits and vegetables, from farmers markets to WIC participants who are at nutritional risk; and to expand consumers' awareness and use of farmers markets. This program, operated in conjunction with the regular WIC Program, is offered in 35 States and other jurisdictions.

Eligibility: Women, infants over 4 months old, and children who receive WIC program benefits, or who are WIC-eligible, may participate.

Benefits: Fresh produce can be purchased with FMNP coupons. State agencies may limit FMNP sales to specific foods that are locally grown to encourage participants to support the farmers in their own State.

Funding: The amount set aside in the WIC appropriation for FMNP for FY 1998 was $12 million.

> ■ ***Nutrition Program Fact:***
> *Studies have shown that where the WIC Farmers' Market Nutrition Program has been available, WIC participants have consumed more fresh fruits and vegetables.*

The Commodity Supplemental Food Program

The Commodity Supplemental Food Program (CSFP) is administered by FNS at the Federal level. CSFP provides commodity foods to supplement the diets of low-income infants; children up to the age of 6; pregnant, postpartum, and breastfeeding women; and persons 60 years of age and older.

CSFP operates at more than 70 sites in 17 States, the District of Columbia, and two Indian tribal organizations. USDA donates commodity foods to the State agencies for distribution, and provides funds to State and local agencies to cover certain administrative costs. The program served an average of more than 370,000 people each month in FY 1997.

Eligibility: State agencies that administer CSFP may establish a residency requirement and/or require applicants to be determined to be at nutritional risk in order to be eligible for program participation. To be income eligible, women, infants, and children must be eligible for benefits under existing Federal, State, or local food, health, or welfare programs, and must not currently be receiving WIC benefits. Income for elderly households cannot exceed 130 percent of the Federal Poverty Income Guidelines.

Benefits: There are six food packages for different categories of participants. The food packages are not intended to provide a complete and balanced diet, but rather are supplements that are good sources of the nutrients often lacking in participants' diets.

Funding: The 1998 appropriation for CSFP was $96 million.

The Child and Adult Care Food Program

The Child and Adult Care Food Program (CACFP) provides healthy meals and snacks in child and adult day care facilities.

CACFP ensures that children and adults in day care receive healthy meals by reimbursing participating day care operators for their meal costs and providing them with USDA commodity food. Family day care homes must be overseen by sponsoring organizations, which also receive reimbursements from USDA for their administrative expenses.

The program generally operates in child care centers, outside-school-hours care centers, family and group day care homes, and some adult day care centers. In return for Federal support, day care providers in the CACFP must serve meals that meet Federal guidelines, and must offer free or reduced-price meals to eligible people.

First authorized as a pilot project in 1975, the program was formerly known as the Child Care Food Program. It was made a permanent program in 1978, and the name was changed in 1989 to reflect the addition of an adult component. CACFP is administered at the Federal level by FNS. State agencies or FNS regional offices oversee the program at the local level.

In June 1997, CACFP provided meals to some 2.3 million children and nearly 58,000 adults.

Eligibility: At child and adult day care centers, participants from families with income at or below 130 percent of the Federal poverty level may qualify for free meals; those from families with income between 130 percent and 185 percent of the poverty level may qualify for reduced-price meals; and those from families with income above 185 percent of the poverty level pay full price.

The program targets benefits with minimal means-testing burden, via a two-tier system of reimbursements for family day care homes. Under the new system, day care providers located in low-income areas, or whose own households are low income, are reimbursed at a single rate (tier 1 reimbursement). Other providers are reimbursed at a lower rate (tier 2 reimbursement) unless they choose to have their sponsoring organizations identify children who are income eligible to receive free or reduced-price meals. Meals served to such income-eligible children are reimbursed at the higher tier 1 level.

Benefits: Children and adults who attend day care facilities receive nutritious meals and snacks. Care providers receive reimbursement for eligible meals. Family day care sponsoring organizations receive reimbursement for their administrative costs.

Funding: Congress appropriated $1.5 billion for the CACFP in FY 1998.

> ■ ***Nutrition Program Fact:***
> *More than 190,000 family day care homes and 34,000 day care centers participate in the Child and Adult Care Food Program.*

The Homeless Children Nutrition Program

The Homeless Children Nutrition Program is designed to provide free food service throughout the year to homeless children under the age of 6 in emergency shelters. Sponsoring organizations are reimbursed for the meals that they serve. First established as a demonstration project by the Child Nutrition and WIC Reauthorization Act of 1989, the Homeless Children Nutrition Program was made permanent by the Healthy Meals for Healthy Americans Act of 1994. A total of 86 sponsoring organizations operate the program in 117 shelters, providing meals to more than 2,500 preschool-age children every month.

Eligibility: Public and private nonprofit organizations that operate emergency shelters may participate, but they may operate no more than five food service sites and may feed no more than 300 children per day at each site.

Benefits: Children may receive up to three meals and a snack, and sponsors are reimbursed for the meals and snacks they serve. Meals are provided free to the children.

Funding: For FY 1998, Congress appropriated $3.4 million for the Homeless Children Nutrition Program.

The Summer Food Service Program

The Summer Food Service Program (SFSP) provides free meals to low-income children during school vacations. SFSP was first created as part of a larger pilot program in 1968, and became a separate program in 1975. The SFSP served almost 2.3 million children a day during the summer of 1997.

The program is administered at the Federal level by FNS. Locally, it is operated by approved sponsors, which receive reimbursement from USDA for the meals they serve. Sponsors provide meals at a central site such as a school or community center. All meals are served free.

The Summer Food Service Program operates primarily in low-income areas where half or more of the children are from households with income at or below 185 percent of the Federal poverty guideline. Homeless feeding sites that primarily serve homeless children may participate regardless of location. Residential children's camps also may get reimbursement for eligible children through the SFSP.

Eligibility: Children age 18 and under, and people over age 18 who are determined by a State educational agency to be mentally or physically handicapped, and who participate in a school program for the mentally or physically handicapped, may receive meals through the Summer Food Service Program.

Benefits: At most sites, participants receive either one or two meals a day. Residential camps and sites that primarily serve children from migrant households may be approved to serve up to four meals per day.

Sponsors are reimbursed for documented operating and administrative costs.

Funding: Congress appropriated $272.3 million for the Summer Food Service Program in FY 1998.

> ***Nutrition Program Fact:***
> *Some 25 million children eat school lunch every day when school is in session, and more than half of them receive their meals free or at a reduced price. The Summer Food Service Program offers those children nutritious food when school is not in session. However, only about 2.3 million children currently are able to participate, because many communities do not sponsor the program.*

The Special Milk Program

The Special Milk Program provides milk to children in schools and child care institutions that do not participate in other Federal meal service programs. The program reimburses schools for the milk they serve.

Schools in the National School Lunch or School Breakfast Programs may also participate in the SMP to provide milk to children in half-day prekindergarten and kindergarten programs where children do not have access to the school meal programs.

Eligibility: Any child at a participating school or kindergarten program can get milk through the SMP. Children may buy milk or receive it free, depending on the school's choice of program options. When local officials offer free milk under the program, any child from a family that meets income guidelines for free meals and milk is eligible.

Benefits: Participating schools and institutions receive reimbursement from the Federal Government for each half-pint of milk served. They must operate their milk programs on a nonprofit basis. They agree to use the Federal reimbursement to reduce the selling price of milk to all children.

Funding: Congress appropriated $18.2 million for the program in FY 1998.

> ***Nutrition Program Fact:***
> *In 1997, more than 140 million half-pints of milk were served through the Special Milk Program.*

Nutrition Program for the Elderly

The Nutrition Program for the Elderly (NPE) helps provide elderly persons with nutritionally sound meals through meals-on-wheels programs or in senior citizen centers and similar settings.

The NPE is administered by the U.S. Department of Health and Human Services (DHHS) and receives about a quarter of its total financial support and commodity foods from USDA under provisions of the Older Americans Act of 1965. USDA provided reimbursement for more than 20 million meals a month in FY 1997.

Eligibility: Age is the only factor used in determining eligibility. People age 60 or older and their spouses, regardless of age, are eligible for NPE benefits. There is no income requirement to receive meals under NPE.

Benefits: Each recipient can contribute as much as he or she wishes toward the cost of the meal, but meals are free to those who cannot make any contribution.

Under NPE, USDA provides cash reimbursements and/or commodity foods to organizations that provide meals through DHHS programs. Meals served must meet a specified percentage of the Recommended Dietary Allowances (RDA's) in order to qualify for cash or commodity assistance.

Funding: Congress appropriated $140 million for NPE for 1998.

■ ***Nutrition Program Fact:***
Indian tribal organizations may select an age below 60 for defining an "older" person for their tribes for purposes of eligibility for the Nutrition Program for the Elderly.

The Food Distribution Program on Indian Reservations

The Food Distribution Program on Indian Reservations (FDPIR) provides monthly food packages to low-income families living on reservations, and to Native American families living near reservations as an alternative to the Food Stamp Program. An average of nearly 124,000 Native Americans received food through FDPIR each month in 1997.

The program is administered at the Federal level by FNS in cooperation with State agencies and Indian Tribal Organizations (ITO's). USDA provides food to the State agencies and ITO's, which are responsible for program operations such as storage and distribution, eligibility certification, and nutrition education.

The food packages were updated in 1997 in a cooperative effort by USDA nutritionists, tribal leaders, and health advocates. Changes will make the food packages easier to use, and will better serve the health needs and preferences of Native Americans. USDA also provides nutrition information in the monthly food package, with suggestions for making the most nutritious use of the commodity foods.

Eligibility: To participate in FDPIR, the household must meet Federal income requirements, have assets within specified limits, and be located on or near an Indian reservation.

Benefits: USDA donates a variety of commodities to help participants maintain a balanced diet. These commodities include canned meats and fish products; vegetables, fruits, and juices; dried beans; peanuts or peanut butter; milk, butter, and cheese; pasta, flour, or grains; adult cereals; corn syrup or honey; and vegetable oil and shortening.

Each participating household receives a monthly food package that weighs 50 to 75 pounds and contains a variety of foods. For FY 1997, the cost to USDA of the monthly food package was almost $33 per person.

Funding: Congress appropriated $75 million for FDPIR in FY 1998.

■ ***Nutrition Program Fact:***
A recipe book, Quick & Easy Commodity Recipes for the Food Distribution Program on Indian Reservations, *was released for use by FDPIR participants in 1990. The book was developed as part of a 5-year nutrition education plan. USDA also distributes a series of nutrition and health factsheets for FDPIR participants.*

The Emergency Food Assistance Program

The Emergency Food Assistance Program (TEFAP) provides food assistance to needy Americans through the distribution of USDA commodities. Under TEFAP, commodities are made available to States for distribution to organizations that provide them to low-income households for home consumption, and to organizations that use them in congregate meal service for the needy, including the homeless. Local agencies, usually food banks, shelters, and soup kitchens, are selected by the States to participate in the program.

TEFAP was first authorized in 1981 to distribute surplus commodities to households. Its aim was to help reduce Federal food inventories and storage costs while assisting the needy. The 1988 Hunger Prevention Act required the Secretary of Agriculture not only to distribute surplus foods, but also to purchase additional food for further distribution to needy households. Foods available vary depending on market conditions.

Eligibility: Each State sets its own income limits for household eligibility to receive food for home use. No means test is applied to recipients of meals at congregate feeding sites.

Each State can adjust the income criteria based on the level of need in order to ensure that assistance is provided only to those most in need.

Benefits: TEFAP has provided billions of pounds of food since its beginning. More than 1 billion pounds, valued at $846 million, was distributed at the program's height in 1987. In 1997, more than 290 million pounds of food, worth more than $150 million, was distributed.

Funding: Congress appropriated $145 million for TEFAP in FY 1998.

The Nutrition Assistance Programs in Puerto Rico, American Samoa, and the Commonwealth of the Northern Mariana Islands

The Food Stamp Program in Puerto Rico was replaced in 1982 by a block grant program. American Samoa and the Northern Marianas in the Pacific also provide benefits under block grants. The territories now provide cash and coupons to participants rather than food stamps or food distribution. The grant can also be used for administrative expenses or for special projects related to food production and distribution.

Eligibility: The territories determine eligibility and allotments for their programs based on household size, income, assets, and other factors.

Benefits: The Nutrition Assistance Program (NAP) in Puerto Rico served an average of 1.37 million persons in FY 1995. Average monthly benefits were $66.30 per person.

In the Northern Marianas, the NAP served an average of 3,842 people each month in 1994, with average monthly benefits of $77.06 per person.

Funding: The appropriation for the NAP in Puerto Rico for FY 1998 was $1.2 billion. The appropriation for the Northern Marianas was $3.7 million; and for American Samoa $5.3 million.

USDA Disaster Assistance

FNS is the primary agency responsible for providing Federal food assistance in response to disasters. FNS provides assistance through the Food Distribution Program and the Disaster Food Stamp Program.

Food Distribution Program

FNS can provide USDA-donated food assistance through State distributing agencies. All States have some stocks of USDA food on hand for use in their commodity programs for schools or needy people. These stocks can be released immediately for use in a disaster situation.

Upon request from a State, FNS will procure additional food to meet the needs of people affected by a disaster. Nearby States also may be asked to release their stocks of USDA food to help feed disaster victims. State distributing agencies then distribute the food to preparation or distribution sites. Disaster relief agencies such as the American Red Cross prepare the food at shelters and other mass care facilities.

The State may also request that food be made available for household distribution in cases where such assistance is warranted (for example when commercial channels of food supply are not available because of the disaster).

Disaster Food Stamp Program

When commercial channels of food supply are still operable, or have been restored following a disaster, a State may request approval from the Secretary of Agriculture to operate the Disaster Food Stamp Program.

If approval is granted, FNS provides on-site guidance for establishing and operating the disaster program. FNS ensures that an adequate supply of food stamp coupons is available. State and local officials are responsible for determining the eligibility of households to receive disaster food stamps, and for issuing the benefits.

> ■ ***Nutrition Program Fact:***
> *In FY 1998, FNS provided $51.8 million in disaster food assistance to victims of Hurricane Fran in North Carolina and to victims of severe winter weather, tornadoes, and floods in several States. In FY 1996, FNS provided $18.9 million to victims of Hurricane Marilyn in the Virgin Islands and to victims of floods in the Pacific Northwest.*

■ ***Nutrition Program Fact:***
How To Apply: People who want to apply for any of the nutrition assistance programs that FNS operates must do so through the appropriate State agency, since the programs are administered at the State and local levels by various public and private organizations. In general, applicants for the largest programs should contact the following State or local agencies:

- *Food Stamp Program: State welfare agency. Food stamp offices may be listed in the telephone book under "food stamps," "social services," "human services," or some similar term.*
- *National School Lunch Program or School Breakfast Program (free and reduced-price meals): Neighborhood school or local school authority*
- *WIC program: State or local public health office*

For programs not listed above, State and local welfare agencies, health departments, or education agencies can provide information about what programs are available and how and where to apply.

Office of Consumer Affairs

The Office of Consumer Affairs (OCA) links FNS, consumer groups, and FNS program stakeholders. OCA advises the Under Secretary for Food, Nutrition, and Consumer Services on consumer and constituent issues and concerns.

OCA arranges periodic meetings, briefings, and roundtables on USDA and FNS policy for the public, consumer representatives, and program stakeholders. It provides public access to a wide range of USDA and FNS documents such as speeches, regulatory proposals, and studies, through the Internet and other electronic media, and it responds to consumer requests for assistance and information on USDA policy and procedures.

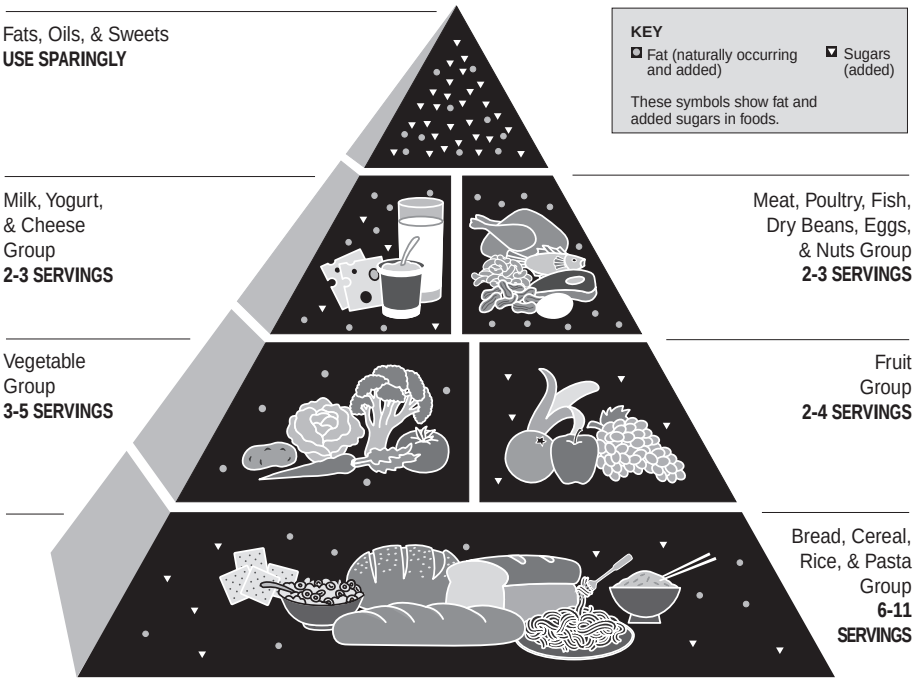
The OCA director reports to the Under Secretary for Food, Nutrition, and Consumer Services, and receives managerial and administrative support from FNS.

■ Center for Nutrition Policy and Promotion

The Center for Nutrition Policy and Promotion (CNPP), established in December 1994, provides direction and coordination for USDA's nutrition education and policy activities. The Center helps enhance the nutritional status of Americans by serving as the focal point for the Department in linking scientific research to the dietary needs of consumers. It translates nutrition research into information and materials for health professionals, private companies, and consumers, to increase public knowledge and understanding of the importance of nutrition and healthful diet.

The Center works cooperatively with other parts of the Department to provide strategic planning and coordination for nutrition policy. The Center's Executive Director reports to the Under Secretary for Food, Nutrition, and Consumer Services,

The Food Guide Pyramid



Source: U.S. Department of Agriculture/U.S. Department of Health and Human Services

and receives administrative support from FNS. The Center's funding is $2.77 million for FY 1999.

Publications

CNPP produces several consumer and technical publications, including the following:

- **Family Economics and Nutrition Review.** The Center continues a long tradition of publishing the *Family Economics and Nutrition Review* (formerly the *Family Economics Review*). The quarterly journal, now in its 55th year of publication, has expanded its scope to include nutrition-related issues and has added an editorial board of distinguished scientists. Each journal is typically in excess of 70 pages. The annual subscription rate is $12.00 ($15.00 foreign).
- **Dietary Guidelines for Americans (HG-232) and The Food Guide Pyramid (HG-252).** The *1995 Dietary Guidelines for Americans* (HG-232) and *The Food Guide Pyramid* (HG-252) may be ordered in bulk from the Government Printing Office and in single copies from the Consumer Information Center in Pueblo, Colorado. The Guidelines and Pyramid are in the public domain, so they are not restricted by copyright provisions, and they

WHAT COUNTS AS A SERVING?

Food Groups

Bread, Cereal, Rice, and Pasta		
1 slice of bread	1 ounce of ready-to-eat cereal	1/2 cup of cooked cereal, rice, or pasta

Vegetable		
1 cup of raw leafy vegetables	1/2 cup of other vegetables, cooked or chopped raw	3/4 cup of vegetable juice

Fruit		
1 medium apple, banana, orange	1/2 cup of chopped, cooked, or canned fruit	3/4 cup of fruit juice

Milk, Yogurt, and Cheese		
1 cup of milk or yogurt	1-1/2 ounces of natural cheese	2 ounces of process cheese

Meat, Poultry, Fish, Dry Beans, Eggs, and Nuts	
2-3 ounces of cooked lean meat, poultry, or fish	1/2 cup of cooked dry beans or 1 egg counts as 1 ounce of lean meat. 2 tablespoons of peanut butter or 1/3 cup of nuts count as 1 ounce of meat.

may be downloaded from the CNPP home page. Contact the Center for guidance on using the Pyramid graphic.

- **The Healthy Eating Index.** *The Healthy Eating Index,* a measure of how Americans are eating in relation to the Dietary Guidelines, is available in single copies from the Center and is also available on the CNPP home page at *http://www.usda.gov/cnpp*
- **Expenditures on Children by Families and The Cost of Food at Home.** The 1997 *Expenditures on Children by Families* and *The Cost of Food at Home Estimated for Food Plans at Four Cost Levels* are currently available in print from CNPP and electronically from the CNPP home page. *The Cost of Food at Home* is updated monthly.
- **Nutrient Content of the U.S. Food Supply, 1909-1994.** In 1997, CNPP published the *Nutrient Content of the U.S. Food Supply, 1909-1994.* The results of the update indicate that the levels of most vitamins and minerals in the

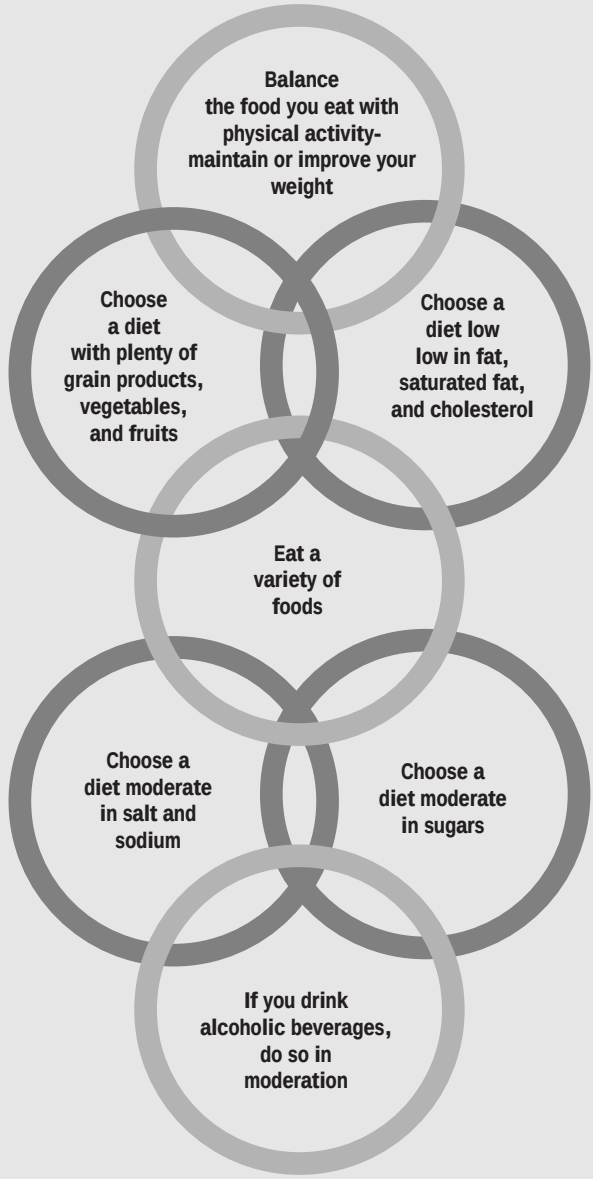
Nation's food supply are at an all-time high, that cholesterol is at an all-time low, and that food energy as measured in calories is at an all-time high. The data contained in this report are invaluable in monitoring the potential of the food supply to meet the Nation's nutrient needs. The publication also provides strong evidence of the capacity of American agriculture to meet the needs of the Nation.

- **"Nutrition Insights" for Media and Professionals.** CNPP has initiated a series of fact sheets called *Nutrition Insights,* designed to give nutrition and media professionals timely and accurate insights and analyses on topical nutrition issues of interest. The first issues of *Nutrition Insights* include "Is Fruit Juice Dangerous for Children?," "Are All Food Pyramids Created Equal?," "Dietary Guidance on Sodium: Should We Take It With a Grain of Salt?," "Does Alcohol Have a Place in a Healthy Diet?," "Is Total Fat Consumption Really Decreasing?," and "Report Card on the Diet Quality of African Americans."

A number of CNPP publications are available electronically via the Internet on the CNPP home page at *http://www.usda.gov/cnpp* For ordering information contact the Center at 1120 20th Street NW, Suite 200 North Lobby, Washington, DC 20036-3475. Telephone (202) 418-2312, Fax (202) 208-2321.

Nutrition and Your Health:

Dietary Guidelines for Americans



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9. Food Safety

Food Safety and Inspection Service

The Food Safety and Inspection Service (FSIS) ensures that the Nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged as required by the Federal Meat Inspection Act, the Poultry Products Inspection Act, and the Egg Products Inspection Act.

FSIS sets standards for food safety and inspects meat, poultry, and egg products produced domestically and imported. FSIS inspects and regulates all raw beef, pork, lamb, chicken, and turkey sold in interstate and foreign commerce. In FY 1997, FSIS inspected more than 8 billion poultry and more than 130 million head of livestock. In FY 1997, USDA inspected 2.116 million pounds of liquid egg products, which were sold in liquid form, frozen, or as dried egg products. Continuous inspection of 76 U.S. plants was provided by 104 inspectors.

The task of inspecting meat and poultry is important because consumers spend $120 billion, or one-third of their annual food dollars, on meat and poultry products. Inspectors check animals before and after slaughter, preventing diseased animals from entering the food supply and examining carcasses for visible defects that can affect safety and quality.

Inspectors also test for the presence of drug and chemical residues that violate Federal law. Over the last 20 years, the violation rate for drug and chemical residues detected in FSIS testing programs has dropped dramatically, moving close to zero. In 1996, only about 3 of every 1,000 samples routinely tested for residues exceed the legal limit.

The activities of FSIS include:

- Inspecting poultry and livestock, as well as processed products made from them,
- Continuous inspection of all liquid, frozen, and dried egg products,
- Setting standards for plant facilities, product contents, processing procedures, packaging, and labeling,
- Analyzing products for microbiological and chemical adulterants, and
- Educating consumers about foodborne illness by way of publications, educational campaigns, and a toll-free Meat and Poultry Hotline.

■ *About 7,900 Inspection Operations employees carry out the inspection laws in over 6,000 privately owned meat, poultry, and other slaughtering or processing plants in the United States and U.S. Territories.*

Table 9-1.

Livestock, poultry and egg products federally inspected in 1997

Cattle	35,859,224
Swine	88,496,944
Other livestock	5,803,958
Poultry	8,134,039,486
Liquid egg products (pounds)	2,116,000,000

In addition, about 250,000 different processed meat and poultry products fall under FSIS inspection. These include hams, sausage, soups, stews, pizzas, frozen dinners, and any product containing 2 percent or more cooked poultry or at least 3 percent raw meat. In addition to inspecting these products during processing, FSIS evaluates and sets standards for food ingredients, additives, and compounds used to prepare and package meat and poultry products.

As part of their inspection duties, FSIS inspectors collect product samples to test for the presence of pathogens and toxins such as *Salmonella* and *Staphylococcal enterotoxin* in ready-to-eat and other processed products. Microbiological standards for raw products did not exist prior to the Pathogen Reduction HACCP Rule of 1996 (with the exception of the current "zero tolerance" for *E. coli* O157:H7 in raw ground beef). In 1996, FSIS began a comprehensive *Salmonella* testing program in slaughter plants and plants that produce raw products.

Imported meat and poultry are also subject to FSIS scrutiny. The agency reviews and monitors the foreign inspection systems in the products' countries of origin to ensure they are equivalent to the U.S. system. When the products reach the United States, selected products are reinspected at approximately 90 official import facilities by import inspection personnel.

■ *In 1997 over 2.6 billion pounds of meat and poultry passed inspection for entry into the United States from 33 countries.*

Labeling of Meat and Poultry Products

The Nutrition Facts panel was developed through a joint effort by FSIS and the Food and Drug Administration (FDA) of the U.S. Department of Health and Human Services (DHHS). The two agencies issued parallel regulations intended to create the most uniform nutrition labels possible for virtually all foods. The labels help consumers follow the Dietary Guidelines developed by the USDA and DHHS. The guidelines emphasize the importance of a well-balanced diet. Most packaged foods carry an up-to-date, easy-to-use nutrition panel. FSIS requires safe handling instructions on packages of all raw or partially cooked meat and poultry products as part of a comprehensive effort to protect consumers from foodborne illness. Some food products may contain bacteria that could cause illness if the product is mishandled or cooked improperly. To prevent bacterial growth and to reduce the risk of foodborne

illness, the label directs consumers to follow safe food handling practices from the time perishable products are purchased until they have been cooked and stored.

Food Safety Strategy and Goals

The FSIS strategic goal is to enhance the public health by minimizing foodborne illness from meat, poultry, and egg products. The food safety goal is a 25-percent reduction in the number of foodborne illnesses associated with meat, poultry, and egg products by the year 2000. Currently, the numbers of foodborne illnesses and deaths are estimated to be up to 5 million and 4,500, respectively. The agency has designed five objectives to meet this goal:

1. Reduce pathogens on raw products by requiring meat and poultry plants to adopt the Hazard Analysis and Critical Control Point (HACCP) system of process controls to prevent chemical, physical, and biological food safety hazards. Specific regulatory requirements for plants for sanitation and microbiological testing are now in place.
2. Establish effective working partnerships with other public health agencies and stakeholders to support the President's National Food Safety Initiative.
3. Promote food safety from farm to table through cooperation with States and producers as well as other Federal agencies, to expand knowledge and use of on-farm practices based on public health considerations.
4. Complete the necessary cultural change to support HACCP systems and food safety through training of the FSIS workforce and emphasis on industry's responsibility for food safety through regulatory reform.

Nutrition Facts

Serving Size 0 cup (000g)
Servings Per Container 0

Amount Per Serving	
Calories 000	Calories from Fat 000
	% Daily Value*
Total Fat 00g	**00%**
Saturated Fat 0g	**00%**
Cholesterol 00mg	**00%**
Sodium 000mg	**00%**
Total Carbohydrate 00g	**00%**
Dietary Fiber 0g	**0%**
Sugars 00g	
Protein 00g	

Vitamin A 0%	•	Vitamin C 0%	
Calcium 00%	•	Iron 0%	

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

		Calories:	2,000	2,500
Total Fat		Less than	65g	80g
* Sat Fat		Less than	20g	25g
Cholesterol		Less than	300mg	300mg
Sodium		Less than	2,400mg	2,400mg
Total Carbohydrate			300g	375g
Dietary Fiber			25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

5. Promote international cooperation on food safety by assuring the safety of the domestic food supply through the application of appropriate domestic food safety standards to imported products.

Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems

On July 25, 1996, FSIS issued its landmark rule, Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems. The rule addresses the serious problem of foodborne illness in the United States associated with meat and poultry products by focusing more attention on the prevention and reduction of microbial pathogens on raw products that can cause illness. It also clarifies the respective roles of Government and industry in food safety. Industry is accountable for producing safe food. Government is responsible for setting appropriate food safety standards, maintaining vigorous inspection oversight to ensure those standards are met, and maintaining a strong enforcement program to deal with plants that do not meet regulatory standards.

The new, science-based system is designed to improve food safety and make better use of agency resources. The system has four major components. First, FSIS is requiring the plants it regulates to implement HACCP Systems as a tool for preventing and controlling contamination so products meet regulatory standards. Second, FSIS established food safety performance standards that plants must meet and is conducting testing and other activities to ensure those standards are met. Third, FSIS is training its inspectors to provide the oversight that is necessary to ensure that industry is meeting regulatory standards. Fourth, FSIS reorganized to strengthen its enforcement to deal with plants that do not meet regulatory standards.

The HACCP regulatory system applies to the approximately 6,500 federally inspected and 2,550 State-inspected slaughter and processing plants in the United States. In addition, the rule applies to countries that export meat and poultry products to the United States. Egg products are not covered by the final rule, but the agency has developed a strategy, including HACCP, to improve the safety of eggs and egg products.

The largest plants, those with 500 or more employees, were required to have HACCP systems in place on January 26, 1998. Large plants account for approximately 75 percent of slaughter production and 45 percent of processed products production. Small plants, defined as having 10 or more employees, but fewer than 500, are required to implement HACCP by January 25, 1999. Very small plants, with fewer than 10 employees or annual sales of less than $2.5 million, must implement HACCP by January 25, 2000. FSIS is encouraging plants to implement HACCP even before the regulatory deadlines.

National Food Safety Initiative

In January 1997, President Clinton announced a five-point plan to strengthen and improve food safety for the American people. Working with consumers, producers, industry, States, universities, and the public, the Administration has developed measures to reduce foodborne illness from microbial contaminants. Food safety is a

major public health challenge: millions of foodborne illnesses and thousands of food-related deaths occur annually. The Food Safety Initiative includes provisions to:

- Improve inspections and expand preventive safety measures. USDA will propose preventive measures, including HACCP for egg products.
- Increase research to develop new tests to detect foodborne pathogens and to assess risks in the food supply.
- Build a national early warning system to detect and respond to outbreaks of foodborne illness earlier, and to provide the data needed to prevent future outbreaks.
- Establish a national education campaign that will improve food handling in homes and retail outlets. USDA, FDA, the Centers for Disease Control (CDC), and the Department of Education will launch a new public-private partnership with industry, producer and consumer groups, and States to raise public awareness of safe food practices.
- Strengthen coordination and improve efficiency. USDA, CDC, FDA, and the Environmental Protection Agency (EPA) will form a new intergovernmental group to improve Federal, State, and local responses to outbreaks of foodborne illnesses. For more information on the National Food Safety Initiative Program: *http://vm.cfsan.fda.gov/~dms/fs-toc.html*

Farm-to-Table Approach

In addition to the new regulatory approach in plants regulated by FSIS, the agency is working with other government agencies, industry, and academia to develop and take steps to improve food safety from farm to table. FSIS has historically focused on the manufacturing of meat and poultry products through its inspection program within plants, but the agency is also considering hazards before animals reach the plant and after products leave the plant, as part of its comprehensive public health strategy to prevent foodborne illness. The farm-to-table approach to risk assessment, as implemented by FSIS, provides a means by which various intervention and control strategies can be identified and evaluated throughout the food chain. These changes from farm to table will reduce the incidence of foodborne illness attributed to meat and poultry products. FSIS is developing similar changes for egg products.

Regulatory Reform

FSIS is reforming its existing regulations to be consistent with HACCP principles, to shift to a greater reliance on performance standards, and to remove unnecessary regulatory obstacles to innovation. For example, FSIS has eliminated the prior approval requirement for facility blueprints and equipment. In addition, the agency is merging the meat and poultry sanitation regulations and simplifying them to be more compatible with the Sanitation Standard Operating Procedure (SSOP) requirements of the Pathogen Reduction; Hazard Analysis and Critical Control Point (HACCP) Systems final rule. FSIS is also setting performance standards to replace the current "command-and-control" requirements.

For more information: *http:// www.fsis.usda.gov/,* under the section "HACCP Implementation"

Foodborne Diseases Active Surveillance Network (FoodNet)

FSIS, FDA, and CDC are collaborating with State health departments and local investigators at seven locations across the country to identify more accurately the incidence of foodborne illness in the United States. Through the Foodborne Diseases Active Surveillance Network (FoodNet), the agencies involved are able to better track the incidence of foodborne illness and monitor the effectiveness of food safety programs in reducing foodborne illness.

The program, originally known as the Sentinel Site Survey, began with a 3-month trial in 1995, and has been actively collecting data since January 1996. Coordinated by CDC, data are collected at sites in Georgia, California, Connecticut, Minnesota, Oregon, New York, and Maryland. The population currently under surveillance totals 14.7 million.

Data are collected through population-based surveys, laboratory surveys, physician surveys, and case-control studies. The FoodNet program specifically targets seven bacterial pathogens—*Campylobacter, E. coli* O157:H7, *Listeria, Salmonella, Shigella, Vibrio,* and *Yersinia.* In addition, the case-control studies seek to develop a better understanding of two of those pathogens, *Salmonella* and *E. coli* O157:H7.

FSIS, FDA, CDC, and the project sites will use FoodNet information to monitor the incidence of foodborne diseases in the United States. Outbreaks identified during this surveillance project will be investigated and appropriate control measures taken. An important benefit of the data collection is the identification of outbreaks which might previously have gone undetected or treated as isolated cases. Also, this system will help identify new and emerging foodborne pathogens. FSIS will use the pathogen data to evaluate the effectiveness of new food safety programs and regulations in reducing foodborne pathogens on meat and poultry.

For more information about the Foodborne Disease Active Surveillance Network: *http://www.fsis.usda.gov/ophs/fsisrep1.htm*

PulseNet—New Computer Network To Fight Foodborne Illness

Addressing a problem that affects 33 million Americans each year, the Administration announced this year a new national computer network to identify and combat foodborne illness. PulseNet is a national computer network of public health laboratories that will help rapidly identify and stop episodes of foodborne illness. The new system enables epidemiologists to move up to five times faster than previously feasible in identifying serious and widespread food contamination problems.

PulseNet is a national network of public health laboratories that perform DNA "fingerprinting" on bacteria that may be foodborne. The network permits rapid comparison of these "fingerprint" patterns through an electronic database at the CDC.

For more information: *http://www.cdc.gov/ncidod/dbmd/pulsenet/pulsenet.htm*

Animal Production Food Safety Program

The FSIS Animal Production Food Safety Program (APFSP) has the responsibility for concentrating on the link between animal production and slaughter and processing operations. As the slaughter/processing segment of the food production industry strives to meet specified targets for food safety, they may, in turn, need assurances on production practices used for animals presented for slaughter. The

APFSP staff works with producers, researchers, and other stakeholders to identify scientifically based practices to reduce potential chemical, physical, and microbial public health risks. The APFSP staff provides leadership for USDA on public health concerns associated with animal production, transportation, marketing, and pre-processing preparation of livestock, eggs, and poultry. This program is responsible for outreach and liaison to create and sustain risk reduction strategies in the raising of live animals intended for human consumption.

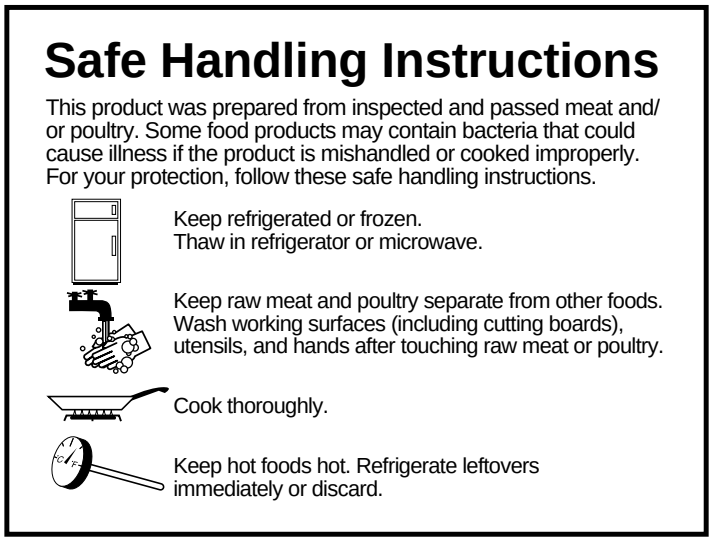
Food Safety and Consumer Education

FSIS conducts an extensive outreach program of consumer education to meet information needs for basic safe food handling advice to avoid foodborne illnesses. Information is disbursed to the media, information multipliers, and consumers through the FSIS web site, printed materials, videos, personal contact via USDA's Meat and Poultry Hotline, and presentations by FSIS representatives. The agency's consumer education programs focus on providing key food safety materials to the general public and special groups who face increased risks from foodborne illness—the very young, the elderly, people who have chronic diseases, and people with compromised immune systems. These materials are based on the latest scientific advice in education and market research concerning foodborne illness. Educational materials include a wide variety of specific safe food handling advice on *E. coli* O157:H7 and other pathogens, food safety information for seniors and children, and *The Food Safety Educator*—a free quarterly newsletter available in print or on the FSIS web site. This office also produces news features, public service announcements, and joint food safety projects with other government agencies and food associations comprise. See " For More Information."

Partnership for Food Safety Education

The Partnership for Food Safety Education is a broad-based coalition committed to educating the public about safe food handling and preparation. The U.S. food supply is among the safest in the world. Yet, despite continued progress in improving the overall quality and safety of foods produced in this country, foodborne illness remains a serious public health problem. And the related costs in health care and human suffering are much too high. Combining the resources of the Federal Government, industry, and consumer and public health organizations, the partnership is conducting a multi-year food safety education campaign to bring Americans face-to-face with the problem of foodborne illness and to motivate them to take action.

With the ultimate goal of encouraging behavioral change, the Partnership for Food Safety Education is conducting a broad-based public education campaign to make the importance of safe food handling meaningful to American consumers. Unveiled at a major Washington, DC, ceremony in October 1997, the campaign is a multi-year initiative to personalize the invisible enemy of foodborne bacteria. Two Cabinet Secretaries—Agriculture Secretary Dan Glickman and Health and Human Services Secretary Donna E. Shalala—joined with the other members of the Partnership for Food Safety Education to unveil the new character "BAC™." A green, slimy animated creation, BAC™ is the cornerstone of one of the most far-



reaching and ambitious public education campaigns ever focused on safe food handling.

Fight BAC!™ Campaign

Just as the public links "Smokey Bear" with preventing forest fires, the goal of the Fight BAC!™ campaign is to use the new character BAC™ to educate consumers on the problem of foodborne illness and motivate them to take basic sanitation and food handling steps that will greatly reduce their risk of foodborne illness. By putting a face on foodborne illness, the campaign will be successful in engaging the public—which is the first step in stimulating action.

Underlying the campaign are four key principles for preparing food safely and keeping it safe. They are: 1) wash hands and surfaces often, 2) prevent cross-contam-

ination, 3) cook foods to proper temperatures, and 4) refrigerate promptly. Although simple steps, these four principles address the critical points in everyday food handling where improper practices can lead to foodborne illness.

More than 50 national, State, and local organizations from the public health, government, consumer, and industry sectors have agreed to support the Fight BAC!™ campaign and disseminate educational materials. These "BAC Fighters" will maximize the campaign's national outreach and provide important links into thousands of communities nationwide.

The Partnership also developed Community and Supermarket Action Kits in an effort to educate the public about safe food handling. These kits contain key messages and materials that will extend the Fight BAC!™ campaign to the State and community levels.

For more information: *http://www.fightbac.org*

USDA Meat and Poultry Hotline

Since July 1, 1985, consumers have called on USDA's Meat and Poultry Hotline for answers to their food safety questions. The toll-free telephone service is staffed by home economists, registered dietitians, and food technologists with expertise in food safety. They frequently advise and consult with other professionals in government, academia, and industry. In addition, the Hotline responds to hundreds of media calls each year and is directly responsible for bringing food safety information to millions of consumers through these media outlets.

Questions to the Hotline have changed over the years. Early on, calls were more general in nature and almost always related to food handling. Today, many questions concern food science, processing, and inspection. Callers are more familiar with specific foodborne bacteria and technology. A total of 185,015 calls were received by the Meat and Poultry Hotline between January 1 and December 31, 1997, bringing total Hotline calls to over 1 million since 1985.

In order for USDA to investigate a problem with meat, poultry, or egg products, you must have:

1. The original container or packaging,
2. The foreign object (the plastic strip or metal washer, for example), and
3. Any uneaten portion of the food (refrigerate or freeze it).

Information you should be ready to tell the Hotline food safety specialist includes:

1. Your name, address, and phone number,
2. The brand name, product name, and manufacturer of the product,
3. The size and package type,
4. Can or package codes (not UPC codes) and dates,
5. Establishment number (EST) usually found in the circle or shield near the "USDA passed and inspected" phrase,
6. Name and location of store and date you purchased the product.

What To Do If You Have a Problem With Food Products

- FOR HELP WITH MEAT, POULTRY, AND EGG PRODUCTS: Call the toll-free USDA Meat and Poultry Hotline at 1-800-535-4555.
- FOR HELP WITH RESTAURANT FOOD PROBLEMS: Call the Health Department in your city, county, or State.
- FOR HELP WITH NONMEAT FOOD PRODUCTS: Call or write the Food and Drug Administration (FDA). Check your local phone book under U.S. Government, Health and Human Services, to find an FDA office in your area. The FDA's Food Information & Seafood Hotline number is 1-800-332-4010 (or 202-205-4314 in the Washington, DC area).

For More Information

USDA's Meat and Poultry Hotline may be reached by calling:
1-800-535-4555 (voice)
202-720-3333 (Washington, DC area), or
1-800-256-7072 (TTY)
Callers may speak with a food safety specialist from 10:00 a.m. to 4:00 p.m. weekdays, Eastern Time. Recorded messages are available at all times.
FSIS Web site: *http://www.fsis.usda.gov*
FSIS Fast FAX: 800-238-8281, or in the Washington, DC area: 202-690-3754.

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Freedom of Information Act (FOIA) Officer
Cheryl Hicks
Rm 3134-S Washington, DC 20250
202-720-2109
FAX 202-690-3023
Electronic FOIA center:
http://www.fsis.usda.gov/foia/index.htm

10. Natural Resources and Environment

Forest Service

Mission

The Forest Service mission is "Caring for the Land and Serving People." The mission is further expressed in the Forest Service land ethic: "Promote the sustainability of ecosystems by ensuring their health, diversity, and productivity," which is coupled with the service ethic: "Work collaboratively and use appropriate scientific information in caring for the land and serving people."

These land and service ethics are applied by the Forest Service through ecosystem management. Ecosystem management is the integration of ecological, economic, and social factors in order to maintain and enhance the quality of the environment to meet current and future needs.

The four strategic goals of the Forest Service are to: (1) protect ecosystems, (2) restore deteriorated ecosystems, (3) provide multiple benefits for people within the capabilities of ecosystems, and (4) ensure organizational effectiveness.

In 1998, the Forest Service Chief introduced the Forest Service Natural Resource Agenda. The agenda identifies four key areas of national focus. They are:

- Watershed health and restoration
- Sustainable forest ecosystem management
- Forest roads management
- Recreation enhancement

Implementation of the agenda will help bring people together and help them find ways to live within the limits of the land. This in turn will ensure that future generations will forever be endowed with the rich natural bounty of our Nation.

Principal Laws

The Forest Service administers the lands and resources of the National Forest System (NFS) under the Organic Administration Act of 1897, the Multiple Use-Sustained Yield Act of 1960, and the National Forest Management Act of 1976.

The agency also conducts research, provides assistance to State and private landowners, assesses the Nation's natural resources, and provides international assistance and scientific exchanges. These activities are carried out under the Forest and Rangeland Renewable Resources Planning Act of 1974, the Renewable Resources Extension Act of 1978, the Forest and Rangeland Renewable Resources Research Act of 1978, the Cooperative Forestry Assistance Act of 1978, and the International Forestry Cooperation Act of 1990.

Organizational Structure

The Chief, the top administrative official of the Forest Service, reports to the Secretary of Agriculture through the Under Secretary for Natural Resources and Environment. The Forest Service typically is viewed as consisting of three major components: (1) the National Forest System (NFS), (2) State and Private Forestry (S&PF), and (3) Research and Development (R&D). However, the agency supports many other programs, such as International Programs and Job Corps Civilian Conservation Centers. The NFS is organized into a Deputy Area within the Washington Office, 9 regional offices, 155 national forests managed by 115 supervisors' offices, and approximately 570 ranger districts and national grasslands.

The Forest Service manages the 191.6-million-acre NFS and supports multiple use; sustained yields of renewable resources such as water, livestock forage, wildfire, habitat, wood, and recreation; and integration of mineral resource programs and visual quality. The agency also mitigates, when appropriate and in a scientific manner, wildfires, epidemics of disease and insects, erosion, floods, water quality degradation, and air pollution.

The NFS provides many recreational activities for the public. In 1997, it hosted more than 800 million recreation experiences–43 percent of the outdoor recreation use on public lands–including 60 percent of the Nation's skiing and significant percentages of hiking, camping, hunting, fishing, and driving for pleasure. NFS takes care of 4,385 miles of the Wild and Scenic Rivers System; 412 units of the National Wilderness Preservation System, 133,000 miles of trails; more than 250,000 heritage sites; and over 18,000 campgrounds, picnic areas, and visitor facilities.

The National Forests and Grasslands contribute $134 billion to the gross domestic product.

The Forest Service administers many S&PF programs to provide technical and financial conservation assistance to State and private nonindustrial forest land. These programs serve as a link among many public and private organizations and they help to promote the best use and conservation of America's natural resources on private lands. Wildland fire protection on private and public lands, Smokey Bear, forest health protection, and natural resource education are examples of S&PF programs. S&PF is organized into a Deputy Area within the Washington Office; it has an office in Radnor, PA, to work with States and landowners in the Northeastern United States, and has programs delivered from most NFS offices.

The R&D program is organized into a Deputy Area within the Washington Office, including four program staffs and six geographically dispersed research stations. R&D also includes the Forest Product Laboratory in Madison, WI. R&D conducts and sponsors basic and applied research that generates credible, relevant knowledge and new technologies that are used to sustain the health, productivity, and diversity of the Nation's forests and rangelands to meet the needs of present and future generations. The R&D effort is focused on four broad themes: (1) to provide the information necessary to improve management and protection of the vegetation on the Nation's forest and rangeland ecosystems, (2) to provide the information necessary to sustain ecological processes in the terrestrial, aquatic, and atmospheric components of forest and rangeland ecosystems and enhance the biological diversity of the water, wildlife, and fish resources, (3) to provide resource data, technologies,

analysis tools, and information that can be used to assess the extent, health, productivity, and sustainability of forest and rangeland ecosystems, and (4) to assess the condition, trends, and capabilities of forest and rangeland resources and provide conservation technologies that improve their use and reuse.

International Program activities supported by the Forest Service, including programs at the International Institute of Tropical Forestry in Puerto Rico, promote sustainable development and global environmental stability. The director of International Programs reports directly to the Chief.

The Office of Communication, Civil Rights Program, Reinvention Program, and Law Enforcement and Investigations Program also report directly to the Chief.

The agency has received tentative approval from the Secretary to reorganize the Operations area of the Washington Office into three areas: Financial Management, Business Operations, and Programs and Legislation. The Financial Management area is led by the Chief Financial Officer to ensure proper allocation of funds, tracking, control, and reporting of expenditure of funds. The Business Operations Deputy Chief manages the human resource, information resource management, and procurement programs. The Programs and Legislation Deputy Chief manages the development of the agency's budget and coordinates legislative affairs.

As a part of the Business Operations area and through agreement with the U.S. Department of Labor, the Forest Service operates 18 Job Corps Civilian Conservation Centers on Forest Service lands. This is the only Federal residential education/training program for the Nation's disadvantaged youth. Over 8,000 students enroll in Forest Service centers each year.

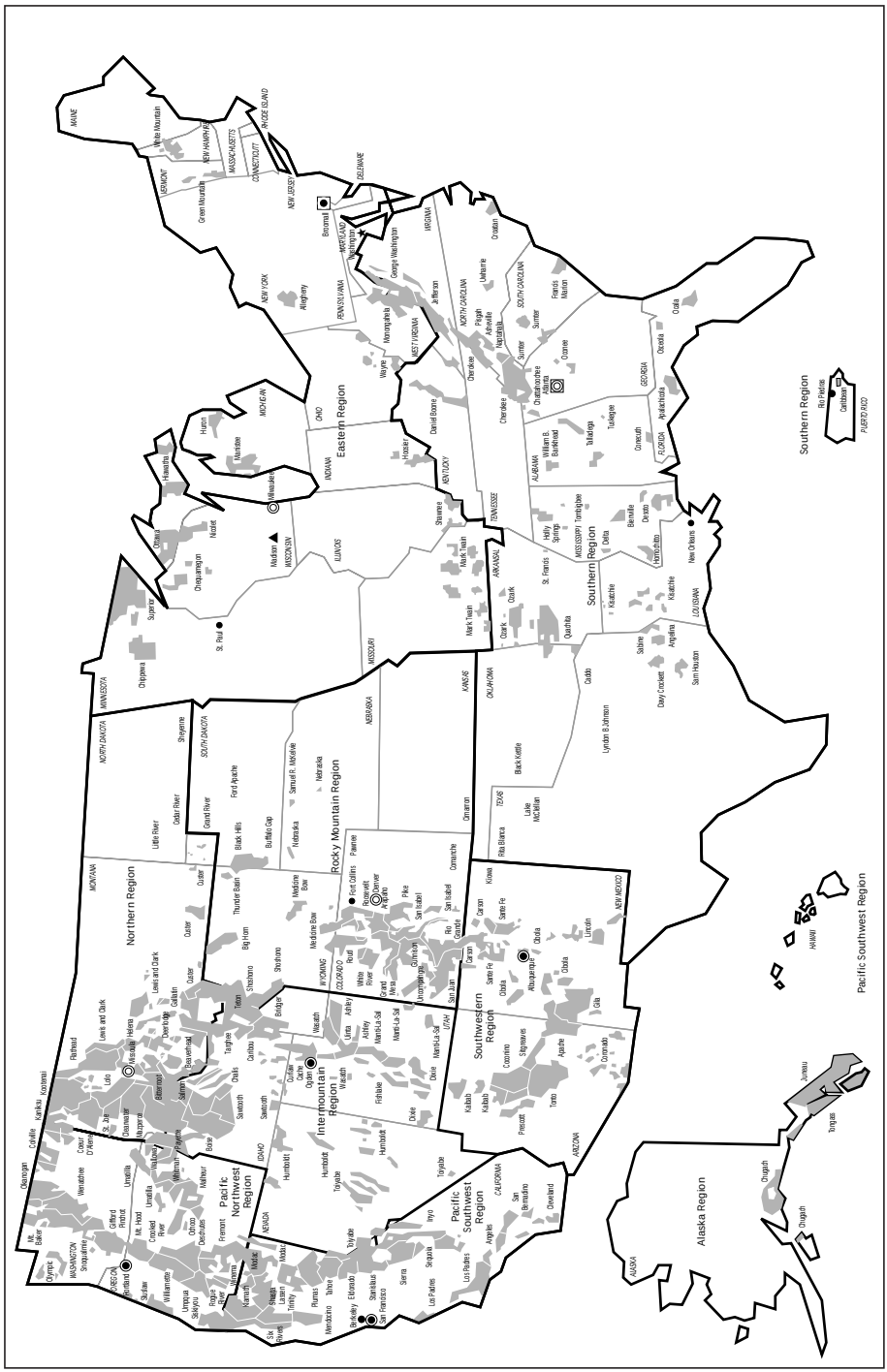
Reinvention

Creating a Forest Service that works better and costs less—that's what Forest Service reinvention is all about. As one of 30 Federal agencies designated by the National Partnership for Reinventing Government as a "High Impact Agency," it is dedicated to delivering first-rate customer service, cutting red tape to do its job more efficiently, and working with its partners—both in and out of government—to do the best job of caring for the land. Some recent highlights:

- With the Bureau of Land Management, the Forest Service is creating one-stop natural resource centers to better serve mutual customers, and sharing people and resources to enable both agencies to do their jobs better. In just two locations, this partnership is delivering better service and better resource stewardship while saving more than $1 million a year. In 1999, this effort will be expanding agency-wide.
- In the Pacific Southwest Region and Research Station, the Forest Service began an experiment to let employees create internal enterprises that will allow them to bring their entrepreneurial spirit and creativity to bear on all facets of their work. Over time, this will help us import the best practices of the business world and the efficiency of the free market place to raise the level of performance of the Forest Service in achieving its public sector mission.
- In partnership with six other Federal agencies, the Forest Service unveiled an Internet program that makes it possible for anyone with access to a computer to learn about outdoor recreation opportunities on all Federal public lands.

Figure 10-1.

Location of National Forests



This new one-stop source lets customers discover for themselves the tremendous recreation options in "America's Great Outdoors" and to plan their vacations on-line. Try it out at *www.recreation.gov* and see for yourself what reinvention at the Forest Service can do for you.

Key Facts About the Forest Service

- *The entire Nation has about 1.6 billion acres of forest and rangeland, under all ownerships.*
- *The entire Nation has 736.7 million acres of forest land area, not including rangeland, under all ownerships; the owners/managers of this forest land are as follows:*
  Federal Government: 249.1 million acres
  Forest Service: 139.9 million acres
  Bureau of Land Management: 36.6 million acres
  National Park Service, Department of Defense, Department of Energy, & other Federal: 72.6 million acres
  Non-Federal total: 487.5 million acres
  State: 54.7 million acres
  9.9 million private landowners: 422.3 million acres
  County and municipal: 10.5 million acres
- *There are 191.6 million acres of national forest land. This is 8.3 percent of the United States' land area, or about the size of Texas plus 10 percent. The Forest Service manages:*
  National Grasslands: 3.9 million acres
  National Primitive Areas: 173,762 acres
  National Scenic-Research Areas: 6,630 acres
  National Wild & Scenic Rivers: 4,385 miles—95 rivers
  National Recreation Areas: 2.7 million acres
  National Game Refuges and Wildlife Preserves: 1.2 million acres
  National Monument Areas: 3.3 million acres
  National Historic Areas: 6,540 acres
  Congressionally Designated Wilderness: 34.6 million acres
- *There are 88 wilderness areas designated Class 1 for air quality protection totaling 15 million acres.*
- *The Forest Service manages 155 national forests for multiple uses.*
- *The national forest trail system is the largest in the Nation, with 133,000 miles of trails for hiking, riding, cross-country skiing, snowmobiling, bicycling, and snowshoeing.*
- *The Forest Service provides more recreation than any other Federal agency. Visitors to national forests are attracted by:*
  5,800 campgrounds and picnic areas
  328 swimming developments
  1,222 boating sites
  250 winter sports sites, including 135 downhill ski areas
  If all these sites were fully occupied at the same time, they would accommodate 1.8 million people.
- *Minerals found on Forest Service lands provide more than $3.3 billion in private sector revenue.*

Key Forest Service figures for 1996:

- *Recreation use: 341.2 million visitor days (1 visitor day equals 12 hours of recreation use)*
- *Lands burned by wildfire: 530,000 acres*
- *Insect and disease suppression: 1.7 million acres*
- *Watershed improvements: 35,500 acres*
- *Terrestrial acres restored or enhanced for wildlife: 638,663*
- *Aquatic acres restored or enhanced for fisheries: 13,194*
- *Stream miles restored or enhanced for fisheries: 2,740*
- *Reforestation: 322,000 acres*
- *Livestock grazing: 9.4 million animal unit months*
- *Grazing allotments administered: 9,940*
- *Timber sold: 3.7 billion board feet, enough to build over 300,000 homes*
- *Timber harvested: 3.3 billion board feet*
- *Road system: 377,800 miles*

National Forest System—Conservation and Multiple Use

Lands

Lands-related activities include land exchanges to protect and enhance the National Forest System, preventing encumbrances, protecting boundaries and records, granting appropriate rights to others, and administering rights granted to or retained by other agencies, governments, and landowners.

Wildlife, Fish, and Rare Plants

In 1996, wildlife and fish recreation expenditures tied to national forests tallied $6.8 billion in association with 125.7 million visitor days of hunting, fishing, and wildlife/fish-associated viewing. Anglers spent $2.7 billion (46.8 million visitor days), wildlife/fish viewers spent $2.1 billion (52 million activity days), and hunters spent $2.0 billion (27 million activity days) in pursuit of their pastimes. This $6.8 billion in direct spending translates to a total of $20 billion in local economic output and 226,000 jobs. Specific examples include:

- Commercial salmon harvested from the Tongass National Forest averages 120 million pounds per year, with an average annual earnings of $66 million. Meanwhile, sportfishing numbers in Southeast Alaska increased by 62 percent from 1984 to 1993, a significant revenue source for local economies.
- In 1997, nearly 183,000 people joined in “Celebrating Wildflower” events on national forests.
- The Forest Service and its partners held 3,985 aquatic education events in 1997 that landed 274,000 people. Events included National Fishing Week, Pathways to Fishing clinics, and classroom talks.

Key Facts About Wildlife, Fish, and Rare Plants

- *The National Forest System includes 2.3 million acres of fishable lakes, ponds, and reservoirs and more than 197,000 miles of perennial streams.*
- *National forests and grasslands support habitats for more than 3,000 species of birds, mammals, reptiles, amphibians, and fish, as well as some 10,000 plant species.*
- *The national forests and grasslands also provide:*
  - *80 percent of the elk, mountain goat, and bighorn sheep habitat in the lower 48 States,*
  - *28 million acres of wild turkey habitat,*
  - *5.4 million acres of wetland habitat,*
  - *Habitat for 250 species of neotropical migratory birds, and*
  - *More than 280 species of threatened or endangered plants, fish, or wildlife.*

Partnerships

In 1997, over $13 million in Federal funds was matched by partners' contributions, for a total of $37 million to accomplish partnership projects on wildlife; fish; and threatened, endangered, and sensitive species on the national forests and grasslands. Specific partnership examples include:

- Quail will have terrific feasting grounds as a result of a partner project designed to benefit bobwhite. Legumes flourish on the freshly mowed, disced, fertilized, and seeded 35-acre opening within the Tombigbee National Forest, Mississippi. Other seed-eating birds will find both food and cover plentiful too.
- Skilled birders identified hundreds of species of birds by their calls to compile a breeding bird census in specified habitats on the Chequamegon-Nicolet National Forest, Wisconsin. Now, forest management decisions can better include the needs of birds.
- High school students are making a difference in the recovery of the endangered slender-petalled mustard. Their hard work counting and measuring plants on the San Bernardino National Forest, California, contributed to a 7-year monitoring effort that identifies precipitation as a primary factor influencing population size. As a result, managers understand that maintaining good habitat and seedbank resources is key to recovery of this species.
- The lake sturgeon is a large, primitive fish that was once abundant in the Great Lakes. Today it is a sensitive species on the Superior National Forest, Minnesota. Netting and electrofishing surveys conducted in the Sturgeon River drainage in 1997 yielded only one fish. Managers are hopeful that the removal of a logjam that blocks migration of sturgeon into available habitat will increase the number of sturgeon utilizing the river.

- A riparian tree-planting project along Sand Fork on the Wayne National Forest, Ohio, gave Federal prison inmates a chance to improve the lives of fish and wildlife. Along with Boy Scout Troop 115, they planted seedlings to stabilize stream banks and channels.

Water, Soil, and Air

About 20 percent of the surface water supply in the United States flows from National Forest System (NFS) watersheds. Three major goals of the Forest Service's watershed management programs are to (1) maintain or improve water quality, quantity, and timing consistent with hydrologic potential, (2) sustain soil productivity, (3) protect 88 Class I wilderness areas from air pollution, and (4) evaluate Forest Service activities and mitigate any effects on air quality and water quality. (Class I areas are National Wilderness Areas that exceed 5,000 acres, as designated by the Clean Air Act of 1977.) The task of mapping all soils within NFS, with the cooperation of USDA's Natural Resources Conservation Service, is about 70 percent complete. The Forest Service improved 66,314 acres of watershed in FY 1996 using appropriated funds and other funding sources, primarily emergency supplemental funds to restore acres flooded in the 1995-96 winter floods.

Other significant activities include watershed analyses and watershed restoration work, especially in the Pacific Northwest; participating in water right adjudications in eight Western States; assessing water quality problems from abandoned mines located on national forests with assistance from States and other Federal agencies; monitoring lichens, lakes, snow, vegetation, and the atmosphere to determine air pollution impacts on visibility, water, and soil chemistry in wilderness areas.

Key Facts About Water, Soil, and Air

- *There are approximately 3,200 watersheds on NFS lands.*
- *There are 902 municipal watersheds on NFS land, serving 25 million people.*
- *173 trillion gallons of water is supplied by 916 NFS municipal watersheds annually.*
- *500 remote weather data collection platforms are used in agricultural, fire, weather, and streamflow forecasting.*
- *Emergency restoration of 58 burned areas in 7 regions cost $10.1 million in FY 1996.*
- *88 wilderness areas, covering over 15 million acres, are classified as Class I (special visibility protection) under the Federal Clean Air Act.*

Rangeland

NFS rangeland is managed to conserve the land and its vegetation while providing food for both livestock and wildlife. Under multiple-use concepts, grazing areas also serve as watersheds, wildlife habitat, and recreation sites. Grazing privileges are granted on national forests and grasslands through paid permits; permittees cooperate with the Forest Service in range improvement projects.

Key Facts About Rangeland

- *In FY 1997, the Forest Service administered 8,808 grazing allotments and provided 9.2 million animal head months of permitted livestock grazing. (A head month is 1 month's occupancy by an adult animal.)*
- *In FY 1997, a total of 114,300 acres were treated for noxious weeds, 57,391 acres received forage improvements, and 2,388 had structural improvements made on NFS rangelands. These accomplishments were made with appropriated dollars, Range Betterment Funds, and private interests.*

Energy, Minerals, and Geology

Energy and mineral development fosters economic development, as does the application of geologic principles on National Forest System lands, including development of private minerals underlying these lands. Ecosystems are protected by requiring appropriate design, mitigation, and reclamation measures, and by monitoring and inspecting operations to ensure compliance. Reclaiming abandoned mines on Forest Service land restores deteriorated ecosystems, and the Forest Service has reclaimed 38,000 abandoned mines.

Exploration, development, and production of energy and minerals from National Forest System lands contribute to economic growth, provide employment in rural communities, and raise revenues that are shared with the States. The energy and minerals component of the program is directed at obtaining these benefits while ensuring operations are conducted in an environmentally sound manner. In terms of the magnitude of the energy and minerals program, there are approximately 5.4 million acres leased for oil and gas, over 150,000 mining claims, about 7,000 mineral material pits and quarries, over 2,000 new operations proposed each year, and more than 20,000 operations to monitor and inspect. The largest coal mine in the United States is on NFS lands, and much of the Nation's phosphate and lead production comes from NFS lands. The value of all energy and mineral production exceeds $2 billion per year. Annual revenues are about $150 million, 25-50 percent of which is returned to the States where production occurs.

The geology and paleontology components of the program provide basic scientific information about the Earth's materials and processes. Forest Service geologists and paleontologists identify and interpret geologic and paleontological conditions and hazards for land management decisionmaking and cost-effective project design; inventory and evaluate sites with geologic and paleontological resources such as groundwater, fossils, and caves for appropriate management; and interpret sites having significance for scientific, educational, or recreational use. The interpretation is the legacy of all people, and the Forest Service recognizes its responsibility to manage that part of the fossil record occurring on NFS lands as a public legacy for future generations. Fossils are nonrenewable resources and their value may be greatly diminished or lost entirely in the absence of proper management.

The USDA Forest Service recognizes multiple-use values for fossil resources that include: legacy value for present and future generations, scientific value, educational and interpretive values, and recreational and aesthetic values.

Key Facts About Forest Service Energy, Minerals, and Geology Program

- *7 million acres where there is a possibility for coal leasing (95 billion tons)*
- *45 million acres where there is a possibility for oil and gas leasing; 5.4 million acres leased*
- *About 7,000 sand, gravel, and stone pits and quarries*
- *Approximately 2,000 new operations requiring review each year*
- *Over 20,000 existing operations requiring monitoring*
- *55 percent of the Nation's production of lead*
- *One of the world's largest molybdenum deposits (Tongass National Forest, AK)*
- *Many of the Nation's 100,000 rock hounds, recreational mineral collectors, students, and geologic organizations use the national forests for education and recreational purposes.*
- *Recreational panning for gold is an activity that is rapidly increasing.*
- *The Forest Service manages fossil and geologic sites of interest as resources for present and future generations, scientific, education, interpretive, recreational, and aesthetic values.*
- *The most complete Champsosaurus skeleton in the world (55 million years old) came off national grasslands and is on display at FS headquarters.*
- *FS has partnerships with communities, States, and universities on managing the paleontological resource*

The following resources are produced annually on NFS lands:

- *10 million barrels of oil*
- *250 billion cubic feet of gas*
- *115 million tons of coal*
- *500 million pounds of lead*
- *200 million pounds of copper*
- *11 million ounces of gold*
- *20 million tons of sand and gravel*

Timber

Approximately 73 percent of the 191 million acres of national forests is considered forested. Of that forested land, 35 percent is available for regularly scheduled timber harvest and less than 1 percent of that area is subject to some form of harvest in any year. The remaining 65 percent of the forested land is allocated to nontimber uses such as wilderness, set aside for recreation, or cannot be harvested due to environmental conditions such as steep slopes or fragile soils.

In most cases, forested ecosystems on the national forests are in a healthy, functioning condition due to past active management and environmental protection measures. These forests provide highly diverse and often unique resources, opportunities, and experiences for the public. In some cases, ecosystems are not functioning in a way that can be sustained without unacceptable risk of losses to wildfire, insects, or diseases. It is important that the agency assess each ecological situation at the local level, establish management objectives based on ecological, social, and economic information, and utilize the best tools available to achieve the established vegetation objectives. There are critical reasons to retain timber harvest as a component of national forest management. Restoration and maintenance of healthy forests is the best way to sustain resource production and provide goods and services while protecting the environment. Timber sales are one vegetation management tool used by foresters to achieve restoration and maintenance of healthy forests, sustain resource production, and provide goods and services while protecting the environment.

The Forest Service is strongly committed to the management of NFS lands in an environmentally sensitive manner. One of the agency's top priorities is to maintain and improve the health and vigor of forest ecosystems for the enjoyment of current and future generations. The Forest Service operates Federal timber sales under some of the most substantial and effective environmental protection policies in the world.

The Forest Service manages the national forests to achieve healthy and ecologically sustainable ecosystem conditions. The agency is taking an active role in managing vegetation to help achieve the complex interrelated objectives of resource use and environmental protection. Along with helping to meet congressionally established objectives of harvesting national forest timber on a sustainable basis, timber sales provide an economic means of managing vegetation.

Passport in Time

Through the Passport in Time program, the Forest Service offers unique, nontraditional recreation opportunities such as archaeological excavation, historic structure restoration, and wilderness surveys. These experiences foster environmental stewardship while providing the public with unusual, educational experiences.

Passport in Time has over 13,000 volunteers contributing over $5.2 million worth of time and effort to preserve our Nation's history by restoring historic structures, stabilizing National Register eligible sites, evaluating sites for inclusion in the National Register of Historic Places, working on projects in wilderness, and developing heritage interpretive sites. Every activity is aimed at making our Nation's unique history accessible to the public and preserving it for future generations.

State and Private Forestry—Providing Assistance to Nonindustrial Private Landowners

The State and Private Forestry programs represent important tools for the monitoring, management, protection, and better use of America's forests, with emphasis on non-Federal forest land stewardship. These programs connect forestry to all land managers—whether small, urban woodlot owners, tribal foresters, State agencies, or Federal—in efficient, nonregulatory ways. Through a coordinated effort in management, protection, and better use, the programs of State and Private Forestry help facilitate sound forestry across ownerships on a landscape scale.

About 70 percent of America's forests are in State and private ownership, and 80 percent of the wood fiber potential comes from these lands. These lands are also critical to watershed conditions, fish and wildlife habitat, and the aesthetic quality of the Nation's landscape; and they represent one of the best sources of carbon sequestration. Since these non-Federal forests represent most of the forests in our country, keeping these lands healthy, productive, and sustainable in the rural and urban areas on a cumulative basis is especially important to the Nation. With increasing fragmentation and development pressure, the unique Federal role in maintaining the value and functions of these lands across ownership divisions has never been greater or more important.

Through a partnership role of technical advice and focused financial assistance, the program leverages Federal resources to help produce a variety of forest-based goods and services—including recreation, wildlife and fish, biological diversity, and timber—to help meet domestic and international needs.

Forest Health Protection

The Forest Service provides technical and financial assistance to Federal agencies, tribal governments, States, and (through State foresters) to private landowners. In 1997, with the assistance of State foresters and others, the Forest Service conducted insect and disease detection surveys on 203 million acres of NFS, other Federal land, and tribal lands, and 552 million acres of State and private lands. In addition, the Forest Service and State foresters participate in a forest health monitoring program. With USDA's Animal and Plant Health Inspection Service, the Forest Service works to protect the Nation's forests from exotic insects, diseases, and plants. The Forest Service provides technical assistance in the safe and effective use of pesticides, shares the cost of insect and disease prevention and suppression projects with States, and funds prevention and suppression projects on Federal lands. The agency also evaluates and applies new, more efficient and environmentally sensitive technologies for forest health protection.

Cooperative Forestry—Providing Assistance to Nonindustrial Private Landowners and Community and Urban Areas

Cooperative Forestry (CF), in partnership with State forestry and other non-Federal forestry interests, provides for multidirectional links between Federal forestry programs and objectives and the non-Federal forestry sector. CF connects ideas and people to resources and one another so they can better care for forests to

sustain their communities. Since the 1990 Farm Bill, all programs have strategic plans in place to guide nationwide delivery. CF has three major goals.

- Ensure sustainable ecosystems
- Provide multiple benefits for people within the capabilities of ecosystems
- Ensure organizational effectiveness

The **Forest Stewardship Program** provides technical assistance to nonindustrial private forest landowners interested in managing their forests for multiple resources. More than two thirds of the Nation's forests are non-Federal, owned by 9.9 million nonindustrial private forest land owners. Since 1990, over 133,400 landowners have enrolled in the program and stewardship plans have been prepared on more than 16.6 million acres of nonindustrial private forests.

The **Stewardship Incentives Program** provides cost share assistance to landowners implementing Forest Stewardship Landowner Plans. This program is managed in cooperation with State forestry agencies and USDA's Farm Service Agency to provide assistance on more than 250,000 acres annually. This includes approximately 50,000 acres of tree planting annually. Since 1990, Stewardship Incentives Program practices have been implemented on 1.5 million acres, including approximately 200,000 acres of tree planting.

The **Forest Legacy Program** is designed to effectively protect and conserve environmentally important forest areas that are threatened by conversion to nonforest uses. These lands can be protected through conservation easements and other mechanisms. This program is based on the concept of "willing seller and willing buyer" and is completely nonregulatory in its approach. No eminent domain authority or adverse condemnation is authorized. To date, 15 States have completed an Assessment of Need, which is the formal document that allows for entry into the Forest Legacy Program. Program partners include The Trust for Public Lands, State governments, and local land trusts. Since 1993, almost 62,000 acres in eight States have been protected from development. These lands have a value of more than $25 million and have been protected with about $18 million of Federal funds. States with legacy lands include Connecticut, Maine, Maryland, New Hampshire, New Jersey, New York, Vermont, and Washington.

Urban and Community Forestry (U&CF) is a key part of the agency's interest in urban forest resources management; it helps people better manage the natural resources where 80 percent of America lives. Through the National Tree Trust Foundation, the National Urban and Community Forestry Advisory Council, Urban Resources Partnerships, and State Forestry agencies, the U&CF program provides support for ongoing, critical developments in urban ecosystem management through improvements in urban forest policy, planning, assessment, tree planting, technical standards, education, budgets, and financial management. Education activities include support for the Treeture environmental education program through a partnership with the International Society of Arboriculture, the National Tree Trust, and American Forests. To assist with building local community forest management capabilities, technical and financial assistance is currently provided to more than 11,600 communities annually.

Grants made available through Federal funding from U&CF totaled more than $9.9 million in 1997 to support a full range of program development activities from the national to the local level. Matching grants generate more than $49.1 million in private donations of cash, goods, and services for all activities supporting tree planting, care, and protection, approximately a 5:1 ratio of private to Federal financing of urban and community forestry activities.

Economic Action Programs

A collection of long- and short-term programs together make up a strategic overall effort to help communities and businesses that depend on natural resources to pursue self-sufficiency and sustainability. Through Economic Action Programs, the Forest Service provides technical and financial assistance to more than 3,240 rural communities and businesses that are adversely affected by change in availability of natural resources or in natural resource policy. Of the total number assisted, more than 130 were tribal and minority communities.

Rural Community Assistance

The Forest Service implements the national strategy on rural development in coordination with USDA's Rural Development mission area and other State and Federal agencies. The goal is to strengthen rural communities by helping them diversify and expand their economies through the wise use of natural resources. In FY 1997, the Forest Service initiated an outcomes measurement process for rural community capacity building; over 150 communities have established indicators and measures to determine progress.

Economic Recovery is a long-term program that targets areas with acute economic problems associated with changes in Federal land management policies and natural resource decisions. The purpose of the effort is to assist eligible natural-dependent areas to diversify by developing new or different economic activities. In FY 1997, over 600 eligible communities received technical and financial assistance, training, and education to help them diversify their forest-based economies. Of these communities over 530 are taking action based on locally led strategic plans.

Rural Development is a long-term program that provides technical and financial assistance to help strengthen, diversify, and expand local economies, especially those experiencing long-term or persistent economic problems. Rural Development is a grant program that provides technical assistance and matching funds for locally initiated and planned projects. They are designed to stimulate improvements in the economic, environmental, or social well-being of rural citizens through forest resources.

A short-term emphasis is the **Pacific Northwest Assistance** effort, which supports the diversification of local economies experiencing reductions in Federal timber harvest levels. This effort provides technical and financial assistance to over 900 communities. It is part of a larger, multi-agency effort to target resources to rural areas facing acute economic problems. Over 90 percent of these Forest Service funds are granted directly to the communities, counties, and tribes for community-identified projects to meet local needs. About 7.5 percent of the funds goes into agency technical assistance. In addition, for every dollar of Forest Service funding, over $2 is leveraged from partners.

The **Forest Products Conservation and Recycling Program** continually provides a cadre of Federal forest products technology transfer specialists trained in logging, sawmilling, drying, processing, marketing, engineering, and wood technology. This assistance directly affects communities and businesses that foster conservation and ecosystem health through proper utilization of forest products. In FY 1997, over 1,100 technical assists were provided and over 90 workshop presentations made, leading directly and indirectly to over 100 jobs being created or retained. This work is supported by regional and State specialists as well as a Technology Marketing Unit at the Forest Products Laboratory in Madison, WI.

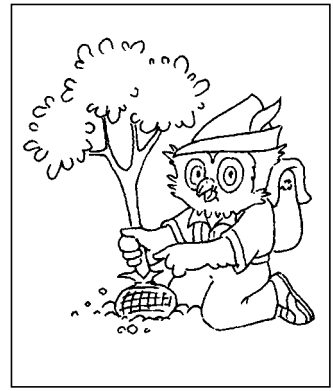
The **Wood in Transportation Program** improves rural transportation networks and demonstrates the commercial potential of using wood from undervalued tree species for bridges and other transportation structures in rural communities. This demonstration program has built market value for these species, which in turn stimulates economic return and value for protecting the forest and its ecosystems. In FY 1997, 14 structures were funded, leveraging over $772,000, with nearly a 2:1 ratio of private to Forest Service funding. More than 57,000 pieces of technical information were requested and disseminated to local and State officials responsible for transportation infrastructure.

Natural Resource Conservation Education

The Forest Service supports a lifelong learning process that promotes the understanding of ecosystems and natural resources—their relationships, conservation, use, management, and values to society. Our large partnership base assists the Natural Resource Conservation Education (NRCE) program in about 200 projects across the country each year, reaching about 2.4 million young people and more than 118,700 teachers. More than 40 separate program efforts are coordinated. They include Project Learning Tree, which reaches 400,000 teachers. The Forest Service budget is leveraged through a variety of organizations and groups to reach a 3.8:1 ratio of private to agency funds.

Smokey Bear. Smokey Bear has been spreading the forest fire prevention message for 54 years. The Forest Service began a fire prevention program during World War II, and in 1944, a bear was introduced as the program symbol. Smokey is one of the most recognized symbols of fire prevention worldwide. Educational programs using Smokey Bear are delivered to people of all age groups and backgrounds. The message is primarily oriented toward elementary-school-age children. Almost every State has a Smokey suit that is used for a wide variety of fire prevention purposes from school programs to parades. There is a Smokey Bear hot air balloon that is displayed at events across the Nation.

Smokey Bear



Woodsy Owl

Woodsy Owl. Woodsy Owl is a colorful and fanciful character designed to be especially appealing to young children. Woodsy is recognized by over 83 percent of all American households and is America's leading symbol for environmental improvement. Woodsy's appearance and message have recently been redesigned and revitalized. He now sports a backpack, hiking shoes, and field pants. His new slogan builds on his previous message: "Lend a hand—care for the land!" The Woodsy Owl campaign was officially launched by the Forest Service on September 15, 1971. In June 1974, Congress enacted a law establishing "Woodsy Owl"—with his slogan, "Give a hoot! Don't pollute!"—as a "symbol for a public service campaign to promote wise use of the environment and programs that foster maintenance and improvement of environmental quality."

Wildland Fire Management

The Wildland Fire Management program protects life, property, and natural resources on the 191 million acres of NFS lands. An additional 20 million acres of adjacent State and private lands are also protected through fee or reciprocal protection agreements. Wildland fire activities are conducted with the highest regard for public and firefighter safety.

Preparedness provides the basic fire organization and the capability to prevent forest fires and take prompt, effective initial attack suppression action on wildfires.

In FY 1997, 1.1 million acres of NFS lands received **Hazardous Fuel Treatment** to reduce the amount of hazardous fuels (combustible carbon from trees, understory growth, etc.). This was a 120-percent increase over the 1987-1996 average of 0.5 million acres. Fuel treatment benefits the health of the forest and can reduce the danger of catastrophic wildfire.

Suppression Operations provide for the suppression of wildfires on or threatening NFS lands or other lands under fire protection agreement.

In 1997, over 7,800 fires burned approximately 129,000 acres of NFS and other protected lands. The annual average is approximately 11,500 fires burning on 634,000 acres.

Cooperative Fire Protection

The Cooperative Fire Protection (CFP) program provides technical and financial assistance to State and volunteer fire departments to aid in the protection of over 1 billion acres of State and private lands.

The **State Fire Assistance** component of this program protects natural resources from fire on State and private lands. This is done through fire prevention efforts, training and equipping fire organizations, and aggressive initial attack to keep wildland fire ignitions small. Federal funds are cost-shared with State and local funds and help augment State protection needs. State and local fire organizations, capable of

quickly and efficiently extinguishing wildland and wildland/urban interface fires, reduce risk to public safety, prevent resource loss, and help contain costs of fire suppression.

The **Volunteer Fire Assistance** component of the CFP improves the ability of America's 26,000 rural fire departments to protect lives, property, and natural resources in rural and wildland/urban interface areas. The focus of the Federal assistance is to provide adequate fire and personal safety equipment, provide training, and to organize new fire departments in unprotected communities.

Federal Excess Personnel Property is acquired by the Forest Service and loaned to State forestry agencies and their cooperators, rural fire departments, for wildland and rural community fire protection. In 1997, 11,271 excess property items valued at $128,008,876 were acquired and placed in service in the United States. In the past 42 years, this program has saved taxpayers of the United States over $1 billion.

Research and Development

Forests are critical to the global environment and the global economy. They are the source of food, raw material, shelter, and income for millions, and they provide sanctuary for people and habitat for wildlife. Forests filter and protect water supplies and absorb carbon dioxide from the atmosphere. Agency research and development activities are conducted in areas requiring urgent policy and management action, including studies related to watershed health and restoration, sustainable forest management, economic and social values, and forest health.

Since its establishment in 1876, Forest Service Research and Development has become the world's single largest source of natural resource information. It includes:

- More than 550 scientists whose work is aimed at the productivity, health, and diversity of the temperate, boreal, and tropical forests;
- Six regional experiment stations and one national Forest Products Laboratory comprising 63 research lab locations, many collocated with universities;
- Eighty-three experimental forests and ranges and 370 research natural areas devoted to long-term research;
- An extensive portfolio of long-term research data bases, some more than 60 years old; and
- Gateways for collaborative research in the Tropics, through the International Institute of Tropical Forestry in Puerto Rico and the Institute of Pacific Islands Forestry in Hawaii.

The Forest Service Research and Development Program provides:

- Scientific information to natural resource managers, other scientists, and the public through more than 2,600 publications per year and many presentations at symposia and workshops,
- Collaboration with university, industry, and other scientists; nongovernmental organizations; managers; and policymakers for work that transcends the abilities of any single organization,
- More than $17 million per year in domestic grants, cooperative agreements, and contracts for research partnerships, and

- Key data bases for enhancing forest health, productivity, and conservation, including an extensive portfolio of long-term research data bases with many more than 60 years old.

The Forest Service provides scientific and technological information to manage the Nation's forests and associated ecosystems. This includes studies in vegetation management, watersheds, fisheries, wildlife, forest products and recycling, insects and diseases, economics, forest and rangeland ecology, silviculture, fire ecology, fire prevention, ecosystem functioning, and recreation.

Priority research items include:

- Forest inventories, which were conducted on 42 million acres of forest lands across all ownerships in 1997, with status and trends reported in 90 inventory reports. In 1998, forest inventory and analysis is planned for 19 States and forest health monitoring in 28 States.
- Recycling and wood use, to solve technical problems that hinder wastepaper recycling and to develop new products from agricultural and wood fibers and byproducts.
- Research to support the sustainable management of forests, including evaluation of how climate interacts with pollution, drought, and forest health.
- Large-scale ecosystem studies that support the conservation and restoration of watersheds, for example protecting watersheds, riparian zones, and biological diversity in the Rio Grande basin and the Upper Columbia River Basin.
- Research to provide habitat management information and guides for more than 70 threatened, endangered, and sensitive species, and to help define the impacts of forest fragmentation on wildlife.
- Research to support early eradication of non-native invasive insects, diseases, and weeds; for example, information on the biology of Asian longhorned beetles supports successful control of this introduced pest in New York, and newly developed DNA markers for viral control agents provide more efficient and cost-effective control of Asian gypsy moth.

Business Operations—Acquisition Management

The agency spent approximately $700 million for goods and services in FY 1997. Over 72 percent of total contract and purchase order dollars went to small businesses. Awards included more than $49 million to small disadvantaged businesses and $29 million to women-owned firms.

Forest Service dollars benefited States, research, international organizations, and other organizations through a variety of grants and cooperative agreements totaling more than $273 million.

The agency managed approximately 22 million square feet of owned office and related space plus 6 million square feet of agency leased and General Services Administration-controlled space with an annual rental of $62 million. The agency also manages approximately 4,000 units of living quarters for employees valued at $375 million.

Property managers oversee more than $2.7 billion worth of Forest Service personal property, including property on loan to State forestry departments. The agency supports the President's initiative on recycling and emphasizes procurement and effi-

cient disposal of recyclable materials. The agency national strategy for waste prevention and recycling is available via the Internet's World Wide Web at: *http://www.fs.fed.us/land/recycle.html*

Senior, Youth, and Volunteer Programs

Senior, Youth, and Volunteer Programs provide job opportunities, training, and education for the unemployed, underemployed, elderly, young, and others with special needs, while benefiting high-priority conservation work. In FY 1997, these programs included more than 134,000 participants and accomplished over $116 million in conservation work on Forest Service lands.

Through an agreement with the U.S. Department of Labor, the Forest Service operates 18 **Job Corps Civilian Conservation Centers** on Forest Service lands. The Job Corps program is the only Federal residential education/training program for the Nation's disadvantaged youth.

Key Facts About Job Corps Civilian Conservation Centers:

- *18 Job Corps Centers, 16 co-ed*
- *8,903 enrolled, ages 16-24*
- *$95 million budget*
- *$20 million work accomplishment*
- *83 percent placed*
- *Average starting salary, approximately $6.14 per hour*
- *46 percent minorities*

The **Senior Community Service Employment Program** is designed to provide useful part-time employment and training for persons age 55 and over.

Key Facts About the Senior Community Service Employment Program:

- *5,055 older workers participated*
- *$24.2 million budget*
- *$39.9 million work accomplishment*
- *Only Federal agency among 10 national sponsors*
- *43 percent females*
- *18.2 percent placed in unsubsidized employment*
- *$1.65 return on dollar invested*

In the **Youth Conservation Corps** summer employment program, persons aged 15-18 accomplish projects that further the development and conservation of the United States' natural resources.

Key Facts About the Youth Conservation Corps:

- *632 enrollees, ages 15-18*
- *$1.8 million operating costs*
- *$1.9 million work accomplishment*
- *$1.05 return on dollar invested*
- *45 percent females*

The **Volunteers in the National Forests** program allows organizations and individuals to donate their talents and services to help manage the Nation's natural resources.

Key Facts About Volunteers in the National Forests:

- *112,384 volunteers have participated (including 129 international volunteers and 180 Touch America Project volunteers, ages 14-17)*
- *$38.6 million work accomplishment*
- *37 percent females*
- *Over 1.2 million volunteers served since the 1972 legislation*

Hosted programs provide conservation training and work opportunities on national forests or in conjunction with Federal programs. Programs are administered through agreements with State and county agencies, colleges, universities, Indian tribes, and private and nonprofit organizations.

Key Facts About Hosted Programs:

- *7,793 participants*
- *$15.9 million work accomplishment*
- *25 percent females*
- *38 percent minorities*

Through a partnership with the National Forest Foundation, the Forest Service operated one **Youth Forest Camp** during the summer of 1997. Camp TIPS provided jobs, work training, and environmental education for persons aged 14-20.

Key Facts About Youth Forest Camps:

- *25 participants*
- *Greater than $61,000 work accomplishment*
- *1 camp operated (Colorado)*
- *44 percent females*
- *24 percent minorities*

Office of International Programs

The Forest Service is a global conservation leader and the Office of International Programs (IP) promotes technical cooperation and develops support for sustainable forest management practices worldwide. In addition, many individual research relationships exist between Forest Service researchers and managers and their counterparts around the world.

IP is divided into three program areas: technical cooperation, policy, and disaster assistance support. Partners include other U.S. Government agencies, as well as international organizations such as the International Tropical Timber Organization and the Food and Agriculture Organization of the United Nations. In addition, IP has developed numerous country-specific partnerships that promote training and technical exchange and tap into the diversity of experience within the Forest Service.

IP is involved with a wide variety of activities. Some examples from 1997 include: organizing a workshop on nontimber forest products in Central Africa; facilitating research to combat invasive pests in the United States; and coordinating Forest Service technical participation in response to drought, flood, and fire disasters in Africa, Asia, and Latin America.

In addition, long-term partnerships include working with the Partners in Flight program to support neotropical migratory bird habitat restoration in Mexico, working with the Federal Forest Service of Russia to advance the ability of their fire ecologists and managers to more effectively use fire as a management tool, and working with the Indonesians to develop mapping technology for land management.

In the policy area, IP is working to develop criteria and indicators for international and forest level monitoring. Further policy work includes issue briefs that explore current issues affecting international and domestic forestry. Other efforts include providing Incident Command System training to foreign firefighters so that they are prepared to deal with wildfires when they arise, and promoting reduced impact harvesting techniques through a network of forestry research organizations.

Since October 1997, over 100 Forest Service employees representing each of the 10 regions as well as research stations have been involved in international forestry work. They have participated in international forestry meetings, conducted assessments of disaster situations, coordinated interagency response teams, and conducted original research. The partnerships that have developed and that are being encouraged enable a great exchange of ideas and techniques, which lead to more sustainable forestry practices, in this country and abroad.

Key Facts About the Impact of International Programs:

- *Through involvement with industry, State foresters, and major nongovernmental organizations, 12 countries forged a consensus on a set of criteria and indicators for assessing progress towards sustainable forest management.*
- *International collaboration on research and monitoring help to reduce the impact of invasive pests such as the Asian gypsy moth and hemlock woolly adelgid, which have severe impacts on timber resources.*

- *Partnerships with organizations such as Ducks Unlimited to restore waterfowl habitat will increase the populations of waterfowl that migrate to the Western and Southwestern United States from Mexico and further south.*
- *A program with the Federal Forest Service of Russia, the State of Alaska, and U.S. companies and nongovernmental organizations will help to ensure that Russians have access to the best environmental technology as petroleum resources on Sakhalin Island are developed. This will promote increased employment in Alaska and preserve salmon fisheries around Sakhalin Island and Alaska.*

Law Enforcement and Investigations

The objective of the Forest Service law enforcement program is to serve people and protect natural resources and property within the authority and jurisdiction of the Forest Service. The program focuses on activities such as vandalism, archaeological resource violations, timber theft, wildland arson, and the cultivation and manufacture of illegal drugs.

Forest Service drug control efforts continue to focus on the detection, apprehension, and prosecution of persons responsible for illegal drug activities on the forests. Drug enforcement efforts annually result in the seizure of several million dollars' worth of assets and the seizure and destruction of several million dollars' worth of marijuana and other drugs.

In FY 1997, 540 cooperative law enforcement agreements enhanced cooperation with State and local law enforcement agencies and with other Federal agencies to increase the protection and service to forest visitors. About 170 drug enforcement agreements were set up between the Forest Service, State and local law enforcement agencies, and other Federal agencies or task forces to cooperate in eliminating illegal drug activities in the National Forest System.

Key Facts About Law Enforcement and Investigations:

- *Nearly 300,000 incidents or criminal violations were reported and handled by Forest Service (FS) officers in FY 1997. These violations resulted in many millions of dollars in damages and losses to FS property and natural resources.*
- *Nearly 316,000 marijuana plants valued at nearly $950 million were removed from approximately 4,400 sites. Officers made over 2,400 arrests for drug-related offenses, seized nearly $14 million worth of processed marijuana, and seized over $1.1 million in assets. Growers assaulted 26 people, 211 weapons were found in the possession of growers, and 48 booby traps were found at growing sites.*
- *About 450 uniformed law enforcement officers and 130 criminal investigators performed investigation and enforcement activities that are unique to the FS and its resources.*

Natural Resources Conservation Service

As USDA's lead private lands conservation agency, the Natural Resources Conservation Service (NRCS) provides technical assistance and administers a wide range of programs to solve the Nation's natural resource problems.

The well-being of our Nation depends on healthy, productive natural resources and their sustainable use. Just as soil, water, and habitat are interrelated, the programs that address these resources are interrelated, and programs that help one resource also benefit others. If you stop erosion, for example, you enhance soil productivity and protect water and air quality. Improving the environment enhances the economic future of communities throughout the United States.

The mission of NRCS is to provide national leadership, using a cooperative partnership approach, to help people conserve, improve, and sustain their natural resources and environment.

A Partnership Approach to Resource Conservation

For more than 6 decades, NRCS employees have worked side-by-side with landowners, conservation districts, Resource Conservation and Development Councils, State and local governments, and urban and rural partners to restore and enhance the American landscape. The agency helps landowners and communities take a comprehensive approach in conservation planning, working toward an understanding of how all natural resources—soil, water, air, plants, animals—relate to each other and to humans. The agency works to solve the natural resource challenges on the Nation's private lands—reducing soil erosion, improving soil and rangeland health, protecting water quality and supply, conserving wetlands, and providing fish and wildlife habitat.

Most NRCS employees serve in USDA's network of local, county-based offices, including those in Puerto Rico and the Pacific Basin. The rest are at State, regional, and national offices, providing technology, policy, and administrative support. They serve all people who live and work on the land. Nearly three-fourths of the agency's technical assistance goes to helping farmers and ranchers develop conservation systems uniquely suited to their land and their ways of doing business.

The agency helps rural and urban communities curb erosion, conserve and protect water, and solve other resource problems. American Indian tribes, Alaska Natives, Pacific Islanders, and other native groups work with NRCS on a variety of initiatives that include resource inventories and the adaptation of conservation programs to fit the special needs of their people and their land. Also, countries around the globe seek NRCS advice on building their own conservation delivery systems and in coping with severe natural resource problems.

NRCS Conservation Technical Assistance

NRCS provides conservation technical assistance (CTA) to improve and conserve natural resources. This assistance is based on voluntary local landowner cooperation.

CTA is the foundation upon which NRCS delivers its services—through local conservation districts—to private landowners, communities, and others in their care of natural resources. CTA is the intellectual capital of the agency; it is made up of people who are well-trained and competent in soils and other physical and biological sciences, and who have the interpersonal skills and knowledge of local conditions to work with private landowners in the stewardship of our natural resources.

CTA provides the infrastructure through which the agency is able to respond to a multitude of needs from natural resource disasters to complex, site-specific natural resource problems. CTA is the means by which this Nation is able to voluntarily bring about land stewardship that improves our soil, water, wildlife, and air resources while providing for sustainable agricultural production. The investments in CTA return significant benefits to the American public—from an improved environment and quality of life to a safe and abundant food supply.

NRCS Programs

Following is an overview of NRCS programs:

Wetlands Reserve Program

The Wetlands Reserve Program is a voluntary program to restore wetlands. Participating landowners can establish conservation easements of either permanent or 30-year duration, or can enter into restoration cost-share agreements where no easement is involved. In exchange for establishing a permanent easement, the landowner receives payment up to the agricultural value of the land, plus 100 percent of the restoration costs for restoring the wetland. The 30-year easement payment is 75 percent of what would be provided for a permanent easement on the same site, plus 75 percent of the restoration cost. The voluntary agreements are for a minimum 10-year duration and provide for 75 percent of the cost of restoring the involved wetlands.

Conservation Farm Option

The Conservation Farm Option was authorized as a pilot program for eligible producers of wheat, feed grains, cotton, and rice. The purpose of the program is to address the conservation of soil, water, and related resources; water quality; wetlands; wildlife habitat; and other resources. Producers who have contract acreage under production flexibility contracts are given an option of a 10-year contract with a single annual payment equivalent to the amount of the combined payments under the Conservation Reserve Program, the Wetlands Reserve Program, and the Environmental Quality Incentives Program.

Environmental Quality Incentives Program

The Environmental Quality Incentives Program works primarily in locally identified priority areas where there are significant natural resource concerns, such as soil erosion, water quality and quantity, wildlife habitat, wetlands, and forest and grazing lands. Priority is given to areas where State or local governments offer financial, technical, or educational assistance, and to areas where agricultural improvements

will help meet water quality objectives. Activities must be carried out according to a conservation plan. The program offers financial, educational, and technical help to install or implement structural, vegetative, and management practices called for in 5- to 10-year contracts. Cost sharing may pay up to 75 percent of the costs of certain conservation practices. Nationally, half of the funding for this program is targeted to livestock-related natural resource concerns and the remainder to other significant conservation priorities.

Wildlife Habitat Incentives Program

The Wildlife Habitat Incentives Program provides financial incentives to develop habitat for fish and wildlife on private lands. Participants agree to implement a wildlife habitat development plan, and USDA agrees to provide cost-share assistance for the initial implementation of wildlife habitat development practices. USDA and program participants enter into 5- to 10-year cost-share agreements for wildlife habitat development.

Farmland Protection Program

The Farmland Protection Program provides funds to State, tribal, or local government entities to help purchase development rights to keep productive farmland in agricultural use. Working through their existing programs, USDA joins with State, tribal, or local governments to acquire conservation easements or other interests from landowners. USDA provides up to 50 percent of the cost of purchasing the easements. To qualify, farmland must be part of a pending offer from a State, tribe, or local farmland protection program; be privately owned; have a conservation plan; be large enough to sustain agricultural production; be accessible to markets for what the land produces; have adequate infrastructure and agricultural support services; and have surrounding parcels of land that can support long-term agricultural production.

Conservation of Private Grazing Land

Conservation of Private Grazing Land will ensure that technical, educational, and related assistance is provided to those who own private grazing lands. The Nation's more than 600 million acres of private grazing lands produce food and fiber, hold and carry important water resources, and offer wildlife habitat and recreational opportunities.

Soil Surveys

NRCS conducts soil surveys cooperatively with other Federal agencies, land-grant universities, State agencies, and local units of government. Soil surveys provide the public with local information on the uses and capabilities of their soil resource. Soil surveys are based on scientific analysis and classification of the soils, and are used to determine land capabilities and conservation treatment needs. The published soil survey for a county or designated area includes maps and interpretations with explanatory information that is the foundation of resource policy, planning, and decisionmaking for Federal, State, county, and local community programs.

Snow Survey and Water Supply Forecasts

NRCS field staff collect snow information through a network of about 600 Snow Telemetry (SNOTEL) and 1,000 traditional snow courses to provide 11 Western States and Alaska with water supply forecasts. The data are collected, assembled, and analyzed to make about 4,000 annual water supply forecasts, which provide estimates of available annual yield, spring runoff, and summer stream flow. Water supply forecasts are used by individuals, organizations, and State and Federal agencies to make decisions relating to agricultural production, fish and wildlife management, flood control, recreation, power generation, and water quality management. The National Weather Service presently includes the snow information in its river level forecasts.

Plant Materials Centers

NRCS employees at 26 Plant Materials Centers assemble, test, and encourage increased plant propagation and usefulness of plant species for biomass production, carbon sequestration, erosion reduction, wetland restoration, water quality improvement, streambank and riparian area protection, coastal dune stabilization, and for meeting other special conservation treatment needs. The work is carried out cooperatively with State and Federal agencies, commercial businesses, and seed and nursery associations. After species are proven, they are released to the private sector for commercial production. In 1997, NRCS developed cultivars that were turned over to others to produce plant stock that generated more than $175 million in revenue for private sector nurseries and seed companies.

Small Watersheds Projects

The Small Watershed Program works through local government sponsors and helps participants solve natural resource and related economic problems on a specific watershed. Project purposes include watershed protection, flood prevention, erosion and sediment control, water supply, water quality, fish and wildlife habitat enhancement, wetlands creation and restoration, and public recreation in watersheds of 250,000 or fewer acres. Both technical and financial assistance are available.

Emergency Watershed Protection

The Emergency Watershed Protection (EWP) program is designed to reduce threats to life and property in the wake of natural disasters. It provides technical and cost-sharing assistance. Assistance includes establishing vegetative cover; developing gully control; installing streambank protection devices; removing debris and sediment; and stabilizing levees, channels, and gullies. In subsequent storms, EWP projects protect homes, businesses, highways, and public facilities from further damage. Floodplain easements under EWP may be purchased to help prevent future losses due to natural disasters.

Watershed Operations

Under the Flood Control Act of 1944, NRCS is authorized to administer watershed works of improvement. Flood prevention operations include planning and installing works of improvement and land treatment measures for flood prevention; for the conservation, development, utilization, and disposal of water; and for the reduction of sedimentation and erosion damages. This may also include the development of recreational facilities and the improvement of fish and wildlife habitat. Activities are authorized in 11 specific flood prevention projects covering about 35 million acres in 11 States.

River Basin Surveys and Investigations

NRCS cooperates with other Federal, State, and local agencies in conducting river basin surveys and investigations, flood hazard analysis, and flood plain management assistance to aid in developing coordinated water resource programs, including their guiding principles and procedures. Cooperative river basin studies are made up of agricultural, rural, and upstream water and land resources to identify resource problems and determine corrective actions needed. These surveys address a variety of natural resource concerns, including water quality improvement, opportunities for water conservation, wetland and water storage capacity, agricultural drought problems, rural development, municipal and industrial water needs, upstream flood damages, and water needs for fish, wildlife, and forest-based industries. Flood plain management assistance includes the identification of flood hazards and the location and use of wetlands. NRCS represents USDA on river basin regional entities and River Basin Interagency Committees for coordination among Federal Departments and States.

Forestry Incentives Program

The Forestry Incentives Program supports good forest management practices on privately owned, nonindustrial forest land nationwide. The program is designed to benefit the environment while meeting future demand for wood products. Eligible practices are tree planting, timber stand improvement, site preparation for natural regeneration, and related activities. The program is available in counties designated by a Forest Service survey of eligible private timber acreage.

Resource Conservation and Development Program

The Resource Conservation and Development (RC&D) Program provides a framework for local people to join together to improve their community's economy, environment, and living standards. RC&D areas are locally organized, sponsored, and directed. USDA provides technical and financial assistance and helps sponsor secure funding and services from Federal, State, and local sources. The major emphases are environmental conservation and rural development. Currently there are more than 300 RC&D areas covering more than 75 percent of the United States. Each year, these locally organized and directed areas create thousands of new jobs, protect thousands of miles of water bodies, conserve hundreds of thousands of acres of land, and improve the quality of life in hundreds of communities.

RC&D areas are run by a council of volunteers who serve without pay; currently more than 20,000 people donate their time and talents to improve their communities through this program. USDA provides a coordinator to work full-time with each area to help them implement their objectives.

National Resources Inventory

Every 5 years, NRCS develops an inventory of the condition and trends of natural resources on non-Federal land. The "National Resources Inventory," or NRI, contains the most comprehensive and statistically reliable data of its kind in the world. It measures trends in soil erosion by water and wind, wetland losses, prime farmland acreage, irrigation, and habitat and conservation treatment at national, regional, State, and sub-State levels.

Other Activities

National Conservation Buffer Initiative

In April 1997, Agriculture Secretary Dan Glickman announced a new public-private partnership called the National Conservation Buffer Initiative. The goal is to help landowners install 2 million miles of conservation buffers by the year 2002.

Conservation buffers are areas or strips of land maintained in permanent vegetation and designed to intercept pollutants. Buffers can be installed along streams or in uplands—within crop fields, at the edge of crop fields, or outside the margins of a field.

The National Conservation Buffer Initiative is a multi-year effort led by NRCS, in cooperation with other USDA agencies, State conservation agencies, conservation districts, agribusinesses, and agricultural and environmental organizations. Six national agricultural corporations have pledged nearly $1 million over the next 3 years to complement USDA's efforts to promote conservation buffers.

To date, approximately 595,000 acres—or nearly 165,280 miles—of buffers have been established under the Conservation Reserve Program continuous sign-up. Agricultural producers and other landowners who install buffers can improve soil, air, and water quality; enhance wildlife habitat; restore biodiversity; and create scenic landscapes.

International Programs

NRCS helps improve the management and conservation of natural resources globally. Participation in collaborative efforts with other countries results in benefits to the United States. During FY 1997, NRCS specialists completed 490 assignments in 47 countries. The objectives of the assignments were to provide short- and long-term technical assistance and leadership for the development of natural resource conservation programs and projects, and to exchange conservation technology with countries that face soil and water conservation issues similar to those in this country.

NRCS provided opportunities for approximately 210 foreign nationals from more than 25 countries to gain a better understanding of natural resource conservation activities by observing and discussing conservation programs in the United States.

Agricultural Air Quality

The 1996 Farm Bill established a Task Force on Agricultural Air Quality to make recommendations to the Secretary of Agriculture with regard to the scientific basis for agriculture's impact on air quality. This task force is to strengthen and coordinate USDA air quality research efforts to determine the extent to which agricultural activities contribute to air pollution and to identify cost-effective ways in which the agricultural industry can improve air quality. The task force is also charged with ensuring that data quality and interpretation are sound. The Farm Bill requires that policy recommendations made by any Federal agency with respect to agricultural air quality issues must be based on sound scientific findings, subject to peer review, and must consider economic feasibility.

Backyard Conservation Campaign

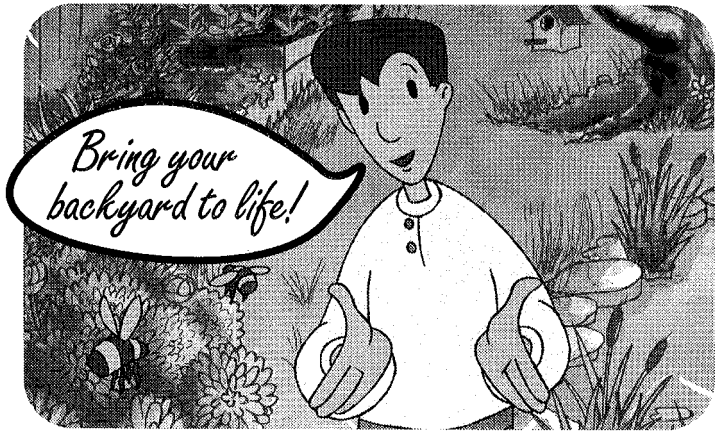
NRCS has developed a new Backyard Conservation campaign to inform urban, suburban, and rural residents of the good conservation work being done by farmers and ranchers. At the same time, it encourages them to adopt miniature versions of the same practices in their own backyards, such as composting, mulching, tree planting, nutrient management, and water conservation.

Farmers and ranchers are already making progress in natural resource conservation by protecting and restoring wetlands, enhancing wildlife habitat, and curbing soil erosion. There are nearly 2 billion acres of land in the United States. Most of that land, 1.4 billion acres, is managed by farmers and ranchers. More than 92 million acres, however, are privately developed and much of it is tended by homeowners. These homeowners can join the conservation tradition of farmers and ranchers right in their own backyards to curb water pollution and enhance wildlife habitat.

For more information on this campaign or on other agency programs, visit the NRCS web site at *http://www.nrcs.usda.gov*

BACKYARD CONSERVATION

It'll grow on you.



For years, farmers and ranchers have used conservation practices to save natural resources and improve wildlife habitat. For a free booklet on how you can use some of these same practices in your own backyard – whether you have acres, feet, or a few flower pots –

Call 1-888-LANDCARE

Ask for the Backyard Conservation Booklet.

This is a cooperative project of:
USDA Natural Resources Conservation Service
National Association of Conservation Districts
Wildlife Habitat Council

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11. Research, Education, and Economics

Investing in the Future Through Agricultural Research, Education, and Economics

USDA leads the world in basic and applied research, as it looks for ways to solve problems challenging America's food and fiber production system, and for ways to improve food supply, safety and quality. Five major challenges face U.S. agriculture in the next decade: (1) maintaining an agricultural system that's highly competitive in the global economy, (2) balancing agricultural production and the environment, (3) providing a safe and secure food supply for all citizens, (4) maintaining a healthy, well-nourished population, and (5) increasing economic opportunities and improving the quality of life of all Americans. USDA's Research, Education, and Economics (REE) mission helps meet these challenges.

Four USDA agencies make up the mission: the Agricultural Research Service (ARS), the Cooperative State Research, Education, and Extension Service (CSREES), the Economic Research Service (ERS), and the National Agricultural Statistics Service (NASS). Together, these agencies have the Federal responsibility to discover and disseminate knowledge that spans the biological, physical, and social sciences related to agricultural research, economic analysis, statistics, extension, and higher education. The Agricultural Research, Extension, and Education Reform Act, enacted in June 1998, establishes an Initiative for Future Agriculture and Food Systems targeted toward critical emerging agricultural issues related to future food production, environmental protection, or farm income.

Getting Your Money's Worth. How does the responsibility translate into results that benefit Americans?

In the international trade arena, USDA research is an important tool for stimulating the Nation's economy. For example, the protocol developed for detecting corn seed bacterial disease early and accurately eliminates foreign quarantine barriers and rejected shipments—keeping markets open for U.S. farm products. Another example: U.S. rice establishes the quality standard for the most important small grain in the world. USDA research advances in agricultural biotechnology can help improve crop quality and yields of rice, as well as reduce losses from pest damage. This helps the United States build an agricultural system that is highly competitive in the global economy.

REE is also rising to the challenge of balancing agricultural production and the environment. For example, USDA agricultural research is behind Integrated Pest Management (IPM), a system that relies on a variety of natural techniques as alternatives to chemical pesticides in order to reduce health risks, sustain natural resources, and create new economic opportunities. USDA's goal is to have IPM in practice on

75 percent of U.S. agricultural acres by the year 2000. Another example is the research behind the development of biodegradable 100-percent cornstarch cutlery, which is stronger and better for the environment than petroleum-based plastic utensils.

In an effort to meet the challenge of providing a safe and secure food supply for all citizens, USDA scientists created a product that was approved by the Food and Drug Administration called PREEMPT. This product can help poultry producers reduce Salmonella contamination in chickens and offers a better and safer product.

REE is delivering on its commitment to a healthy well-nourished population with the production of a substance called Z-trim which can be used in a number of food products as a fat replacement that tastes good.

Delivering the Goods. How does USDA take these technologies and products from the labs to the marketplace?

REE works with land-grant institutions and industry to move research results into the marketplace to boost economic opportunity and improve the quality of life for all Americans. REE works in partnership with the State agricultural experiment station system, based at land-grant universities to carry out a balanced program of fundamental and applied research. This critical connection—with extension educators identifying and communicating agricultural, environmental, and community problems to researchers at campuses and experiment stations—helps to provide cutting edge technologies and new products.

USDA uses Cooperative Research And Development Agreements (CRADAs) to get many of its research accomplishments to farmers, business people, and consumers. Under these agreements, USDA and its private sector partners agree to develop certain technologies jointly so they can be commercialized. With more than 650 such partnerships, USDA leads all Federal research organizations in CRADA activity. CRADAs combine government expertise with entrepreneurial ability, allowing government and small business to do more than they could alone. CRADAs maximize resources and deliver results, giving farmers and consumers products they need, and giving small business and rural America Federal partnerships that enhance products and stimulate the economy.

USDA also collaborates with other Federal Departments on research and technology transfer activities with far-reaching benefits. USDA has worked with the Department of Defense in investigating new methods to control pests and reduce pesticide use. Cooperation with the U.S. Department of Health and Human Services (HHS) includes close coordination of human nutrition research done by the two Departments. The CRADAs and the Federal partnerships are examples of how REE can stimulate economic opportunity and improve the quality of life of Americans.

Putting It All Together. To build an informed citizenry, and to provide the information base for market decisions, REE also coordinates economic and social research. This research supports programs and policies across USDA, providing data, information, and economic and statistical analyses on a variety of topics: rural development, the environment and natural resources, food safety, food prices, farm labor, farm income, financial conditions, commodity markets, and international trade. Forecasts and estimates for over 165 different crop and livestock commodities are provided annually to farmers, ranchers, and other agribusinesses. This information

helps policymakers, Congress, and the public make informed decisions about issues related to food and fiber production.

REE also focuses on practical education that Americans can use in dealing with critical issues that affect their lives and the Nation's future by linking research, science, and technology to the needs of people where they live and work. REE offers information on issues ranging from community economic development and health care concerns to food safety, water quality, children, youth and families, and sustainable agriculture. For example, REE programs reach over 5.4 million youth in the United States and the Territories. CSREES' Families, 4-H, and Nutrition programs empower youth to become responsible contributing members of their communities while the Ag in the Classroom program reaches K-12 students. Programs focus on healthy learning experiences, increased self-esteem, enhanced problem-solving skills, and agricultural literacy. Almost 700,000 volunteers contribute to these programs, which also draw on teachers, State and local government officials, agricultural organizations, and agribusiness, further enhancing their effect.

In a society in which information access is crucial, REE is working with local communities to connect them to the information superhighway. From there, citizens have access to much of the information the four REE agencies generate and to the vast resources available at the National Agricultural Library (NAL)—the largest agricultural library in the world and one of three national libraries of the United States. As the Nation's chief resource providing agricultural information, NAL offers researchers, educators, policymakers, farmers, consumers, and the general public approximately 48 miles of bookshelves to peruse in a 14-story building, as well as access to the library's 2 million volumes through its computerized network or electronic bulletin board.

Research—A Sound Investment. REE serves people along the entire food and fiber chain—from the farm gate to the consumer's kitchen table. Sound science provides new technology and information useful to Americans as well as people all over the world in their daily lives. The REE agencies develop new products and new uses, explore profitable marketing strategies, develop technologies to improve farming and processing efficiency, increase food safety, improve human nutrition, and conserve and enhance natural resources. Studies demonstrate that consumers reap the benefits of investing in agricultural research; every tax dollar invested in the U.S. agricultural system has paid back at least $1.35. Information about the REE mission and its respective agencies—Agricultural Research Service; Cooperative State Research, Education, and Extension Service; Economic Research Service; and National Agricultural Statistics Service—is available on the REE World Wide Web home page at *http://www.reeusda.gov/ree/*

Agricultural Research Service

The Agricultural Research Service (ARS) is the principal in-house research agency of the U.S. Department of Agriculture.

ARS research has contributed to improved crop yields and more environmentally sensitive farming techniques. But the impact of ARS research extends far beyond the

farm gate. Agricultural research is as much about human health as it is about growing corn.

For example, ARS recently developed a fat substitute called Oatrim. Not only does this technology benefit farmers by providing a new use for oats, it also enables processors to produce tastier low-fat foods. Consumers may reap the biggest benefits: Oatrim-rich diets lower the bad (LDL) type of cholesterol without decreasing the good (HDL) type, and they improve glucose tolerance.

ARS research is also as much about development of industrial products such as printing ink from soybeans and other crops as it is about development of high-yielding wheat varieties. And like Oatrim, printing inks made from 100-percent soybean oil instead of petroleum solve more than one problem. Unlike petroleum, soybeans are a renewable resource, and this technology diversifies markets for soybean farmers and choices for ink manufacturers and printers.

ARS research provides solutions to a wide range of problems related to agriculture—problems that require long-term commitment of resources or that are unlikely to have solutions with a quick commercial payoff that would tempt private industry to do the research. These problems range from fighting the ongoing battle to protect crops and livestock from costly pests and diseases, to improving quality and safety of agricultural commodities and products for humans, to making the best use of natural resources. All the while, the research results must help ensure profitability for producers and processors while keeping costs down for consumers.

ARS: A Year in Research: Selected Highlights

- ***Development of Biodegradable Lubricants***
  Petroleum-based products that are currently in use are not biodegradable, and they often contaminate the environment or become a disposal problem. With a new process developed by ARS scientists in Peoria, Illinois, vegetable oils can now yield biodegradable lubricants that are environmentally friendly.
- ***Development of Improved Varieties of Cotton Germplasm***
  ARS scientists at Stoneville, Mississippi, completed several years of field tests showing that okra-leaf cotton plants are better suited for a lower level of pesticide application than had been previously used. Once transferred into commercial varieties, the okra-leaf trait is expected to contribute significantly to decreased pesticide use.
- ***Reducing Imported Fire Ant Population***
  ARS scientists at the South American Biological Control Laboratory in Argentina have been collaborating with ARS researchers in Gainesville, Florida, in testing natural control agents that have demonstrated promise in reducing the imported fire ant populations.
- ***Linking Age-Associated Changes in Behavior to Oxidative Stress***
  ARS scientists at the Human Nutrition Research Center on Aging at Tufts University indicate that one of the major sites of action of oxidative stress is the membrane of neurological cells. Research showed that increased consumption of fruits and vegetables might prevent or reverse such neurological stress.

- ***Improving Nutrient Management by Using Remote Sensing and Precision Applications***
  ARS researchers in Morris, Minnesota, are conducting on-farm testing of a computer model that considers interactions between soil type and growing season climate conditions in adjusting midsummer application of fertilizers. Precision application of nutrients will lead to reduced nutrient applications and lower off-site concentrations of nutrients in water.
- ***Using Biological Control Agents To Reduce the Invasive Weed Leafy Spurge***
  ARS scientists in Sidney, Montana, and Montpelier, France, in cooperation with USDA's Animal and Plant Health Inspection Service, have identified, tested, and released several beneficial spurge feeding insects into North America. Ranchers and farmers, along with Federal, State, and local land managers, are now using these insects to control leafy spurge over vast areas of range and pasture land.
- ***Reducing Human Lyme Disease Risk***
  Scientists at Livestock Insects Research Laboratory at Kerrville, Texas, developed and patented the self-treatment device that controls ticks on both antlered and antlerless white-tailed deer. This technology is currently being used in Rhode Island, Connecticut, New York, New Jersey, and Maryland to reduce the risk of humans being infected by ticks carrying Lyme disease.

For more information about ARS, see its home page: *http://www.ars.usda.gov*

National Agricultural Library

Established in 1862 under legislation signed by President Abraham Lincoln, the National Agricultural Library (NAL) is one of four national libraries of the United States (with the Library of Congress, the National Library of Medicine, and the National Library of Education).

The NAL mission is to ensure and enhance access to agricultural information for a better quality of life. The library serves national and international customers, including researchers, educators, policymakers, information providers, agricultural producers, students, and the general public.

NAL is the largest agricultural library in the world—with over 3.3 million items in its collection and 48 miles of bookshelves. Tens of thousands of new items are added to the collection each year. Materials date back several hundred years and include books, journals, reports, theses, photographs, films, videotapes, maps, artwork, artifacts, software, laser discs, CD-ROMs, and more. The library also receives about 22,000 periodicals annually. The collection is international in scope and includes items in nearly 40 foreign languages.

Located in Beltsville, Maryland, NAL is part of USDA's Agricultural Research Service. In addition to being a national library, NAL is the departmental library for USDA, serving thousands of USDA employees around the world. NAL is a key resource of USDA scientific and research activities.

About 200 people work at NAL including librarians, computer specialists, information specialists, administrators, and clerical personnel. A number of volunteers ranging from college students to retired persons work on various programs at the library too. NAL also has an active visiting scholar program, which allows professors, scientists and librarians from universities worldwide to work full-time at NAL on projects of mutual interest.

AGRICOLA (AGRICultural OnLine Access) is NAL's bibliographic database providing quick access to the NAL collection. AGRICOLA contains more than 3.3 million citations to agricultural literature and is available on the World Wide Web through the NAL home page at *http://www.nal.usda.gov*

NAL: Selected Highlights

- ***Expanding Access to Information Resources***
  Through its Electronic Media Center, NAL provides ARS scientists with desktop computer access to over 30 databases pertaining to the agricultural and related sciences, enabling users to operate more efficiently by searching their own databases without leaving their offices.
- ***Ensuring Long Term Access to Agricultural Information***
  In 1997 NAL, in collaboration with other Government agencies and land-grant universities, convened a conference to address the electronic preservation of USDA digital publications and developed a preliminary preservation plan. NAL's accomplishments in preserving USDA paper and digital publications will ensure that these materials will not be lost to future generations.
- ***Expanding the Agriculture Network Information Center (AgNIC) Gateway to Electronic Information Relating to Agriculture.***
  AgNIC is a distributed information network on the Internet that was created by NAL and land-grant universities to provide access to online reference services. Additional services and databases are continually added to AgNIC, increasing its usefulness to the agricultural community.
- ***Making USDA History Collection Available for Research***
  Since the transfer of the USDA history collection to NAL in 1997, the library has organized and rehoused the entire collection. The collection is now being frequently used for research and reference purposes by USDA employees and the general public.
- ***NAL Database Available on the Web***
  AGRICOLA, NAL's bibliographic database of over 3.3 million records on the literature of agriculture, is now available on the World Wide Web through the NAL homepage at http://www.nal.usda.gov This allows access via the web to the NAL collection at any time, anywhere, to anyone.

NAL works closely with the nationwide network of State land-grant university libraries on programs to improve access to and maintenance of the Nation's agricultural knowledge. This is being done more and more through application of new electronic information technology (the Internet and World Wide Web, CD-ROMs, laser discs, etc.). NAL has gained international recognition as a leader in this area.

NAL maintains specialized information centers in areas of particular concern to the agricultural community. These centers provide a wide range of customized information services such as responding to specific reference requests, developing informational materials, coordinating outreach activities, and establishing information exchange and dissemination networks. Subjects covered by NAL information centers include alternative farming systems, animal welfare, food and nutrition, plant genome, technology transfer for rural information (including rural health), and water quality.

For walk-in visitors, the library is open from 8:00 a.m. to 4:30 p.m., eastern time, Monday through Friday, except on Federal holidays. Many of NAL's services are available at anytime through the NAL home page.

NAL can be contacted at:

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Cooperative State Research, Education, and Extension Service

The Cooperative State Research, Education, and Extension Service (CSREES) unites the research and higher education functions of the former USDA Cooperative State Research Service and the education and outreach functions of the former Extension Service.

CSREES links the research and education resources and activities of USDA, resulting in better customer service and an enhanced ability to respond to emerging issues and national priorities.

In cooperation with its partners and customers, CSREES advances a global system of research, higher education, and extension in the food and agricultural sciences and related environmental and human sciences to benefit people, communities, and the Nation.

CSREES programs increase scientific knowledge and provide key access to this knowledge; strengthen the research, higher education, and extension capabilities of land-grant and other institutions; increase access to and use of improved communication and network systems; and promote informed decisionmaking by producers, families, communities, and other customers that leads to a better quality of life and a brighter future.

CSREES is committed to improving economic, environmental, and social conditions in the United States and globally. These conditions include improved agricultural productivity and development of new products; safer, cleaner food, water, and air; enhanced stewardship and management of natural resources; healthier and more responsible individuals, families, and communities; and a stable, secure, diverse, and affordable national food supply.

Partnership

The CSREES international research, education, and extension network is strengthened by partnerships that maximize resources and program impact. A wide spectrum of partners includes other USDA agencies, Federal and State government departments, nonprofit organizations, and private sector entities. Working with the land-grant universities and their representatives is critical to the effective shared planning, delivery, and accountability for research, higher education and extension programs. CSREES partners include:

- Over 130 colleges of agriculture, including land-grant institutions in each State and territory,
- 59 agricultural experiment stations,
- 57 cooperative extension services,
- 63 schools of forestry,
- 16 1890 historically black land-grant institutions and Tuskegee University,
- 27 colleges of veterinary medicine,
- 42 schools and colleges of family and consumer sciences,
- 29 1994 Native American land-grant institutions,
- 160 Hispanic-serving institutions,
- Federal and State governments, and
- Nonprofit organizations and the private sector.

Programs

CSREES research, education, and extension leadership is provided through programs in Plant and Animal Production, Protection, and Processing; Natural Resources and Environment; Rural, Economic, and Social Development; Families, 4-H, and Nutrition; Partnerships; Competitive Research Grants and Awards Management; Science and Education Resources Development; and Communications, Technology, and Distance Education.

Advanced Communication Technology

CSREES is a recognized leader in helping the Nation build the National Information Infrastructure (NII) for agriculture. Cutting edge technologies and applications are used to provide critical community access to the research, education, and extension knowledge that empowers citizens to be active participants in reshaping society and solving complex problems at the local level. CSREES enables access to education through interactive distance education programs that relate to the variety of ways people learn. With all State extension system offices and 75 percent of county offices interconnected via interactive communication technology, CSREES is able to respond in a timely and credible manner to critical issues and public needs.

What is CSREES?

CSREES is

- 5.4 million youth involved in 4-H programs that increase self-esteem and enhance problem-solving skills in a positive, supportive environment
- Managing Change in Agriculture, a national initiative to help U.S. agricultural producers respond to profound changes in how food is produced, processed, distributed, and marketed in the United States and globally
- The National Research Initiative supporting research in the biological, physical, and social sciences to solve key agricultural and environmental problems
- Over 9,600 local extension agents working in 3,150 counties
- Over 9,500 scientists conducting research at 59 State agricultural experiment stations
- Immediate electronic access to vital disaster safety and recovery information in time critical disasters, such as hurricanes, wildfires, and floods
- Higher education programs based on national needs to develop the scientific and professional expertise required to advance the food, agricultural, and natural resource systems and maintain excellence in college and university teaching programs
- World Wide Web access to USDA research and agricultural statistics
- 3 million trained volunteers working with national outreach education programs
- Cutting-edge research programs on value-added product development, plant and animal genome, integrated pest management, water quality, human nutrition, food safety, and animal and plant systems
- Model education programs in sustainable agriculture; water quality; food safety; children, youth and families; health; environmental stewardship; distance education; and community economic development

CSREES: Selected Highlights

- ***Increasing Registration of Pest Control Agents for Minor-Use Crops***
  Accomplishments include the registration of a herbicide used for broadleaf weed control on cucumbers. Scientists at Washington State estimate a savings of $1 million in herbicide and labor costs on 2,500 acres of the crop grown in that State, and potential savings are much higher, when nationwide cucumber production is considered.
- ***Extending the Shelf-Life of Fresh-Cut Fruit***
  Researchers at University of California, Davis, are carrying out a study supported by the National Research Initiative (NRI) that will determine the effects of oxygen and carbon dioxide concentrations on fruit tissue browning. This knowledge will be used to improve packaging and handling of fresh-cut fruits, leading to increased availability of these products for consumers and expanded markets for producers.

- ***Incorporating the Impact of Rapid Manufacturing Growth on Food Imports***
  Agricultural economists at Purdue University in Indiana received an NRI grant to study the relationship among different economic sectors in the balance of trade. The results showed that restricting imports of manufactured fiber products and textiles into North America had indirect impacts on NAFTA's potential level of exports. Ultimately, the research showed that imposing trade restrictions in one sector of the economy can have dire consequences in another.
- ***Establishing Networks To Enhance the Understanding of Risk Management Alternatives***
  Extension specialists are conducting educational programs to help producers and agribusinesses meet the added responsibility of risk management they face as a result of the 1996 Farm Bill, increasingly global markets, the changing structure of agriculture, and the use of new and unproven technologies. State extension agents are communicating with USDA's Risk Management Agency (RMA) personnel to determine the appropriate risk management alternatives.
- ***Developing and Facilitating Hazard Analysis and Critical Control Points (HACCP) Training***
  Representatives from Texas A&M University, Virginia Polytechnic Institute and State University, and Kansas State University collaborated with employees of the Food and Drug Administration and USDA's Food Safety and Inspection Service in developing state planning strategies for HACCP training and education. Such efforts are considered essential for supporting the President's Food Safety Initiative.
- ***Improving Nutrition Education Instruction***
  Extension nutrition educators at the University of Massachusetts have enhanced the quality of nutrition education supported by the Expanded Food and Nutrition Education Program (EFNEP). After completing the program, EFNEP participants increased their consumption of nutritious foods, and made improvements in food purchasing and meal preparation.
- ***Providing Education for Environmental Project***
  In Connecticut, Nonpoint Education for Municipal Officials (NEMO) programs have sparked changes in local public policy and environmental stewardship. Municipal plans for conservation and development, zoning regulations, and subdivision requirements have been changed to address water resource protection. Watershed management plans have been initiated, and neighboring towns have pledged to work together through watershed conservation compacts. Development designs have been altered to better protect waterways.

For Further Information About CSREES Programs and Services:

Contact your local county extension office (offices are listed under local government in the telephone directory), a land-grant university, or the Cooperative State Research, Education and Extension Service, U.S. Department of Agriculture, Washington, DC 20250-0900. Telephone: 202-720-3029, Fax: 202-690-0289, Internet: *csrees@reeusda.gov or World Wide Web: http://www.reeusda.gov*

Did You Know?

Agriculture is one of the three most hazardous U.S. occupations. CSREES-supported farm safety education programs in all 50 States and Puerto Rico teach volunteer firefighters and rescue crews how to respond to farm accidents, certify training for the safe operation of tractors and other machinery, and instill in children a general awareness of farm hazards including poisons, all-terrain vehicles, and other equipment.

The CSREES Integrated Pest Management program uses a sustainable approach that manages crop pests through biological, cultural, physical, and chemical procedures to minimize economic, health, and environmental risks.

The CSREES Agricultural Telecommunications Program, established in the 1990 Farm Bill, helps universities develop agricultural telecommunications capacity by funding projects in support of formal and nonformal courses, faculty and staff education, program delivery, community-based access to education, student training in food and agricultural careers, facilitation of scientific interaction, and expansion of agricultural markets for farmers.

CSREES international programs are building democracy through agriculture in Poland, Armenia, Bulgaria, Russia, and Ukraine by providing the education and technical assistance needed to help these countries make the transition to a market economy.

The CSREES Expanded Food and Nutrition Education Program (EFNEP) helps limited-resource youth, pregnant teens, and families with young children in all 50 States and 6 territories improve their nutritional well-being and make better use of their food dollars, which decreases the number of families participating in the Food Stamp and WIC Programs.

CSREES collaborates with the Children's Nutrition Research Center, College of Medicine at Baylor University to improve the nutrition education provided from kindergarten through grade 12 and to link the medical, research, extension, and education communities.

The CSREES AgrAbility project provides on-farm assistance to over 2,000 farmers with disabilities and educates agricultural, rehabilitation, and health professionals on safely accommodating disability in agriculture.

CSREES is a leader in developing training programs for public and private pesticide applicators that combine education with new technology to minimize pesticide drift. Current pesticide applicator programs train over half a million people each year on the safe and environmentally sound use of pesticides.

CSREES promotes research and development of industrial products that are environmentally friendly, biodegradable, recyclable, and manufactured from renewable resources grown domestically.

*CSREES water quality programs include Farm*A*Syst, an award-winning national water pollution prevention program which conducts surface and ground water audits, and the Blue Thumb Project, which brings water education into the community and empowers local residents to address their own water problems.*

Economic Research Service

As the Department's economic research agency, the Economic Research Service (ERS) provides information and analysis that is used by public officials in developing, administering, and evaluating agricultural and rural policies and programs, as well as by farmers and consumers. ERS has recently analyzed and reported on the economics of issues and decisions associated with trade liberalization, food assistance, climate change, rural credit, water quality, vertical coordination in agricultural industries, rural empowerment zones, U.S. agricultural productivity, new meat inspection systems, nutrition information, exports of U.S. farm products, rural population trends, and food safety concerns.

Overall, the scope of the ERS research and monitoring program covers a broad spectrum including the following areas:

- Domestic and international agriculture
- Nutrition education and food assistance, food safety regulation, determinants of consumer demand for quality and safety of food, and food marketing trends and developments
- Agricultural resource and environmental issues
- National, rural, and agricultural conditions affecting the rural economy, the financial performance of the farm sector, and the implications of changing farm credit and financial market structures

ERS-produced information is available to the public through research reports, situation and outlook reports, electronic media, newspapers, magazines, radio, and frequent participation of ERS staff at public forums. In addition, ERS publishes sev-

eral periodicals, including *Agricultural Outlook, FoodReview, Rural Conditions and Trends*, and *Rural Development Perspectives.* All such ERS reports are available through a variety of formats. Printed reports can be ordered through the ERS-NASS sales desk at 1-800-999-6779. Many reports, data bases, and other types of information are available on the ERS web site at *www.econ.ag.gov* and the ERS AutoFax system at 202-694-5700.

National Agricultural Statistics Service

The mission of the National Agricultural Statistics Service (NASS) is to serve the basic agricultural and rural data needs of the people of the United States, those working in agriculture, and those living in rural communities by objectively providing important, usable, and accurate statistical information and services needed to make informed decisions.

NASS headquarters is located in Washington, DC, while the 45 State Statistical Offices (SSO's) cover 120 crops and 45 livestock items annually in the 50 States. Current and historical information is published in approximately 400 reports, which feature:

- Crop acreage, yield, production, and grain stocks,
- Livestock, dairy, and poultry production and prospects,
- Chemical use in agriculture, including post-harvest applications on selected crops,
- Labor use and wage rates,
- Farms and land in farms, and
- Prices, costs, and returns.

An abundance of agricultural information is available to data users through NASS programs. In addition to the information above, estimates on more specialized commodities, including hop stocks, mink, cherries, cranberries, lentils, and peppermint oil, are also available. The information is geared toward producers and can help them plan planting, feeding, breeding, and marketing programs. The data are also used by agricultural organizations, services, and businesses; trade groups; and financial institutions to determine demand for inputs, resources, transportation, and crop and livestock products related to storage. In addition, the data are used to make and carry out agricultural policy concerning farm program legislation, commodity programs, agricultural research, and rural development.

Most estimates are based on information gathered from producers surveyed through personal and telephone interviews or through mailed questionnaires. In addition, for major crops such as corn, wheat, soybeans, and cotton, in-the-field counts and measurement of plant development are made in top producing States. Other estimates are based on surveys of grain elevators, hatcheries, and other agribusinesses, as well as on administrative data such as slaughter records.

Data collected from these varied sources are summarized by the NASS SSO serving that State and sent to the agency's Agricultural Statistics Board in Washington, DC, whose members determine and issue State and national official estimates.

Census of Agriculture

In 1997, NASS's statistics program was enhanced through the addition of the 5-Year Census of Agriculture, previously administered by the Commerce Department's Census Bureau. This will broaden the scope of agricultural statistics available through the agency. Results from the 1997 Census of Agriculture survey will be available in print and electronically in early 1999.

The census is a complete accounting of U.S. agricultural production and the only source of uniform, comprehensive agricultural data for every county in the Nation. The 1997 Census of Agriculture survey results will include data on land use and ownership, operator characteristics, crops, machinery and equipment, livestock, fertilizer, poultry, chemicals, market value of products, energy expenditures, irrigated land, production expenses, type of organization, farm programs, and corporate structure.

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National Agricultural Statistics Service
All NASS reports are released at scheduled times, and the information is offered to the public in a variety of formats. The following table shows some methods by which NASS data can be accessed.

National Agricultural Statistics Service - Electronic Access

Internet:

NASS Home Page: http://www.usda.gov/nass/
NASS Gopher Site: usda.mannlib.cornell.edu

NASS Autofax: 202-720-2000

Place a call from your fax machine to receive highlights of selected NASS reports.

Listen to and respond to the voice prompts. You may request up to three documents per call.

Printed Reports or Data Products
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Orders only	1-800-999-6779
Customer service and foreign orders	703-605-6220
Fax:	703-321-8547
Mail order requests to:	ERS-NASS 5285 Port Royal Road Springfield, VA 22161

Assistance

If you need general agricultural statistics or further information about NASS or its products or services, please contact:

Agricultural Statistics Hotline 1-800-727-9540
(Operating hours: 7:30 a.m. - 4:00 p.m. ET Monday thru Friday)
Fax: 202-690-2090
E-Mail: NASS@NASS.USDA.GOV

Census of Agriculture Information 1-800-523-3215
(Operating Hours: 8:00 a.m. - 5:00 p.m. Monday thru Friday)

Local Walk-In Service
(Operating Hours: 7:30 a.m. - 4:00 p.m. Monday thru Friday)
National Agricultural Statistics Service, USDA
Room 5829, South Building
14th & Independence Ave. SW
Washington, DC 20250

State Statistical Offices often have additional data breakouts not found in national publications. For information about a particular State, call the State Statistician at any of the following offices, or e-mail at NASS**@NASS.USDA.GOV. Replace ** with the State abbreviation.

ALABAMA (AL)
Montgomery
800-832-4181

ALASKA (AK)
Palmer
800-478-6079

ARIZONA (AZ)
Phoenix
800-645-7286

ARKANSAS (AR)
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MONTANA (MT)
Helena
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NEBRASKA (NE)
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WEST VIRGINIA (WV)
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800-535-7088

WISCONSIN (WI)
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800-789-9277

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800-892-1660
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12. Marketing and Regulatory Programs

Agricultural Marketing Service

When you visit the grocery store, you know you'll find an abundance and variety of top-quality produce, meats, and dairy products. If you're like most people, you probably don't give a second thought to the marketing system that brings that food from the farm to your table. Yet this state-of-the-art marketing system makes it possible to pick and choose from a variety of products, available all year around, tailored to meet the demands of today's lifestyles. Millions of people—from growers to retailers—make this marketing system work. Buyers, traders, scientists, factory workers, transportation experts, wholesalers, distributors, retailers, advertising firms—in addition to the Nation's farmers—all help create a marketing system that is unsurpassed by any in the world. And USDA's Agricultural Marketing Service (AMS) helps make sure the U.S. marketing system remains world-class.

Services to Promote Quality: Quality Standards, Grading, and Certification

Wherever or whenever you shop, you expect good, uniform quality and reasonable prices for the food you purchase. AMS quality grade standards, grading, and laboratory services are voluntary tools that industry can use to help promote and communicate quality and wholesomeness to consumers. Industry pays for these services and they are voluntary, so their widespread use by industry indicates they are valuable tools in helping to market products.

USDA quality grade marks are usually seen on beef, lamb, veal, chicken, turkey, butter, and eggs. For many other products, such as fresh and processed fruits and vegetables, the grade mark isn't always visible on the retail product. In these commodities, the grading service is used by wholesalers, and the final retail packaging may not include the grade mark. However, quality grades are widely used—even if they are not prominently displayed—as a "language" among traders. They make business transactions easier whether they are local or made over long distances. Consumers, as well as those involved in the marketing of agricultural products, benefit from the independent assessment of product quality provided by AMS grade standards.

Grading is based on standards, and standards are based on measurable attributes that describe the value and utility of the product. Beef quality standards, for instance, are based on attributes such as marbling (the amount of fat interspersed with lean meat), color, firmness, texture, and age of the animal, for each grade. In turn, these factors are a good indication of tenderness, juiciness, and flavor of the meat—all characteristics important to consumers. Prime, Choice, and Select are all grades familiar to consumers of beef.

Standards for each product describe the entire range of quality for a product, and the number of grades varies by commodity. There are eight grades for beef, and three each for chickens, eggs, and turkeys. On the other hand, there are 38 grades for cotton, and more than 312 fruit, vegetable, and specialty product standards.

■ ***Facts about grading:***
From October 1997 through September 1998, USDA graded 30 percent of the shell eggs and 95 percent of the butter produced in the United States. Eighty-three billion pounds of fresh fruits and vegetables and more than 12 billion pounds of processed fruits and vegetables received a USDA grade mark. Nearly all of the meat industry requests AMS grading services: USDA grades were applied to 82 percent of all beef, 87 percent of all lambs, 22 percent of all veal and calves, 69 percent of all turkeys, and 45 percent of all chickens and other poultry marketed in this country. USDA also graded more than 98 percent of the cotton and 97 percent of the tobacco produced in the United States.

The food testing side of the AMS program has nine "user fee" laboratories performing numerous microbiological, chemical, and physical analyses on a host of food and fiber commodities, including processed dairy products, meat, poultry, egg products, fruits, and vegetables. This testing supports AMS purchases for the National School Lunch Program and other domestic feeding programs, troop ration specifications for the Department of Defense, foreign government food contract purchases, laboratory quality control and assurance programs, and testing for aflatoxin in peanut products.

In addition to grading and laboratory services, USDA provides certification services, for a fee, that facilitate ordering and purchase of products used by large-volume buyers. Certification assures buyers that the products they purchase will meet the terms of their contracts—with respect to quality, processing, size, packaging, and delivery. If a large buyer—such as a school district, hospital, prison, or the military—orders huge volumes of a particular product such as catsup or processed turkey or chicken, it wants to be sure that the delivered product meets certain needs. Graders review and accept agricultural products to make sure they meet specifications set by private-sector purchasers. They also certify food items purchased for Federal feeding programs.

Spreading the News

Farmers, shippers, wholesalers, and retailers across the country rely on AMS Market News for up-to-the-minute information on commodity prices and shipments. Market News helps industry make the daily critical decisions about where and when to sell. Because this information is made so widely available, farmers and those who market agricultural products are better able to compete, ensuring consumers a stable and reasonably priced food supply.

AMS Market News reporters generate approximately 700 reports each day, collected from more than 100 U.S. locations. Reports cover local, regional, national, and international markets for dairy, livestock, meat, poultry, grain, fruit, vegetables, tobacco, cotton, and specialty products. Weekly, bi-weekly, monthly, and annual reports track the longer range performance of cotton, dairy products, poultry and eggs, fruits, vegetables, specialty crops, livestock, meat, grain, floral products, feeds, wool, and tobacco. Periodically, AMS issues special reports on such commodities as olive oil, pecans, peanuts, and honey.

USDA's commodity market information in Market News is easily accessible—via newspapers, television, and radio; printed reports mailed or faxed directly to the user; telephone recorders; electronic access through the Internet; electronic mail; and direct contact with USDA reporters.

Buying Food: Helping Farmers, School Children, Needy Families, and Charitable Institutions

AMS serves farmers, as well as those in need of nutrition assistance, through its commodity procurement programs. By purchasing wholesome, high-quality food products, particularly when surpluses exist, AMS helps provide stable markets for producers. The Nation's food assistance programs benefit from these purchases, because these foods go to low-income individuals, families, and institutions who might otherwise be unable to afford them.

Some of the programs and groups that typically receive USDA-donated food include: children in the National School Lunch, Summer Camp, and School Breakfast Programs; Native Americans participating in the Food Distribution Program on Indian Reservations; older Americans through the Nutrition Program for the Elderly; and low-income and homeless persons through the Commodity Supplemental Food Program and the Emergency Food Assistance Program. In addition, USDA helps provide disaster relief by making emergency purchases of commodities for distribution to disaster victims.

Once USDA determines that a purchase is appropriate, AMS publicly invites bids, and makes sure that the food it purchases meets specified quality and nutrition standards. As appropriate, AMS often specifies foods be within certain ranges of fat, sugar, and salt. By policy, AMS purchases only those products that are 100 percent domestic in origin.

Pesticides: Information and Records

The U.S. food supply is one of the safest in the world, but the public is still concerned about the effects of agricultural pesticides on human health and environmental quality. The Pesticide Data Program (PDP), which is administered by AMS, provides statistically reliable information on chemical residues found on agricultural commodities such as fresh and processed fruits and vegetables, grain, and milk. PDP is a Federal-State partnership with 10 participating States using uniform procedures to collect and test these commodities. The information gained helps form the basis for conducting realistic dietary risk assessments and evaluating pesticide tolerances as required by the Food Quality Protection Act of 1996. The Environmental Protection

Agency uses PDP data to address reregistration of pesticides. Other Federal agencies use the data to respond more quickly and effectively to food safety issues.

AMS also administers the Federal Pesticide Recordkeeping Program, which requires certified private applicators to keep records of their restricted use pesticide applications for a period of 2 years. These records support collection of pesticide use data to help analyze agricultural pesticide use and are used by health care professionals when treating individuals who may have been exposed to a restricted use pesticide. AMS works with State pesticide regulatory agencies and Cooperative Extension Services to provide the regulatory and educational aspects of the program.

Helping Farmers Promote Their Products

"The Touch...the Feel of Cotton...the Fabric of Our Lives," "Beef...It's What You Want," "Got Milk?," "The Incredible, Edible Egg." If you've watched television or read magazines lately, you've probably heard or read these slogans and others for a host of agricultural commodities. All of these promotional campaigns are part of the research and promotion programs that AMS oversees.

Federal research and promotion programs, each authorized by separate legislation, are designed to improve farmers' incomes through promotion of their products. The programs are all fully funded by industry assessments. Board members are nominated by industry and appointed officially by the Secretary of Agriculture. AMS oversees the activities of the boards or councils and approves budgets, in order to assure compliance with the legislation.

Currently, there are research and promotion programs for beef, pork, cotton, dairy products, eggs, fluid milk, honey, lamb, mushrooms, potatoes, soybeans, watermelons, and popcorn.

But, while advertising is one part of these programs, product research and development is also a major focus. Wrinkle-resistant cotton and low-cholesterol, low-fat dairy products are just two examples of how these programs have benefitted consumers and expanded markets for producers.

New generic commodity promotion, research, and information legislation was enacted as part of the 1996 Farm Bill to make Federal promotion and research programs available to more commodities.

■ ***Facts about marketing:***
The national fluid milk processors promotion program teamed up with Dairy Management, Inc., to sponsor the "Got Milk?" campaign in 1998, featuring photographs of famous personalities wearing "milk mustaches." The board estimates that more than 200 million consumers have been reached by this promotion.

Marketing Orders: Solving Producers' Marketing Problems

Marketing agreements and orders help dairy, fruit, vegetable, and peanut producers come together to work at solving marketing problems they cannot solve individually. Marketing orders are flexible tools that can be tailored to the needs of local market conditions for producing and selling. But they are also legal instruments that have the force of law, with USDA ensuring an appropriate balance between the interests of producers looking for a fair price and consumers who expect an adequate, quality supply at a reasonable price.

Federal milk marketing orders, for example, establish minimum prices that milk handlers or dealers must pay to producers for milk, depending on how that milk will be used—whether fluid milk or cheese. Federal milk orders help build more stable marketing conditions by operating at the first level of trade, where milk leaves the farm and enters the marketing system. They are flexible in order to cope with market changes. They assure that consumers will have a steady supply of fresh milk at all times.

Marketing agreements and orders also help provide stable markets for fruit, vegetables, and specialty crops like nuts and raisins, to the benefit of producers and consumers. They help farmers produce for a market, rather than having to market whatever happens to be produced. A marketing order may help an industry smooth the flow of crops moving to market, to alleviate seasonal shortages and gluts. In addition, marketing orders help maintain the quality of produce being marketed; standardize packages or containers; and authorize advertising, research, and market development. Each program is tailored to the individual industry's marketing needs.

Ensuring Fair Trade in the Market

AMS also administers several programs that ensure fair trade practices among buyers and sellers of agricultural products.

The Perishable Agricultural Commodities Act (PACA) program promotes fair trading in the fresh and frozen fruit and vegetable industry. Through PACA, buyers and sellers are required to live up to the terms of their contracts, and procedures are available for resolving disputes outside the civil court system.

Fruit and vegetable buyers and sellers need this assurance because of the highly perishable nature of their products. Trading in produce is considerably different from trading for a car, a computer, or even grain. When a vegetable grower doesn't get paid, the product usually can't be reclaimed before it spoils—or before it has already been consumed.

Although PACA was initiated to protect producers, it benefits consumers and the entire produce industry. Over the past decade, AMS has handled nearly 40,000 PACA complaints, not just from growers, but also from grower-agents, grower-shippers, brokers, wholesalers, retailers, and processors. PACA is funded by license fees paid by industry, and the bottom line is that fair trade and resolved disputes mean that businesses of any size can operate in a better trade environment and consumers can get a wider choice of reasonably priced, high-quality fruits and vegetables.

The Federal Seed Act (FSA) protects everyone who buys seed by prohibiting false labeling and advertising of seed in interstate commerce. The FSA also complements State seed laws by prohibiting the shipment of seed containing excessive nox-

ious weed seeds. Labels for agricultural seed must state such information as the kinds and percentage of seed in the container, percentages of foreign matter and weed seeds, germination percentage and the date tested, and the name and address of the shipper. USDA also tests seed for seed producers and seed buyers on a fee-for-service basis to determine quality.

The Plant Variety Protection Act provides patent-like protection to breeders of plants that reproduce both sexually (that is, through seeds) and through tubers. Developers of new plant varieties can apply for certificates of protection. This protection enables the breeder to market the variety exclusively for 20 years and, in so doing, creates an incentive for investment in the development of new plant varieties. Since 1970, AMS' Plant Variety Protection Office has issued more than 4,000 certificates of protection.

The Agricultural Fair Practices Act allows farmers to file complaints with USDA if a processor refuses to deal with them because they are members of a producers' bargaining or marketing association. The act makes it unlawful for handlers to coerce, intimidate, or discriminate against producers because they belong to such groups. USDA helps to institute court proceedings when farmers' rights are found to be so violated.

Organic Certification

AMS is responsible for developing and implementing an organic certification program, which was authorized by the Organic Foods Production Act as part of the 1990 Farm Bill.

The goals of the organic certification program are to:

- Establish national standards governing the marketing of certain products as organically produced,
- Assure consumers that organically grown products meet consistent standards, and
- Facilitate interstate commerce in fresh and processed food that is organically produced.

Under the act, a National Organic Standards Board was appointed in January 1992 to help develop standards for substances to be used in organic production.

In December 1997, USDA issued a proposed rule with a comment period that closed at the end of April 1998. USDA received about 285,000 comments on the proposal and plans to issue a new proposal for further comment.

Wholesale Market Development and Direct Marketing

The Wholesale and Alternative Markets program assists small, limited resource farmers in gaining access to markets. Two major areas of concentration are wholesale and collection markets, which help farmers gain access to the mass market, and farmers and public markets, which offers growers direct access to consumers.

The Wholesale and Collection Markets group conducts research related to the collection, analysis, and evaluation of data associated with wholesale and collection markets and publishes the results of these studies for use by decision makers in the agricultural community and others. Wholesale and collection markets are major out-

lets for crops produced by small and medium-size farmers and effective sources of fresh fruits and vegetables for major metropolitan areas of the United States.

The Farmers and/or Public Markets group conducts research related to collection, analysis, and evaluation of data associated with the development of farmers and public markets and publishes the results of these studies for use by rural and urban decision makers. Farmers and public markets could become major sources of fresh fruits and vegetables offered directly to consumers, particularly inner-city residents; support the Special Supplementary Nutrition Program for Women, Infants, and Children (WIC); and serve as a major market outlet for small agricultural producers.

The Federal-State Marketing Improvement Program (FSMIP) provides matching funds to State Departments of Agriculture or other State agencies for marketing research or marketing service projects to improve marketing systems. The aim of the program is to reduce costs or identify new market opportunities for producers, ultimately benefiting consumers through lower food costs and more food choices. Projects include research on innovative marketing techniques, taking those research findings into the marketplace to "test market" the results, and developing State expertise in providing service to marketers of agricultural products. In FY 1997, the FSMIP funded 26 projects in 22 States for 1.2 million.

■ ***Fact about farmers markets:***
USDA defines a farmers market as a group of farmers and vendors leasing or renting space in a common facility on a temporary basis, with an emphasis on the sale of fresh farm products, crafts, and other locally produced items. USDA estimates there are currently more than 2,500 farmers markets in the United States.

Efficient Transportation for Agriculture

An efficient transportation system allows consumers access to a wide variety of agricultural products and commodities produced beyond their own localities.

AMS, through its Transportation and Marketing Programs, conducts research on the availability and costs of transportation services for U.S. agricultural products by railroads, trucks, inland barges, and ocean-going vessels. AMS staff also provide transportation market reports and technical assistance to agricultural shippers who are marketing their products in domestic or international markets. Agricultural producers, producer groups, shippers, exporters, rural communities, carriers, and consumers benefit from the analyses, technical assistance, and information provided by AMS transportation staff.

Produce Locally, Think Globally

To remain competitive in today's world, American agriculture has become more global, and AMS has striven to be a strong partner in expanding markets for U.S. agricultural products.

The AMS role in the international marketing of U.S. commodities centers on its quality grading and certification programs, which are user-funded. Grading involves determining whether a product meets a set of quality standards. Certification ensures that contract specifications have been met—in other words, that the buyer receives the product in the condition and quantity described by the terms of the contract. AMS commodity graders frequently support other USDA agencies involved in export assistance, including the Farm Service Agency and the Foreign Agricultural Service.

U.S. companies often request certification services when exporting to a country that has specific import requirements. Certification services provided by AMS help avoid rejection of shipments or delay in delivery once the product reaches its foreign destination. Delays lead to product deterioration and, ultimately, affect the image of U.S. quality. AMS' Quality Systems Verification Program, a user-funded service for the meat industry, provides independent, third-party verification of a supplier's documented quality management system. The program was developed to promote world-class quality and to improve the international competitiveness of U.S. livestock and meat.

AMS also provides laboratory testing for exporters of domestic food commodities on a fee basis in keeping with sanitary and phytosanitary requirements of foreign countries. To date, this service has been requested by exporters of products destined for Japan, South Korea, other Pacific Rim countries, South Africa, several European Union countries, and countries of the former Soviet Union.

For selected fruits, vegetables, nuts (including peanuts), and specialty crops, the grading of imports is mandatory. For the most part, however, firms importing agricultural products into the United States use grading services voluntarily. AMS graders are also often asked to demonstrate commodity quality to foreign firms and governments.

In addition to export grading and certification services, AMS market news offices provide information on sales and prices of both imports and exports. Today, U.S. market participants can receive market information on livestock and meat from Venezuela, New Zealand, Japan, other Pacific Rim markets, Poland, Mexico, Canada, Australia, and New Zealand; information on fruits, vegetables, and ornamentals from France, Great Britain, Bulgaria, Poland, Mexico, New Zealand, Canada, Germany, Argentina, Japan, the Netherlands, Chile, and the Caribbean Basin; and information on a host of products from Ukraine, Kazakhstan, and Russia.

AMS participates in a number of international forums that aim to facilitate world agricultural trade and avoid potential trade barriers. Technical assistance has been provided to countries in Eastern and Central Europe, and elsewhere around the globe, to improve their marketing systems. With improved transportation, distribution, and marketing information systems, these countries will become better customers for U.S. food and fiber products.

Whether at home or abroad, AMS strives to help U.S. agriculture market its abundant, high-quality products. And AMS will continue to work to help U.S. agriculture market its products in growing world markets, while assuring U.S. consumers of an abundant supply of high-quality, wholesome food at reasonable prices.

Animal and Plant Health Inspection Service: Protecting Agricultural Health and Productivity

Why are the farmers and ranchers of the United States able to produce so much food for the tables of America's consumers?

Of course, there's no simple answer. But one key to this plentiful supply of food can be summed up in a single phrase: "Healthy crops and livestock."

And this is no accident. America's agricultural health is a result of a team effort—good husbandry by farmers and ranchers plus an organized effort to control and eradicate pests and disease and to prevent the entry of devastating foreign plagues.

Just like frosts, floods, and droughts, pests and diseases can wreak havoc on agricultural productivity, depressing farm incomes and driving up food costs for consumers in the process. While we may not be able to prevent weather-related disasters, USDA plays a vital role in protecting our country's agricultural health. The result is a more abundant, higher quality, and cheaper food supply than is found anywhere else in the world.

Agriculture is an important sector in our economy, and USDA's Animal and Plant Health Inspection Service (APHIS) helps to ensure that it remains healthy and strong. With the advent of free trade initiatives, a global network of countries has agreed that valid agricultural health concerns—not politics, not economics—are the only acceptable basis for trade restrictions. In this environment, our country's agricultural health infrastructure will be our farmers' greatest ally in seeking new export markets.

Excluding Foreign Pests and Diseases

Agricultural Quarantine Inspection

Agriculture, America's biggest industry and its largest employer, is under constant threat of attack. The enemies are countless and often microscopic, and they gain access to our country in surprising ways. Their potential allies include every traveler entering the United States and every American business importing agricultural products from other countries.

Many passengers entering the United States don't realize that one piece of fruit packed in a suitcase has the potential to cause millions of dollars in damage to U.S. agriculture. Forbidden fruits and vegetables can carry a whole range of plant diseases and pests. Oranges, for example, can introduce diseases like citrus canker or pests like the Mediterranean fruit fly (Medfly).

Similarly, sausages and other meat products from many countries can contain animal disease organisms that can live for many months and even survive processing. Meat scraps from abroad could end up in garbage that is fed to swine. If the meat came from animals infected with a disease, such as African swine fever, hog cholera, or foot-and-mouth disease (FMD), it could easily be passed to domestic swine, and a serious epidemic could result. An outbreak of African swine fever in U.S. hogs would drive up the price of pork to consumers, cost hundreds of millions of dollars to eradicate, and close many U.S. export markets.

APHIS safeguards U.S. borders against the entry of foreign agricultural pests and diseases. At all airport terminals, seaports, and border stations, about 1,600 Plant Protection and Quarantine (PPQ) employees inspect international conveyances and the baggage of passengers for plant and animal products that could harbor pests or disease organisms. At international airports, detector dogs in APHIS' Beagle Brigade help find prohibited agricultural materials. PPQ officers also inspect ship and air cargoes, rail and truck freight, and package mail from foreign countries. At animal import centers, APHIS veterinarians check animals in quarantine to make sure they are not infected with any foreign pests or diseases before being allowed into the country.

The following table provides selected inspection and interception data:

FY	*1994*	*1995*	*1996*	*1997*
Ships inspected	53,270	52,661	52,974	52,348
Aircraft inspected	451,342	401,741	410,318	461,927
Passengers and crew inspected	62,548,979	65,645,734	66,119,960	68,448,289
Interceptions of plant material	1,442,214	1,583,687	1,567,886	1,609,370
Interceptions of pests	54,831	58,032	48,483	62,830
Interceptions of meat/poultry products	281,230	223,392	264,001	294,674
Baggage civil penalties-number	22,164	21,813	20,716	21,498
Baggage civil penalties-amount	$1,186,310	$1,098,220	$1,080,000	$1,107,670

From high-tech to a keen nose, APHIS uses a variety of means to safeguard American agriculture. PPQ officers augment visual inspection with some 85 x-ray units that help check passenger baggage and mail for prohibited agricultural materials. They also have enlisted trained detector dogs and their keen sense of smell to help sniff out prohibited fruit and meat. On leashes and under the constant supervision of their handlers, the friendly beagles in USDA's Beagle Brigade have checked the baggage of passengers arriving from overseas for 14 years. Currently, APHIS has about 60 canine teams at 21 airports, including 19 of America's 20 busiest international airports.

Preclearance—Checking at the Source

In addition to domestic exclusion efforts, APHIS' International Services (IS) has a corps of experts stationed overseas or through the use of APHIS officers on temporary duty to bolster the Nation's defenses against exotic pests and diseases. Often it is more practical and effective to check and monitor commodities for pests or diseases at the source through preclearance programs. APHIS has special arrangements with a number of countries for preclearance programs, which are summarized in the following table.

Country	*Commodities*
Argentina	Apples & pears
Australia	Apples, nashi pears, pears, grapes
Belgium	Bulb inspection
Brazil	Mangoes (hot water treatment)
Chile	Stonefruit, berries, grapes, cut flowers, cherimoya, kiwifruit, other fruits & vegetables
Colombia	Mangoes (hot water treatment)
Costa Rica	Mangoes (hot water treatment)
Ecuador	Mangoes (hot water treatment) & melons (free zone)
France	Apples
Great Britain	Bulb inspection
Guatemala	Mangoes (hot water treatment) & melons
Haiti	Mangoes (hot water treatment)
Ireland	Bulb inspection
Israel	Bulb inspection
Jamaica	Ugli fruit, cut flowers, papaya & 46 other commodities
Japan	Sand pears, Unshu oranges, Fuji apples
Korea	Sand pears, mandarin oranges
Mexico	Mangoes (hot water treatment), citrus (fumigation or from Sonora free zone), apples, apricots, peaches, persimmons, & pomegranates (Sonora free zone)
New Zealand	Apples, pears, Nashi pears
The Netherlands	Bulb inspection
Nicaragua	Mangoes (hot water treatment)
Peru	Mangoes (hot water treatment)
Scotland	Bulb inspection
South Africa	Apples, pears, plums, grapes, peaches, nectarines, & citrus
Spain	Lemons, clementines, Valencia oranges
Taiwan	Mangoes (hot water treatment)
Turkey	Bulb inspection
Venezuela	Mangoes (hot water treatment)

International Programs

Through direct overseas contacts, IS employees gather and exchange information on plant and animal health; work to strengthen national, regional, and international agricultural health organizations; and cooperate in international programs against certain pests and diseases that directly threaten American agriculture. Two of the latter are the MOSCAMED program—which combats Medfly infestations in Mexico and Guatemala—and a program to eradicate screwworms, a parasitic insect of warm-blooded animals. Screwworm flies lay their eggs on the edge of open wounds, and the developing larvae feed on the living flesh of the host. Left untreated, the infestation can be fatal.

Screwworms were eradicated from the United States through the use of the sterile insect technique. With this method, millions of screwworm flies are reared in captivity, sterilized, and then released over infested areas to mate with native fertile flies. Eggs produced through such matings do not hatch, and the insect literally breeds itself out of existence.

To provide further protection to U.S. livestock, starting in 1972, eradication efforts were moved southward from the U.S.-Mexico border, with the eventual goal of establishing a barrier of sterile flies across the Isthmus of Panama. To date, screwworms have been eradicated from Mexico, Guatemala, Belize, Honduras, El Salvador, and Nicaragua. Eradication is well advanced in Costa Rica. Eradication will begin in Panama in 1998, and a new rearing facility is planned. Currently a production plant at Tuxtla Gutierrez in Chiapas in southern Mexico can produce up to 500 million sterile flies weekly.

IS also works to prevent foot-and-mouth disease (FMD) from entering Mexico, Central America, and Panama and works with Colombia to eliminate FMD from the northern part of that country.

Coping With Invasions

If, despite our best efforts, foreign pests or diseases do manage to slip past our border defenses, APHIS conducts appropriate control and eradication measures. Examples include Mediterranean fruit fly eradication projects in California in the early 1990's and outbreaks of exotic Newcastle disease in pet birds in several States during the 1980's.

APHIS PPQ has a special cadre of people who deal with introductions of exotic plant pests. Known as "Rapid Response Teams," these groups have been mobilized on several occasions to combat costly infestations of Medflies and to perform other tasks.

Early detection of exotic animal diseases by alert livestock producers and practicing veterinarians who contact specially trained State and Federal veterinarians is the key to their quick detection and elimination. More than 300 such trained veterinarians are located throughout the United States to investigate suspected foreign diseases. Within 24 hours of diagnosis, one of two specially trained task forces in APHIS' Veterinary Services can be mobilized at the site of an outbreak to implement the measures necessary to eradicate the disease.

Currently, APHIS officials are actively working to prevent the entry of bovine spongiform encephalopathy (BSE)—sometimes referred to as "mad cow disease." This disease has had a serious impact on the British livestock industry. BSE has never been diagnosed in the United States. Since 1989, APHIS has restricted the importation of live ruminants and ruminant products—including animal feed made with ruminant protein—from Great Britain and other countries where BSE is known to exist. In addition, APHIS has conducted a BSE surveillance program since 1989.

Import-Export Regulations

APHIS is responsible for enforcing regulations governing the import and export of plants and animals and certain agricultural products.

Import requirements depend on both the product and the country of origin. Plants and plant materials usually must be accompanied by a phytosanitary certificate issued by an official of the exporting country. Livestock and poultry must be accompanied by a health certificate, also issued by an official of the exporting country. Animal products, such as meats and hides, are restricted if they originate in countries that have a different disease status than the United States.

APHIS regulates the importation of animals that enter the country through land ports along the borders with Mexico and Canada. Imports of livestock and poultry from most countries must be quarantined at one of three animal import centers: Newburgh, NY; Miami, FL; and Los Angeles, CA. A special high-security animal import center at Fleming Key, FL, provides a safe means of importing animals from countries where foot-and-mouth disease exists.

Personally owned pet birds can enter through one of five USDA-operated bird quarantine facilities: New York, NY; Miami, FL; San Ysidro, CA; Hidalgo, TX; and Los Angeles, CA. Those that qualify as U.S.-origin birds may return through any port of entry when arrangements have been made for a USDA Veterinary Services veterinarian to inspect their bird.

Pet birds from Canada can enter without quarantine because Canada's animal disease programs and import rules are similar to those of the United States. Commercial shipments of pet birds can enter through one of the privately owned, APHIS-supervised quarantine facilities. APHIS cooperates with the U.S. Department of the Interior in carrying out provisions of the Endangered Species Act that deal with imports and exports of endangered plant, animal, or bird species. APHIS inspectors at ports of entry are trained to identify these species and to notify Interior of any species protected under the Convention on International Trade in Endangered Species (CITES) that are found during inspection. Also, at many ports, APHIS officers inspect and sample seed imported from foreign countries to ensure that it is accurately labeled and free of noxious weeds.

APHIS also maintains 16 plant inspection stations, the largest of which is at Miami, FL, for commercial importation of plant materials. Smaller stations are at Orlando, FL; San Juan, PR; JFK International Airport, Jamaica, NY; Elizabeth, NJ; Houston, El Paso, and Los Indios (Brownsville), TX; Nogales, AZ; San Diego, Los Angeles, and San Francisco, CA; Seattle, WA; Honolulu, HI; Beltsville, MD; and New Orleans, LA.

To facilitate agricultural exports, APHIS officials certify the health of both plants and animals that are shipped to foreign countries. PPQ provides assurance that U.S. plants and plant products meet the plant quarantine import requirements of foreign countries. This assurance is in the form of a phytosanitary certificate, issued by PPQ or its State cooperators. During FY 1997, 298,365 phytosanitary certificates were issued for exports of plants and plant products worth more than $20 billion.

Veterinary Services (VS) officials and the National Center for Import and Export negotiate animal health requirements for export of livestock, germplasm, poultry, and animal products with the importing countries. These requirements are maintained in the International Regulations Retrieval System (IRRS). VS area offices and major exporters have access to the system. IRRS is also available on the World Wide Web at *www.aphis.usda.gov/vs/ireg_txt*

USDA accredited veterinarians issue health certificates in order to meet the U.S. requirements and the requirements of the recipient country. These health certificates are endorsed by VS area veterinarians in the State of origin. The final inspection of livestock is conducted by a VS port veterinarian at the port of embarkment. This inspection is not required for livestock shipped to Canada and Mexico if it is shipped through land border ports.

APHIS is of greatest help to the U.S. livestock industry in the area of foreign health requirements. Through direct negotiations with foreign governments, APHIS has established approximately 450 livestock, semen, embryo, and poultry health agreements with more than 100 countries. These negotiations are a continuous process, occurring wherever APHIS finds opportunities to open new markets or to reduce unnecessary impediments, or whenever changing disease conditions require adjustments.

In addition to certifying to the health of agricultural exports, APHIS officials mount a proactive approach to the marketing of U.S. crops and livestock overseas. For instance, APHIS and Food Safety and Inspection Service officials coordinated negotiations to avert a Russian embargo on U.S. poultry exports worth $600 million a year. On the plant side, efforts by APHIS and Foreign Agricultural Service officials helped maintain U.S. wheat exports after the March 1996 discovery of an outbreak of Karnal bunt, a fungal disease of wheat, in Arizona. The United States is the world's leading wheat exporter, accounting for 25 percent of world wheat exports in 1997.

Domestic Plant Health Programs

In most cases, plant pest problems are handled by individual farmers, ranchers, and other property owners and their State or local governments. However, when an insect, weed, or disease poses a particularly serious threat to a major crop, the Nation's forests, or other plant resources, APHIS may join in the control work.

Most pests and weeds that are targets of PPQ programs are not native to the United States. They gained entry into this country through commercial trade channels, international travelers, or other means.

When pests are new to this country, control techniques may not be available. In any case, PPQ applies interstate quarantines, cooperates with States, and takes other steps to prevent spread until effective control measures can be developed.

In many cases, foreign pests are only minor problems in their native lands because they are kept in check by native parasites, predators, and diseases. Since many of these natural enemies may not exist in the United States, one of PPQ's control techniques—in cooperation with USDA's Agricultural Research Service—is to import, rear, and release parasites and other biological control organisms.

Biocontrol—Nature's Way

In its classic sense, biological control means using predators, parasites, and pathogens to combat plant pests. Predators and parasites include insects, mites, and nematodes that naturally attack a target pest. Pathogens include bacteria, viruses, or fungi that cause diseases specifically injurious to a target pest.

Biological control was first put to broad, practical use in the United States in the 1880's. At that time, California citrus groves were being devastated by an exotic

insect, the cottony-cushion scale. A USDA scout working in Australia found the vedalia beetle feeding on the scale insect. The beetle, part of the lady beetle family, was successfully introduced into California and other citrus-growing regions and has kept the scale insect from causing economic damage ever since.

To coordinate the important search for new and better biocontrol opportunities, a National Biological Control Institute was established in APHIS in 1989. The Institute's mission is to promote, facilitate, and provide leadership for biological control. Its main work is to compile and release technical information and coordinate the work needed to find, identify, and augment or distribute new biological control agents.

The Institute relies on scientists from ARS and elsewhere to identify potentially useful biological control agents. These agents are carefully screened at quarantine centers before being put to use.

Various agencies have successfully cooperated on biocontrol projects. For example, several decades ago, ARS scientists found six species of stingless wasps in Europe that keep alfalfa weevils in check. In 1980, APHIS took on the job of establishing these beneficial wasps across the land. Between 1980 and 1989, APHIS and its cooperators raised and distributed about 17 million wasps, and today there are beneficial wasps within reach of virtually every alfalfa field in the country. It's estimated that the benefits of the alfalfa weevil biocontrol program amount to about $88 million per year, representing a return of about $87 for each $1 spent on the project.

Other APHIS biocontrol programs currently underway in cooperation with State agencies include efforts against the cereal leaf beetle, sweet potato whitefly, Colorado potato beetle, brown citrus aphid, pink hibiscus mealybug, gypsy moth, imported fire ant, leafy spurge, purple loosestrife, Russian knapweed, dalmatian and yellow toadflax, and diffuse and spotted knapweed. Promising biocontrol agents for other pests are being tested at PPQ biocontrol labs located at Mission, TX; Niles, MI; and Bozeman, MT.

"Deliver Us from Weevil"—Boll Weevil Eradication

One major domestic program PPQ is coordinating is the effort to eradicate boll weevils from the United States. The boll weevil entered this country from Mexico in the late 1890's and soon became a major pest of cotton. It has caused an estimated $12 billion in losses to the Nation's economy. In 1973, it was estimated that insecticides applied to control boll weevils accounted for about one-third of the total applied to agricultural crops in the United States.

The success of a 1971-73 cooperative boll weevil eradication experiment in portions of Mississippi, Louisiana, and Alabama involving Federal and State agencies and grower associations led to two 3-year demonstration projects. One was an eradication trial in North Carolina and Virginia; the second was an optimum pest management trial in Mississippi. The eradication trial was a success in 1980, and the program has undergone regular, incremental expansion since that time.

The current boll weevil eradication effort judiciously applies pesticides based on the number of adult weevils trapped around cotton fields. The traps contain a pheromone (insect attractant) and a small amount of insecticide that kills all captured weevils. In eradication program areas, one to three traps are placed per acre and are

checked weekly. Pesticide is applied only to fields that reach a predetermined number of trapped weevils. This selective use of pesticides results in fields requiring minimal pesticide applications—sometimes none—during the growing season. After several seasons, the weevils are eradicated within the defined program area, eliminating any further need to spray for this pest. As an indirect benefit of eliminating the boll weevil, growers are able to maintain beneficial insects that help control many secondary pests. This further reduces the amount of pesticide used each season to produce the cotton crop.

The table below shows the progress in eradicating boll weevils from U.S. cotton-growing areas.

	States involved	*Eradication Acres*	*Weevil-free Acres*
1983	VA/NC/SC	160,000	35,000
1985	+CA/AZ	1,400,000	1,100,000
1987	+GA/FL/AL	450,000	1,500,000
1994	+MS/TN/TX	50,000	2,000,000
1996	Same	1,300,000	4,600,000
1997	+LA	1,600,000	4,600,000
1998	+OK	2,000,000	4,600,000

In the cooperative boll weevil eradication program, APHIS provides technical support, a portion of program funds, and some capital equipment and administrative support. Grower assessments and/or State appropriations provided 87 percent of the total program cost in 1998, with APHIS providing the remaining 13 percent.

The economic benefit:cost ratio for the program has been projected to be 12:1 nationwide, and as high as 40:1 in specific areas of the Cotton Belt. The success of the program has brought a resurgence of cotton production and related industries. Acreage in the Southeast has increased nearly four-fold since the weevil's eradication. In eradicated areas, growers' production costs—without the weevil—are much lower than those in the infested areas.

Witchweed—A Success Story

Witchweed is a parasitic plant that attaches itself to the roots of crops such as corn, sorghum, sugar cane, and other members of the grass family, robbing them of water and vital nutrients. Each plant can produce up to 500,000 seeds per year, and the seeds can remain viable in the soil for up to 15 years, germinating when they come into contact with the root of a host plant.

Witchweed was introduced into the Carolinas from Africa in the mid-1950's. When the parasite first struck, corn plants mysteriously withered and died. A student visiting from India recognized the weed and told U.S. agricultural experts what it was.

Over the course of an eradication effort that began in 1974, some 450,000 acres have been infested. The eradication program was based on surveillance to locate

infested fields, quarantines to prevent spread, and a combination of herbicides and germination stimulants to actually eradicate the weed.

At the beginning of FY 1995, with fewer than 28,000 infested acres remaining, APHIS turned operation of the program over to North Carolina to complete eradication there, but continues to help finish the eradication effort in South Carolina.

Grasshoppers and IPM

APHIS was the lead agency in a cooperative Integrated Pest Management (IPM) initiative for grasshopper control in the Western United States. This IPM project, which began in 1987 and closed down in 1994, was aimed at finding better and more acceptable ways of preventing grasshopper damage, while protecting the environment. Activities included developing means to predict and manage grasshopper outbreaks, developing biological control alternatives that minimize the use of chemicals, and integrating proven control techniques into guidelines for APHIS rangeland grasshopper programs.

All this information was integrated into a computer-based decision support system program called "HOPPER." HOPPER is a user-friendly software package that facilitates grasshopper predictions, time and selection of control options, compilation of weather data, and analysis of the economics of range management practices. An example of how HOPPER is used was provided by a Logan County, CO, official in August 1996. He wrote: "I was recently asked to utilize the district's resources to help ranchers save grass pasture obviously threatened by grasshoppers." Using the HOPPER computer model (previously downloaded from the Internet), he estimated the return and decided on the best treatment method.

"We discovered that we would spend $4 per acre in an effort to save $1.50 per acre of grass. The ranchers quickly realized they could purchase hay to replace lost forage and save money. The program showed us we would also have very little effect on next year's population. It also showed us that we should initiate any control effort sooner in the year than we have done in the past."

Other domestic PPQ programs include a quarantine program to prevent the artificial spread of the European gypsy moth from infested areas in the northeastern United States through movement of outdoor household goods and other articles, quarantines to prevent the spread of imported fire ants through movement of plant nursery material from infested areas, and releasing irradiated sterile pink bollworm moths to keep this insect out of cotton in California's San Joaquin Valley.

Domestic Animal Health Programs

Protecting the health of the Nation's livestock and poultry industries is the responsibility of APHIS' Veterinary Services (VS).

VS veterinary medical officers and animal health technicians work with their counterparts in the States and with livestock producers to carry out cooperative programs to control and eradicate certain animal diseases. The decision to begin a nationwide campaign against a domestic animal disease is based on a number of factors, the most important of which is: "Are producers and the livestock industry a leading force in the campaign?"

This organized effort against livestock diseases began in 1884 when Congress created a special agency within USDA to combat bovine pleuropneumonia—a dreaded cattle disease that was crippling exports as well as taking a heavy toll on domestic cattle. Within 8 years, contagious bovine pleuropneumonia had been eradicated and this campaign set the pattern for subsequent animal disease control and eradication programs.

To date, 13 serious livestock and poultry diseases have been eradicated from the United States. They are:

Year	*Disease*
1892	Contagious bovine pleuropneumonia
1929	Foot-and-mouth disease
1929	Fowl plague
1934	Glanders
1942	Dourine
1943	Texas cattle fever
1959	Vesicular exanthema (VE)
1959 & 66	Screwworms (southeast & southwest)
1971	Venezuelan equine encephalitis
1973	Sheep scabies
1974	Exotic Newcastle disease
1978	Hog cholera
1985	Lethal avian influenza

Current VS disease eradication programs include cooperative State-Federal efforts directed at cattle and swine brucellosis, bovine tuberculosis, and pseudorabies in swine. The following table shows the status of States in these programs.

State	*Cattle Brucellosis**	*Swine Brucellosis***	*Cattle TB****	*Swine Pseudorabies*****
AL	FREE	STAGE 2	FREE	FREE
AK	FREE	FREE	FREE	FREE
AZ	FREE	FREE	FREE	FREE
AR	FREE	STAGE 2	FREE	STAGE 3/4
CA	FREE	FREE	M-A	STAGE 3
CO	FREE	FREE	FREE	FREE
CT	FREE	FREE	FREE	FREE
DE	FREE	FREE	FREE	FREE
FL	FREE	STAGE 2	FREE	STAGE 3
GA	FREE	FREE	FREE	STAGE 4
HI	FREE	FREE	SUSP.M-A	STAGE 4
ID	FREE	FREE	FREE	FREE
IL	FREE	FREE	FREE	STAGE 3
IN	FREE	FREE	FREE	STAGE 2/3
IA	FREE	FREE	FREE	STAGE 2/3
KS	CLASS A	FREE	FREE	STAGE 3

continued

KY	FREE	FREE	FREE	FREE
LA	FREE	STAGE 2	FREE	STAGE 3
ME	FREE	FREE	FREE	FREE
MD	FREE	FREE	FREE	FREE
MA	FREE	FREE	FREE	STAGE 4
MI	FREE	FREE	FREE	STAGE 3
MN	FREE	FREE	FREE	STAGE 2/3
MS	CLASS A	FREE	FREE	FREE
MO	CLASS A	FREE	FREE	STAGE 4
MT	FREE	FREE	FREE	FREE
NE	FREE	FREE	FREE	STAGE 3
NV	FREE	FREE	FREE	FREE
NH	FREE	FREE	FREE	FREE
NJ	FREE	FREE	FREE	STAGE 3
NM	FREE	FREE	M-A	FREE
NY	FREE	FREE	FREE	FREE
NC	FREE	FREE	FREE	STAGE 2/3
ND	FREE	FREE	FREE	FREE
OH	FREE	FREE	FREE	STAGE 3
OK	CLASS A	STAGE 2	FREE	STAGE 4
OR	FREE	FREE	FREE	FREE
PA	FREE	FREE	M-A	STAGE 3
PR	FREE	FREE	M-A	FREE
RI	FREE	FREE	FREE	FREE
SC	FREE	STAGE 2	FREE	FREE
SD	CLASS A	FREE	FREE	STAGE 3/4
TN	FREE	FREE	FREE	FREE
TX	CLASS A	STAGE 2	M-A	STAGE 3
UT	FREE	FREE	FREE	FREE
VT	FREE	FREE	FREE	FREE
VI	FREE	FREE	FREE	FREE
VA	FREE	FREE	FREE	FREE
WA	FREE	FREE	FREE	FREE
WV	FREE	FREE	FREE	FREE
WI	FREE	FREE	FREE	STAGE 3/4
WY	FREE	FREE	FREE	FREE

* Class A (less than 0.25 percent herd infection rate) or Class Free
** Stage 1,2, or Free
*** Modified Accredited (M-A) or Accredited Free (Free)
**** Stage 1,2,3,4, or Free

Disease control and eradication measures include quarantines to stop the movement of possibly infected or exposed animals, testing and examination to detect infection, destruction of infected (sometimes exposed) animals to prevent further disease spread, treatment to eliminate parasites, vaccination in some cases, and cleaning

and disinfection of contaminated premises. In addition to the programs listed above, APHIS also cooperates with States in a voluntary Flock Certification program to combat scrapie in sheep and goats. By April 1998, 260 sheep and goat flocks had been enrolled in the certification program. A current listing of enrolled flocks, by State and by breed, is available on the World Wide Web *(http://www.aphis.usda.gov/vs/scrapie/status.html)*

APHIS animal health programs are carried out by a field force of about 250 veterinarians and 360 lay inspectors working out of area offices (usually located in State capitals). Laboratory support for these programs is supplied by APHIS' National Veterinary Services Laboratories (NVSL) at Ames, IA, and Plum Island, NY, which are centers of excellence in the diagnostic sciences and an integral part of APHIS' animal health programs.

Under the Virus-Serum-Toxin Act of 1913, APHIS enforces regulations to assure that animal vaccines and other veterinary biologics are safe, pure, potent, and effective. Veterinary biologics are products designed to diagnose, prevent, or treat animal diseases. They are used to protect or diagnose disease in a variety of domestic animals, including farm animals, household pets, poultry, fish, and fur bearers.

In contrast to animal medicines, drugs, or chemicals—all of which are regulated by the U.S. Food and Drug Administration—veterinary biologics are derivatives of living organisms. Unlike some pharmaceutical products, most biologics leave no chemical residues in animals. Furthermore, most disease organisms do not develop resistance to the immune response produced by a veterinary biologic.

Veterinarians and other professionals in the APHIS VS Center for Veterinary Biologics regulate and license all veterinary biologics as well as the facilities where they are produced. They also inspect and monitor the production of veterinary biologics, including both genetically engineered products and products produced by conventional means. Necessary tests of veterinary biologics are conducted at the APHIS National Veterinary Services Laboratories at Ames, IA.

APHIS also regulates the licensing and production of genetically engineered vaccines and other veterinary biologics. These products range from diagnostic kits for feline leukemia virus to genetically engineered vaccines to prevent pseudorabies, a serious disease affecting swine. With the pseudorabies vaccines, tests kits have been developed to distinguish between infected animals and those vaccinated with genetically engineered vaccines.

Since the first vaccine was licensed in 1979, a total of 79 genetically engineered biologics have been licensed; all but 20 are still being produced.

More than a half-century ago, there were perhaps a half a dozen animal vaccines and other biologics available to farmers. Now there are 2,379 active product licenses for these animal vaccines and other biologics and 110 licensed manufacturers.

Monitoring Plant and Animal Pests and Diseases

In order to combat plant pests and animal diseases, it's important to know their number and where they are located.

To monitor plant pests, PPQ works with the States in a project called the Cooperative Agricultural Pest Survey, which started in 1982 as a pilot project. Survey data on weeds, insects, and plant diseases and pests are entered into a nationwide

database, the National Agricultural Pest Information System (NAPIS). This database can be accessed from anywhere in the country by persons with an authorized account.

By accessing NAPIS, users can retrieve the latest data on pests. NAPIS data can assist pest forecasting, early pest warning, quicker and more precise delimiting efforts, and better planning for plant pest eradication or control efforts. Survey data—which can reflect the absence as well as the presence of pests—also help U.S. exports, assuring foreign countries that our commodities are free of specific pests and diseases.

There are more than a million records in the NAPIS database. Approximately 200 Federal and State agencies use NAPIS, which contains survey data files as well as text and graphics files. The data can be downloaded and analyzed with geographic information systems (GIS) to provide graphic representation of information. For example, locations of pine shoot beetle detections can be shown graphically, as well as where and how often surveys have been conducted for the beetle. This information is used by the State and Federal agencies regulating this pest.

Describing animal health and management in the United States is the goal of the APHIS National Animal Health Monitoring System (NAHMS). This program, which is conducted by APHIS' Veterinary Services, began in 1983.

NAHMS compiles statistics and information from existing data bases and gathers new data through short- and long-term targeted studies to present a baseline picture of animal agriculture. This information then can be used to predict trends and improve animal production efficiency and food quality. NAHMS provides statistically sound data concerning U.S. livestock and poultry diseases and disease conditions, along with their costs and associated production practices. By the end of 1997, NAHMS had conducted nine national studies on U.S. animal populations: swine (2), dairy (2), beef cow/calf (2) , beef feedlot (1), sheep (1), and catfish (1). Sentinel monitoring of morbidity and mortality in beef feedlots is an ongoing monitoring project, as is bulk tank somatic cell count. Marek's disease in broiler operations, and Poult Enteritis and Mortality Syndrome (PEMS) in turkeys were among NAHMS' short-term projects.

Information from NAHMS aids a broad group of users throughout agriculture. For instance, baseline animal health and management data from NAHMS national studies are helping analysts identify associations between Salmonella and cattle management. NAHMS data are also helping researchers evaluate management practices that contribute to the occurrence of Johne's disease and digital dermatitis in cattle. State and national officials, industry groups, and producers apply NAHMS data and information in educational programs and in setting research priorities.

NAHMS information is available through the World Wide Web *(http://www.aphis.usda.gov/vs/ceah);* see the Center for Animal Health Monitoring.

Regulating Biotechnology in Agriculture

Scientists use agricultural biotechnology with a variety of laboratory techniques, such as genetic engineering, to improve plants, animals, and micro-organisms. Recent discoveries have led to virus-resistant crops such as cucumbers, tomatoes, and potatoes; to better vaccines and diagnostic kits used for diseases of horses, chickens, and swine; and even to new and improved varieties of commercial flowers.

Since 1987, APHIS' role in agricultural biotechnology has been to manage and oversee regulations to ensure the safe and rapid development of the products of biotechnology. Applicants under APHIS' effective regulations and practical guidelines can safely test—outside of the physical containment of the laboratory—genetically engineered organisms.

APHIS officials issue permits or acknowledge notification for the importation, interstate movement, or field testing of genetically engineered plants, micro-organisms, and invertebrates that are developed with components from plant pathogenic material.

Since 1987, APHIS has issued more than 3,800 release permits and notifications at more than 17,000 sites in the United States, and no environmental problems have resulted from these field tests. The biotechnology regulations also provide for an exemption process once it has been established that a genetically engineered product does not present a plant pest risk. Under this process, applicants can petition APHIS for a determination of nonregulated status for specific genetically engineered products. In the past $2^1/_2$ years, 20 new engineered plant lines in 11 crops have been proven safe and no longer need to be regulated by APHIS. The most recent of these—in April 1998—was the first genetically engineered sugar beet, which is herbicide tolerant.

The four most recently deregulated include:

- tomato line with insect resistance,
- rapeseed (canola) line with herbicide tolerance,
- corn line with herbicide tolerance, and
- chicory (salad green) line with male sterility.

APHIS biotechnology personnel meet with regulatory officials from other nations on a regular basis to foster regulatory harmonization. These discussions are intended to help ensure that requirements imposed by other countries are as consistent as possible with U.S. requirements and that our trading partners are kept informed of biotechnology regulatory developments.

Information about APHIS' biotechnology regulations, current submissions, and new issues and events can be seen on the World Wide Web *(http://www.aphis.usda.gov/biotech/html)*.

Controlling Wildlife Damage

The mission of APHIS' Wildlife Services (WS) program is to provide Federal leadership in managing problems caused by wildlife. Wildlife is a significant public resource that is greatly valued by the American public. But by its very nature, wildlife also can damage agricultural and industrial resources, pose risks to human health and safety, and affect other natural resources. WS helps solve problems that occur when human activity and wildlife are in conflict with one another. In doing so, WS attempts to develop and use wildlife management strategies that are biologically, environmentally, and socially sound.

The need for effective and environmentally sound wildlife damage management is rising dramatically. There are several reasons for this. Increasing suburban development intrudes upon traditional wildlife habitats. Population explosions of some adaptable wildlife species, such as coyotes, deer, and geese, pose increasing risks to

human activities. At the same time, advances in science and technology are providing alternative methods for solving wildlife problems.

APHIS' National Wildlife Research Center (NWRC), the world's only research facility devoted entirely to the development of methods for managing wildlife damage, accounts for about one-fourth of the WS budget. In existence since the 1920's, NWRC has an integrated, multi-disciplinary research program that is uniquely suited to provide scientific information and solutions to wildlife damage problems.

A few examples of current NWRC projects include:

- developing chemosensory repellants and attractants for birds and mammals,
- finding methods to reduce threats to human safety when birds collide with airplanes,
- finding ways to control the brown tree snake in Guam,
- engineering an immunocontraceptive vaccine and delivery system to help resolve problems caused by wildlife overpopulation,
- reducing bird damage to fish hatcheries and cereal crops,
- studying coyote biology and behavior to develop techniques for protecting livestock from these predators, and
- looking at ways to solve wildlife problems in urban areas involving such things as deer in backyards, raccoons in gardens, squirrels in attics, and geese on golf courses.

More than half of U.S. farmers experience economic loss from animal damage. In 1994, sheep and goat producers lost an estimated $17.7 million due to predation. In 1995, cattle producers' losses to predators were worth $39.6 million. Coyotes alone caused $11.5 million in sheep losses and $21.8 million in cattle losses nationwide. A survey in 1993 showed that wildlife caused $92 million in losses to corn producers in the top 10 corn-producing States.

Additionally, beavers in the Southeastern United States cause an estimated $100 million in damage each year to public and private property, while Mississippi catfish farmers lose nearly $6 million worth of fingerlings to fish-eating birds. During 1 year in Pennsylvania, white-tailed deer caused crop losses totaling $30 million. Overall, bird populations cause an estimated annual loss to U.S. agriculture of $100 million. In 1994, the annual dollar loss to agriculture in the United States from wildlife was about $600 million.

USDA's National Agricultural Statistics Service (NASS) surveyed 1,465 catfish producers in January 1997. Results indicated that 68 percent of the respondents spent some effort to avoid wildlife-related losses to their catfish crops. Of all catfish losses reported, 67 percent were depredated by wildlife, primarily birds. In Mississippi, where 81 percent of wildlife damage was reported, cormorants were cited as the cause 53 percent of the time. The total cost to catfish producers of efforts to prevent wildlife-related damage was estimated to be $17 million in 1996.

APHIS deals with a wide variety of wildlife problems—ranging from reducing coyote predation on lambs to protecting endangered species from predation by other wildlife. Here are a few examples of WS efforts:

- A farmer in Washington State requested WS assistance after thousands of Canada geese congregated on his 43-acre field of carrots and began eating his crop, which had a potential market value of more than $7,000 an acre. Noise-

making devices and other scare tactics recommended by WS were successful in frightening the geese and keeping them out of his field.

- A mountain lion that killed a dog and attacked another dog and a mule in Colorado was captured by a WS specialist and officials of the Colorado Division of Wildlife. The lion was released unharmed in a remote site about 165 miles from the community where the attacks occurred.
- In 1991, a plane carrying 350 passengers aborted takeoff at JFK International Airport after gulls were drawn into one of its engines. Although no one was seriously injured, the aircraft lost its brakes and 10 tires in the accident. Between 1988 and 1990, there was an average of 170 bird strikes against airplanes per year at this airport. After WS became involved in managing bird populations at the airport in 1990, laughing gull strikes were reduced by 66 percent in 1991, and by 89 percent in 1992 compared with the previous 2-year period.
- Livestock-guarding dogs, predator-proof fencing, and the "Electronic Guard" (a device developed by WS that combines a flashing strobe light and a siren to scare coyotes) are examples of nonlethal ways to minimize damage from predators.
- WS helps protect many threatened or endangered species from predation, including the California least tern and light-footed clapper rail, the San Clemente Island loggerhead strike, the Louisiana black bear, the Aleutian Canada goose, the black-footed ferret, the Louisiana pearl shell (mussel), and two species of endangered sea turtles.
- Since 1995, WS has cooperated with Texas officials to help combat a rabies epidemic in the southern part of that State. WS cooperated in developing coyote bait units containing a genetically engineered rabies vaccine approved by APHIS for use in the project. More than 8 million bait units have been dropped over a 14,400-square-mile area stretching from Maverick County at the Mexican border to Calhoun County on the Gulf Coast. The goal of the project is to create a buffer zone of immunized coyotes to help prevent the further spread of canine rabies across Texas into more heavily populated areas.

Humane Care of Animals

APHIS administers two laws that seek to ensure the humane handling of animals: the Animal Welfare Act (AWA) and the Horse Protection Act (HPA).

For more than a quarter century, USDA has enforced the AWA and its standards and regulations to prevent the trafficking in lost and stolen pets and to protect animals from inhumane treatment and neglect. Congress passed the AWA in 1966 and strengthened the law through amendments in 1970, 1976, 1985, and 1990.

The AWA prohibits staged dogfights, bear and raccoon baiting, and similar animal fighting ventures. It also requires that minimum standards of care and treatment be provided for most warmblooded animals bred for commercial sale, used in research, transported commercially, or exhibited to the public. This includes animals exhibited in zoos, circuses, and marine mammal facilities, as well as pets transported on commercial airlines.

Individuals who operate regulated businesses must be licensed or registered with USDA and must provide their animals with adequate care and treatment in the areas of housing, handling, sanitation, nutrition, water, veterinary care, and protection from extremes of weather and temperature. They must also keep accurate acquisition and disposition records and a description of every animal that comes into their possession. In addition:

- Dealers must hold the animals they acquire for a period of 5-10 days to verify the animals' origin and to give pet owners an opportunity to locate a missing pet.
- Research facilities must give dogs an opportunity to exercise, promote the psychological well-being of primates used in laboratories, and give all regulated animals anesthesia or pain-relieving medication to minimize any pain or distress caused by research if the experiment allows.
- Research facilities must establish an institutional animal care and use committee to oversee the use of animals in experiments. This committee reviews research protocols and facilities to ensure they are in compliance with the AWA. It also ensures that researchers explore alternatives to painful experiments and ways to reduce the numbers of animals used. The committee must be composed of at least three members, including one veterinarian and one person who is not affiliated with the facility in any way.

In enforcing the AWA, APHIS conducts prelicensing inspections of licensees. Before issuing a license, applicants must be in compliance with all standards and regulations under the AWA.

APHIS also conducts randomly scheduled unannounced inspections to ensure that all regulated facilities continue to comply with the Act. If an inspection reveals deficiencies in meeting the AWA standards and regulations, the inspector instructs the licensee or registrant to correct the problems within a given amount of time. If deficiencies remain uncorrected at the followup inspection, APHIS documents the facility's deficiencies and considers possible legal action. Such action may include fines and/or the suspension or revocation of licenses.

In FY 1997, APHIS pursued numerous cases against individuals who were not in compliance with the AWA. Examples of these actions are:

- In April 1997, APHIS settled a case with a licensed animal exhibitor whose citations included mistreatment and unsuitable facilities for animals. APHIS' goal was to remove the animals from the person's possession as quickly as possible. Accordingly, under the settlement, the agency required the licensee to immediately surrender his license and all of his animals that were covered under the AWA.
- In September 1997, APHIS' case against a class B animal dealer for more than 1,500 AWA recordkeeping violations came to an end with a permanent revocation of the dealer's license and a record $175,000 fine to be paid in full. The dealer had been charged with, among other things, selling dogs and cats to research facilities under falsified documents and maintaining false acquisition records for dogs.
- In a landmark case that was still pending at the end of FY 1997, APHIS sought a permanent revocation of an exhibitor's license and substantial mone-

tary penalties for alleged AWA violations pertaining to the movement of elephants and llamas across the southwestern United States in the summer of 1997. The movement of the animals resulted in the death of one of the elephants. The case is significant not only in terms of penalties sought but also because of the swift manner in which it was handled. By making this case a top priority, APHIS was able to complete its investigation and file formal charges within 3 weeks, whereas this process typically takes several months. APHIS was also able to obtain an administrative hearing within 2 months, a process that normally takes more than a year.

The tables below provide data on APHIS' inspection and enforcement efforts for FY 1995-97.

Compliance Inspections, FY 1995–97

FY	Total facilities (sites)	Total compliance inspections
1997	7,789	
	(10,534)	12,056
1996	7,837	
	(10,366)	12,635
1995	7,721	
	(10,108)	14,722

Sanctions Imposed, FY 1995–97

FY	Fines Imposed	Revocations, suspensions, and disqualifications
1997	$868,440	43
1996	$1,052,225	29
1995	$451,725	19

USDA also enforces the HPA, which prohibits horses subjected to a process called soring from participating in exhibitions, sales, shows, or auctions. In addition, the Act prohibits drivers from hauling sored horses across State lines to compete in shows. The law was first passed in 1970 and amended in 1976.

Soring—a painful practice used to accentuate a horse's gait—is accomplished by irritating a horse's forelegs through the injection or application of chemicals or mechanical irritants. When a sored horse walks, it responds by quickly lifting its front legs to relieve the pain. Although the HPA covers all horse breeds, Tennessee Walking horses and other high-stepping breeds are the most frequent victims of soring.

To facilitate enforcement of the HPA, APHIS has established the Designated Qualified Person (DQP) program. DQP's are trained and licensed by USDA-certified

horse industry organizations or associations to detect sored horses. DQP's are APHIS-accredited veterinarians with equine experience, or they are farriers, horse trainers, or other knowledgeable equestrians.

DQP's are responsible for barring from shows horses that do not meet Federal regulations under the HPA. Without DQP's, show management assumes full legal responsibility for disqualifying sored horses before awarding prizes and before customers view horses at sales or auctions. Horse organizations can revoke the license of DQP's if their inspections do not meet HPA standards.

To ensure that DQP's continue to adhere to HPA standards, APHIS personnel conduct randomly scheduled unannounced inspections. The APHIS inspection team includes veterinarians and investigators. The veterinarians observe horses during a show and can examine any horse for signs of soring or violation of the regulations.

For those who violate the HPA, APHIS can impose criminal or civil charges. If convicted, violators can spend up to 2 years in prison, receive penalties of up to $5,000, and be disqualified for 1 or more years from the right to show, exhibit, or sell horses through auction sales. Trainers can be disqualified for life.

In addition to the AWA and HPA, many State and local governments have passed additional animal welfare legislation. The public is encouraged to work with Federal, State, and local officials as well as local humane organizations to help eliminate inhumane treatment of animals.

Aquaculture

APHIS provides services to the aquaculture industry in a number of areas. Aquaculture is the fastest growing segment of U.S. agriculture, surpassing in value most domestic fruit, vegetable, and nut crops. Between 1980 and 1990, the industry experienced a 400-percent increase in growth; it is now estimated to be worth approximately $1.5 billion. The aquaculture industry provides about 300,000 jobs nationwide.

Current APHIS services include licensing of fish vaccines and other biologics under the Virus-Serum-Toxin Act, controlling birds and damage-causing animals, and providing health certification services for exports. APHIS is currently working to expand its aquatic animal health activities, its underlying authority to support industry efforts to increase exports of aquacultural products around the world, its coordination of interstate regulation, and its protection of the industry from the entry of animal pests and diseases. Examples include:

- European Union (EU) animal health negotiators have been extremely concerned that U.S. aquatic health regulations are not equivalent to those of the EU; the main concern is that the United States does not have a single Federal agency with legal authority to monitor, prevent, and control outbreaks of aquatic animal disease. Currently, U.S. responsibility in this area is divided among four Federal departments (Agriculture, Interior, Commerce, and Health and Human Services) and the 50 States. APHIS is working with the Joint Subcommittee on Aquaculture's Task Force on Aquatic Animal Health to clarify Federal agency roles, avoid duplication of authority, and achieve adequate protection of U.S. aquatic animals, both wild and cultivated.

- APHIS has produced a video about health certification procedures for the export of aquacultural products. The goal of the video—which uses the example of exporting trout eggs from Washington State to Chile—is to provide animal health and natural resources officials and aquacultural producers with a model of how to implement an aquatic health protocol for exporting products.
- APHIS' Wildlife Services program hired three wildlife biologists and placed them in Florida, Alabama, and Mississippi to help aquaculture producers with bird depredation problems. These biologists are helping develop new methods for controlling fish-eating birds, providing onsite assistance to aquaculture producers experiencing depredation problems, and developing management plans for fish-eating bird species in the three States.
- APHIS/Veterinary Services' Centers for Epidemiology and Animal Health (CEAH) completed an overview of the U.S. aquaculture industry, including an analysis of trends in farm size, geographic distribution of aquatic species, and industry diversity. During 1997, CEAH worked with USDA's National Agricultural Statistics Service on a comprehensive national study of the U.S. catfish industry.

Grain Inspection, Packers and Stockyards Administration

The Grain Inspection, Packers and Stockyards Administration (GIPSA) facilitates the marketing of livestock, poultry, meat, cereals, oilseeds, and related agricultural products and promotes fair and competitive trading practices for the overall benefit of consumers and American agriculture.

GIPSA, like its sister agencies in USDA's Marketing and Regulatory Programs, is working to ensure a productive and competitive global marketplace for U.S. agricultural products. The agency's Federal Grain Inspection Service (FGIS) provides the U.S. grain market with Federal quality standards and a uniform system for applying them. GIPSA's Packers and Stockyards Programs (P&S) ensure open and competitive markets for livestock, meat, and poultry.

Federal Grain Inspection Program

Through its Federal Grain Inspection Program, GIPSA facilitates the marketing of grain, oilseeds, pulses, rice, and related commodities. This program serves American agriculture by providing descriptions (grades) and testing methodologies for measuring the quality and quantity of grain, rice, edible beans, and related commodities. GIPSA also provides a wide range of inspection and weighing services, on a fee basis, through the official grain inspection and weighing system, a unique partnership of Federal, State, and private laboratories. In FY 1997, the official system performed over 2 million inspections on 226 million metric tons of grain and related commodities.

Specifically, under the U.S. Grain Standards Act, and those provisions of the Agricultural Marketing Act of 1946 (AMA) that relate to inspection of rice, pulses, lentils, and processed grain products, the Federal Grain Inspection Program:

- Establishes official U.S. grading standards and testing procedures for eight grains (barley, corn, oats, rye, sorghum, triticale, wheat, and mixed grain), four oilseeds (canola, flaxseed, soybeans, and sunflower seed), rice, lentils, dry peas, and a variety of edible beans.
- Provides American agriculture and customers of U.S. grain around the world with a national inspection and weighing system that applies the official grading and testing standards and procedures in a uniform, accurate, and impartial manner.
- Inspects and weighs exported grain and oilseeds. Domestic and imported grain and oilseed shipments, and crops with standards under the AMA, are inspected and weighed upon request.
- Monitors grain handling practices to prevent the deceptive use of the grading standards and official inspection and weighing results, and the degradation of grain quality through the introduction of foreign material, dockage, or other nongrain material to grain.

By serving as an impartial third party, and by ensuring that the Official U.S. Standards for Grain are applied and that weights are recorded fairly and accurately, GIPSA and the official grain inspection and weighing system advance the orderly and efficient marketing and effective distribution of U.S. grain and other assigned commodities from the Nation's farms to destinations around the world.

Packers and Stockyards Programs

GIPSA's Packers and Stockyards Programs administers the Packers and Stockyards (P&S) Act of 1921. The purpose of the P&S Act, which has been amended to keep pace with changes in the industry, is to assure fair competition and fair trade practices, safeguard farmers and ranchers, and protect consumers and members of the livestock, meat, and poultry industries from unfair business practices that can unduly affect meat and poultry distribution and prices.

Payment Protection

The P&S Act requires prompt payment for livestock purchased by dealers, market agencies, and packers whose operations are subject to the Act. Pursuant to this requirement, subject firms must pay for livestock before the close of the next business day following the purchase and transfer of possession. In addition, the Act establishes specific payment delivery requirements for livestock purchased for slaughter. Also, packers, market agencies, and dealers operating in commerce are required to file a surety bond or its equivalent. At the beginning of FY 1998, bonds totaling $631 million were in place to cover the livestock purchases of packers, market agencies, and dealers.

GIPSA also emphasizes custodial account investigations as a means of payment protection for consignors of livestock. All market agencies selling on a commission basis are required to establish and maintain a separate bank account designated as "Custodial Account for Shippers' Proceeds," to be used for deposits from livestock purchasers and disbursements to consignors of livestock. The custodial audit program has been very successful in protecting funds due livestock sellers.

Packer and Poultry Trust Activities

If a meat packer fails to pay for livestock in a cash sale, or a live poultry dealer fails to pay for live poultry from a poultry growing arrangement, then receivables, inventories, and proceeds held by the packer or poultry dealer become trust assets. These assets are held by the meat packer or live poultry dealer for the benefit of all unpaid cash sellers and/or poultry growers. Cash sellers of livestock and poultry growers receive priority payment in bankruptcy or in claims against trust assets in the event of business failure.

Fair Competition

GIPSA works to eliminate unfair, unjustly discriminatory, or deceptive practices in the meat and poultry industries, with special emphasis on investigation of anticompetitive activities. Practices such as apportioning of territories, price manipulation, arrangements not to compete, and payoffs or kickbacks to buyers are violations of the Packers and Stockyards Act. GIPSA staff members immediately investigate any practice that indicates a possible unfair or discriminatory practice.

Scales and Weighing Activities

GIPSA is concerned with two different elements that affect the integrity of weights: (1) the accuracy of scales used for weighing livestock, meat, and poultry, and (2) the proper and honest operation of scales to assure that the weight on which a transaction is based is accurate.

The major emphasis is on detecting improper and fraudulent use of scales. An investigative program uses several different procedures to determine whether weighing activity is proper and honest. Agency investigators routinely visit livestock auction markets, buying stations, and packing plants for the purpose of checkweighing livestock, carcasses, and live poultry, and examining weight records and equipment.

Trade Practices

Fraudulent trade practices—such as price manipulations, weight manipulation of livestock or carcasses, manipulation of carcass grades, misrepresentation of livestock as to origin and health, and other unfair and deceptive practices—continue to be concerns within the industry. GIPSA investigates these practices when complaints are received or when such practices are uncovered during other investigations.

Fair Treatment for Poultry Growers

GIPSA carries out enforcement of the trade practice provisions of the P&S Act relating to live poultry dealers. Its investigative program extensively examines the records of poultry integrators to determine the existence of any unfair, unjustly discriminatory, or deceptive practices in its dealings with poultry growers and sellers. Complaints alleging unfair termination of growing contracts are investigated on a priority basis.

Carcass Merit Purchasing

GIPSA monitors the use of electronic evaluation devices by hog slaughterers who purchase hogs on a carcass merit basis, to ensure that the electronic measuring is accurate and properly applied and that the producer receives an accurate accounting of the sale.

Analysis of Structural Change

GIPSA examines structural changes in the livestock, meat packing, and poultry industries, and analyzes the competitive implications of these structural changes. The analyses assist in enforcing the P&S Act and in addressing public policy issues relating to the livestock and meat industries.

Clear Title

The Clear Title provisions of the Food Security Act of 1985 permit States to establish central filing systems to inform parties about liens on farm products. The purpose of this program is to remove an obstruction to interstate commerce in farm products. GIPSA certifies when a State's central filing system complies with the Act.

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Appendix

How To Get Information From USDA's Office of Communications

The Office of Communications is integral to USDA's historical and current mission. This office coordinates and assists with the flow of public information from USDA program agencies, reviewing all publications and audiovisuals and evaluating new information technology. It offers current information from the Office of the Secretary on programs and policy. This office ensures that adequate and appropriate channels are used to disseminate information to the public, and provides public access to USDA information through the news media.

OC administers USDA's home page on the Internet World Wide Web and the AgNewsFax service. The Internet address for USDA's home page is *http://www.usda.gov.* From this page, you can access information about the Department and also about programs in all mission areas.

OC also offers an automated information line to answer questions from the public. The number for this service is 202-720-2791.

In addition, OC coordinates departmental responses under the Freedom of Information Act, the Privacy Act, and its amendment, the Computer Matching Act.

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Conversion Chart

Metric Conversions

To convert this	*to this*	*multiply by*
Length		
inches	millimeters (mm)	25.4
feet	centimeters (cm)	39
yards	meters (m)	.91
miles	kilometers (km)	1.61
millimeters	inches	.04
centimeters	inches	.4
meters	inches	39.37
meters	yards	1.1
kilometers	miles	.6
Weight		
ounces	grams(g)	28
pounds	kilograms (kg)	.45
short tons	metric tons	.9
kilograms	pounds	2.2
metric tons	pounds	2,204.6
metric tons	short tons	1.1
Area		
square inches	square centimeters	6.5
square feet	square meters	.09
square miles	square kilometers	2.6
acres	hectares	.4
square centimeters	square inches	.16
square meters	square yards	1.2
square kilometers	square miles	.4
hectares	acres	2.5
Volume		
teaspoons	milliliters	5
tablespoons	milliliters	15
fluid ounces	milliliters	30
cups	liters	.24
pints	liters	.47
quarts	liters	.95
gallons	liters	3.8
cubic feet	cubic meters	.03
cubic yards	cubic meters	.76

To convert this	*to this*	*multiply by*
milliliters	fluid ounces	.03
liters	pints	2.1
liters	quarts	1.06
liters	gallons	.26
cubic meters	cubic feet	35
cubic meters	cubic yards	1.3
Temperature		
Fahrenheit	Celsius	.56 (after subtracting 31)
Celsius	Fahrenheit	1.82 (then add 32)
Farm products		
pounds per acre	kilograms per hectare	1.14
short tons per acre	kilograms per hectare	2.25
kilograms per hectare	metric tons per hectare	.001
kilograms per hectare	pounds per acre	.88
tons per hectare	short tons per acre	.44
tons per hectare	kilograms per hectare	1,000

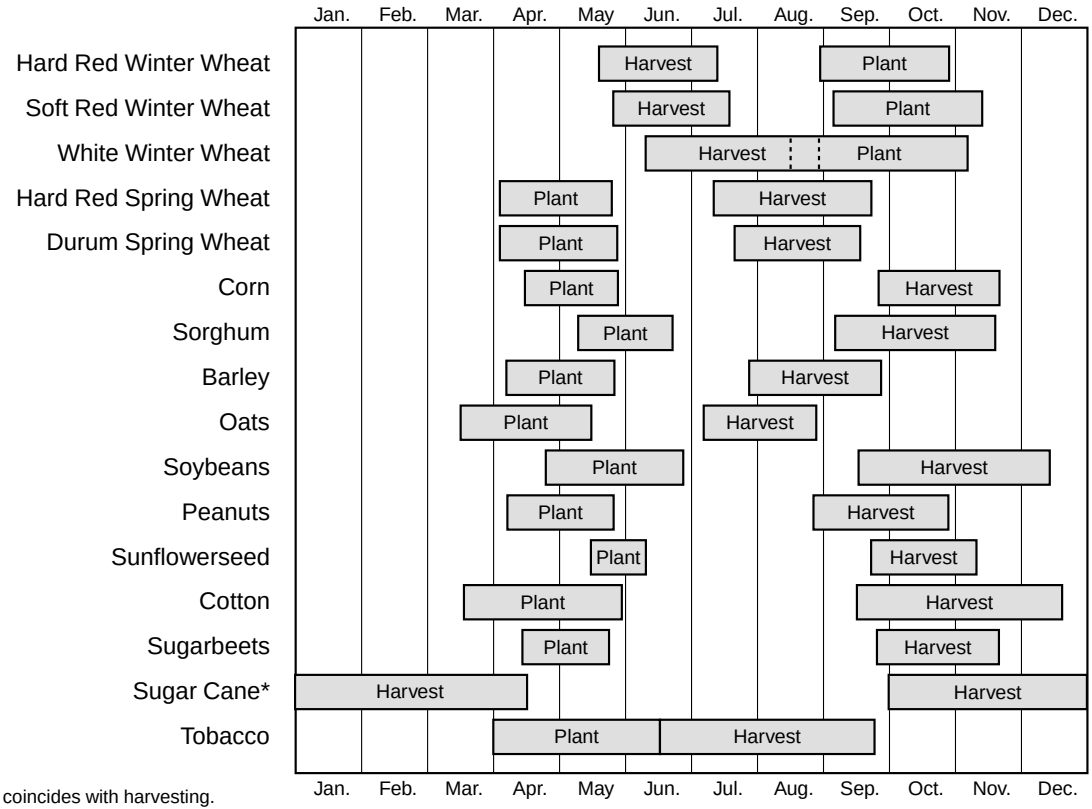
Bushel/Weight Conversions

1 bushel of:	*weight in pounds*	*weight in kilograms*
wheat, soybeans, potatoes	60	27
corn, grain sorghum, rye, flaxseed	56	25
beets, carrots	50	23
barley, buckwheat, peaches	48	22
oats, cottonseed	32	14

1 metric ton of:	*weight in pounds*	*number of bushels*
wheat, soybeans, potatoes	2,204.6	36.74
corn, grain sorghum, rye, flaxseed	2,204.6	39.37
beets, carrots	2,204.6	44.09
barley, buckwheat, peaches	2,204.6	45.93
oats, cottonseed	2,204.6	68.89

Figure A-1.

Planting and Harvesting Calendar for Most Major U.S. Crop Areas[1]



*Planting coincides with harvesting.

[1]Represents areas where production is concentrated, but not full spectrum of planting and harvesting periods for each crop.

Acid soil. Soil with a pH of less than 7.0.

Acreage reporting date. The date by which insureds must report their planted acreage to their agent. These reports are essential because they help determine premium and liability. Reporting dates vary and are printed in crop insurance policies.

Actual production history (APH). An APH yield is a producer-certified report of the planted acreage and harvested production for each insured crop. MPCI coverage is based on at least 4 years of APH yields. If records are lacking, transitional yields (T-yields—a percentage of local yield averages) are used to help calculate coverage.

Actuarial table. The forms and related material for the crop year, which are available for public inspection in the crop insurance agent's office, show the amounts of insurance or production guarantees, coverage levels, premium rates, prices for computing indemnities, practices, insurable acreage, and other related information regarding crop insurance in the county.

Agricultural Adjustment Act of 1933 (P.L. 73-10). Signed May 12, 1933, this law introduced the price support programs, including production adjustments, and the incorporation of the Commodity Credit Corporation (CCC), under the laws of the State of Delaware on October 17, 1933. The program benefits were financed mostly by processing taxes on the specific commodity. The Act also made price support loans by the CCC mandatory for the designated "basic" (storable) commodities: corn, wheat, and cotton. Support for other commodities was authorized upon the recommendation by the Secretary of Agriculture with the President's approval.

Agricultural Adjustment Act of 1938 (P.L. 75-430). Signed February 16, 1938, this law was the first to make price support mandatory for corn, cotton, and wheat to help maintain a sufficient supply for low production times along with marketing quotas to keep supply in line with market demand. The 1938 Act is considered part of permanent agriculture legislation. Provisions of this law are often superseded by more current legislation. However, if the current legislation expires and new legislation is not enacted, the law reverts back to the permanent provisions of the 1938 Act, along with the Agricultural Act of 1949.

Agronomy. The science of crop production and soil management.

Alfalfa. A valuable leguminous crop for forage or hay used in livestock feeding.

Alkaline soil. Soil with a pH of more than 7.0.

Alternative farming. Production methods other than energy- and chemical intensive one-crop (monoculture) farming. Alternatives include using animal and green manure rather than chemical fertilizers, integrated pest management instead of chemical pesticides, reduced tillage, crop rotation (especially with legumes to add nitrogen), alternative crops, or diversification of the farm enterprise.

Animal unit. A standard measure based on feed requirements, used to combine various classes of livestock according to size, weight, age, and use.

Aquaculture. The production of aquatic plants or animals in a controlled environment, such as ponds, raceways, tanks, or cages, for all or part of their life cycle. In the United States, baitfish, catfish, clams, crawfish, freshwater prawns, mussels, oysters, salmon, shrimp, tropical (or ornamental) fish, and trout account for most of the aquacultural production. Less widely established but growing species include alligator, hybrid striped bass, carp, eel, red fish, northern pike, sturgeon, and tilapia.

Arid climate. A dry climate with an annual precipitation usually less than 10 inches. Not suitable for crop production without irrigation.

Artificial insemination (AI). The mechanical injection of semen into the womb of the female animal with a syringe-like apparatus.

Back hoe. A shovel mounted on the rear of a tractor, hydraulically operated to dig trenches or pits in soil.

Base acreage. A farm's crop-specific acreage of wheat, feed grains, upland cotton, or rice eligible to enroll in commodity programs under legislation prior to the 1996 Farm Bill. Base acreage equalled land planted for harvest to the crop, plus any land enrolled in acreage reduction programs, plus land considered planted to the crop in 0,50/85-92 or under permitted normal flex or optional flex acreage shifts during a specified period of time. A farmer's crop acreage base is reduced by the portion of land placed in the Conservation Reserve Program, but is increased by CRP base acreage leaving the CRP.

Basic commodities. Six crops (corn, cotton, peanuts, rice, tobacco, and wheat) that are covered by parity-based price support provisions, provisions which have been suspended for the 1996 through 2002 crops of each of these commodities.

Biological control of pests. Control, but not total eradication, of insect pests achieved by using natural enemies, either indigenous or imported, or diseases to which the pest is susceptible. It includes such nontoxic pesticides as Bacillus thuringiensis (Bt).

Biologics. Immunization materials made from living or "killed" organisms and their products used for the detection and prevention of diseases; includes serums, vaccines, bacterins, antigens, and antitoxins.

Biotechnology. The use of technology, based on living systems, to develop processes and products for commercial, scientific, or other purposes. These include specific techniques of plant regeneration and gene manipulation and transfer (see also genetic engineering).

Blended credit. A form of export subsidy which combines direct Government export credit and credit guarantees to reduce the effective interest rate.

Brucellosis. A contagious disease in beef and dairy cattle, which causes abortion. Same disease in humans is known as undulant fever.

BST (bovine somatotropin) (also called BGH, for bovine growth hormone). A protein hormone produced naturally in the pituitary gland of cattle. Recombinant BST, or rBST, is BST produced using recombinant DNA biotechnology. BST controls the amount of milk produced by cows.

Cargo preference. A law that requires a certain portion of goods or commodities financed by the U.S. Government to be shipped on U.S. flag ships. The law has traditionally applied to P.L. 480 and other concessional financing or donations programs.

Carryover. Existing supplies of a farm commodity not used at the end of a marketing year, and remaining to be carried over into the next year. Marketing years generally start at the beginning of a new harvest for a commodity, and extend to the same time in the following year.

Cash grain farm. A farm on which corn, grain sorghum, small grains, soybeans, or field beans and peas account for at least 50 percent of value of products sold.

Catastrophic risk protection (CAT). The lowest level of Federal crop insurance coverage. It provides a coverage level at 50 percent of the actual yields at 55 percent of the expected market price. Coverage is provided for an administrative fee.

Census of Agriculture. A count taken every 5 years of the number of farms, land in farms, crop acreage and production, livestock numbers and production, farm expenses, farm

facilities and equipment, farm tenure, value of farm products sold, farm size, type of farm, farm operator characteristics (age, race, sex), etc. Data are obtained for States and counties. USDA now administers the Census of Agriculture, which was previously done by the U.S. Bureau of the Census.

Checkoff programs. Research and promotion programs authorized by law and financed by assessments. The programs are paid for by specified industry members such as producers, importers, and handlers.

Combine. A self-propelled machine for harvesting grain and other seed crops. In one operation, it cuts, threshes, separates, and cleans the grain and scatters the straw.

Commodity certificates. Payments issued by the Commodity Credit Corporation (CCC) in lieu of cash payments to program participants. Holders of the certificates may exchange them with the CCC for CCC-owned commodities. With the exception of the upland cotton loan program, CCC authority to issue such certificates in lieu of cash payments was suspended for the 1996 through 2002 crops by the Federal Agriculture Improvement and Reform Act of 1996. Under the “special marketing loan provisions” for the upland cotton loan program, however, cotton user marketing certificates may be paid by CCC with commodity certificates.

Commodity Credit Corporation (CCC). A federally owned and operated corporation within USDA created to stabilize, support, and protect agricultural prices and farm income through loans, purchases, payments, and other operations. All money transactions for agricultural price and income support and related programs are handled through the CCC.

Commodity loan rates. Price per unit (pound, bushel, bale, or hundredweight) at which the CCC provides nonrecourse loans to farmers to enable them to hold program crops for later sale. Commodity loans under the 1996 Act can be recourse for sugar and will become recourse for dairy in 2000.

Complementary imports. Agricultural import items not produced in appreciable commercial volume in the United States, such as bananas, coffee, rubber, cocoa, tea, spices, and cordage fiber (see also supplementary imports).

Compost. Organic residues, or a mixture of organic residues and soil, which have been piled, moistened, and allowed to undergo biological decomposition for use as a fertilizer.

Concessional sales. Credit sales of a commodity in which the buyer is allowed more favorable payment terms than those on the open market. For example, Title I of the Food for Peace Program (P.L. 480) provides for financing sales of U.S. commodities with low-interest, long-term credit.

Conservation compliance. This represents a portion of the Highly Erodible Land Conservation provisions of the Food Security Act of 1985 that is designed to encourage the use of conservation practices on highly erodible cropland. To remain eligible for many USDA program benefits, farmers are required to crop highly erodible land under an approved conservation plan. Also see "Sodbuster."

Conservation district. Any unit of local government formed to carry out a local soil and water conservation program.

Conservation plan. A combination of land uses and practices to protect and improve soil productivity and to prevent soil deterioration. A conservation plan must be approved by the local conservation district for acreage offered in the Conservation Reserve Program. The plan sets forth the conservation measures and maintenance that the owner or operator will carry out during the term of the contract.

Conservation practices. Methods which reduce soil erosion and retain soil moisture. Major conservation practices include conservation tillage, crop rotation, contour farming, strip cropping, terraces, diversions, and grassed waterways.

Conservation Reserve Program (CRP). A major provision of the Food Security Act of 1985 designed to reduce erosion and protect water quality on millions of acres of farmland. Under the program, enrolled landowners agree to convert environmentally sensitive land to approved conserving uses for 10-15 years. In exchange, the landowner receives an annual rental payment as well as an initial cost-share payment for up to 50 percent of the cost of establishing permanent vegetative cover.

Conservation tillage. Any of several farming methods that provide for seed germination, plant growth, and weed control yet maintain effective ground cover throughout the year and disturb the soil as little as possible. The aim is to reduce soil loss and energy use while maintaining crop yields and quality. No-till is the most restrictive (soil-conserving) form of conservation tillage. Other practices include ridge-till, strip-till, and mulch-till.

Contour farming. Field operations such as plowing, planting, cultivating, and harvesting on the contour, or at right angles to the natural slope, to reduce soil erosion, protect soil fertility, and use water more efficiently.

Contract acreage. Enrolled 1996 commodity base acreage under the 1996 Farm Act for wheat, feed grains, upland cotton, and rice, generally fixed for 1996 through 2002. A farmer may voluntarily choose to reduce contract acreage in subsequent years. Land leaving the CRP may be entered into a production flexibility contract if the land had an acreage base.

Contract crops. Crops eligible for production flexibility payments: wheat, corn, sorghum, barley, oats, rice, and upland cotton.

Cooperative. An organization formed for the purpose of producing and marketing goods or products owned collectively by members who share in the benefits.

Cooperative Extension System. A national, publicly funded, nonformal education network that links the educational and research resources and activities of USDA with land-grant universities in every State, territory, and the District of Columbia. The Federal partner is the Cooperative State Research, Education, and Extension Service. This unique Federal, State, and local partnership focuses on practical solutions to critical issues affecting people's daily lives.

Cost of production. The sum, measured in dollars, of all purchased inputs and other expenses necessary to produce farm products. Cost of production statistics may be expressed as an average per animal, per acre, or per unit of production (bushel, pound, or hundredweight) for all farms in an area or in the country.

County extension agent. An educator employed by a county and/or a State cooperative extension service to bring research-based agriculture and quality of life education to local people to help them address farm, home, and community problems at the local level.

Cover crop. A close-growing crop grown to protect and improve soils between periods of regular crops or between trees and vines in orchards and vineyards.

Crop rotation. The practice of growing different crops in recurring succession on the same land. Crop rotation plans are usually followed for the purpose of increasing soil fertility and maintaining good yields.

Crop year. Generally, the 12-month period from the beginning of harvest of a particular crop.

Custom work. Specific farm operations performed under contract between the farmer and the contractor. The contractor furnishes labor, equipment, and materials to perform the operation. Custom harvesting of grain, spraying and picking of fruit, and sheep shearing are examples of custom work.

Dairy Export Incentive Program. A program that offers subsidies to exporters of U.S. dairy products to assist in competition with

other nations. Under the DEIP, exporters are awarded bonuses, enabling them to compete for sales in specified countries. The program was originally authorized by the 1985 Farm Act and reauthorized by the 1990 Farm Act. The 1996 Farm Act extends the program through 2002.

Disaster payments. Federal payments made to farmers because of a natural disaster when (1) planting is prevented or (2) crop yields are abnormally low because of adverse weather and related conditions. Disaster payments may be provided under existing legislation or under special legislation enacted after an extensive natural disaster.

Distance Education. Delivery of instructional material over a wide geographical area via one or more technologies, including video, computer, and laser.

DNA. Deoxyribonucleic acid, a polymeric chromosomal constituent of living cell nuclei, composed of deoxyribose (a sugar), phosphoric acid, and four nitrogen bases--adenine, cytosine, guanine, and thymine. It contains the genetic information for living organisms, and consists of two strands in the shape of a double helix. A gene is a piece of DNA.

Double crop. Two different crops grown on the same area in one growing season.

Dryland farming. A system of producing crops in semiarid regions (usually with less than 20 inches of annual rainfall) without the use of irrigation. Frequently, part of the land will lie fallow in alternate years to conserve moisture.

Erosion. The process in which water or wind moves soil from one location to another. Types of erosion are (1) sheet and rill—a general washing away of a thin uniform sheet of soil, or removal of soil in many small channels or incisions caused by rainfall or irrigation runoff; (2) gully—channels or incisions cut by concentrated water runoff after heavy rains; (3) ephemeral—a water-worn, short-lived or seasonal incision, wider, deeper and longer than a rill, but shallower and smaller than a gully; and (4) wind—the carrying away of dust and sediment by wind in areas of high prevailing winds or low annual rainfall.

Ethanol. An alcohol fuel that may be produced from an agricultural foodstock such as corn, sugarcane, or wood, and may be blended with gasoline to enhance octane, reduce automotive exhaust pollution, and reduce reliance on petroleum-based fuels.

Export Enhancement Program (EEP). Started in May 1985 under the Commodity Credit Corporation Charter Act to help U.S. exporters meet competitors' prices in subsidized markets. Under the EEP, exporters are awarded bonuses, enabling them to compete for sales in specified countries.

Extra-long staple (ELS) cotton. Cottons having a staple length of 1-3/8 inches or more, characterized by fineness and high-fiber strength. American types include American Pima and Sea Island cotton.

Family Farm. An agricultural business which (1) produces agricultural commodities for sale in such quantities so as to be recognized as a farm rather than a rural residence; (2) produces enough income (including off farm employment) to pay family and farm operating expenses, to pay debts, and to maintain the property; (3) is managed by the operator; (4) has a substantial amount of labor provided by the operator and family; and (5) may use seasonal labor during peak periods and a reasonable amount of full-time hired labor.

Farm. USDA defines a farm in 1997 as any place from which $1,000 or more of agricultural products were produced and sold or normally would have been sold during the year.

Farm Credit System. The system made up of cooperatively owned financial institutions in districts covering the United States and Puerto Rico that finance farm and farm-related mortgages and operating loans. Institutions within each district specialize in farmland loans and operating credit, or lending to farmer-owned supply, marketing, and

processing cooperatives. FCS institutions rely on the bond market as a source of funds.

Federal Agriculture Improvement and Reform Act of 1996 (1996 Farm Act) (P.L.104-127). The omnibus food and agriculture legislation signed into law on April 4, 1996, that provided a 7-year framework (1996-2002) for the Secretary of Agriculture to administer various agricultural and food programs. The 1996 Act fundamentally redesigns income support and supply management programs for producers of wheat, corn, grain sorghum, barley, oats, rice, and upland cotton. The 1996 Farm Act also makes program changes for dairy, sugar, and peanuts. Additionally, trade programs are more targeted and environmental programs are consolidated and extended in the 1996 Farm Act.

Feed grain. Any of several grains most commonly used for livestock or poultry feed, including corn, grain sorghum, oats, rye, and barley.

Fertilizer. Any organic or inorganic material of natural or synthetic origin which is added to soil to provide nutrients, including nitrogen, phosphorus, and potassium, necessary to sustain plant growth.

FFA. An organization for high school students studying vocational agriculture.

Flood plains. Lowland and relatively flat areas adjoining inland and coastal waters, including floodprone areas of islands. This land includes, at a minimum, those areas that are subject to a 1 percent or greater chance of flooding in any given year.

Food, Agriculture, Conservation, and Trade Act of 1990 (1990 Farm Act) (P.L. 101-624). Signed November 28, 1990, this 5-year farm bill applied to the 1991-95 crop programs. This Act continued the transition, started by the Food Security Act of 1985, toward greater market orientation of domestic commodity programs, the most notable changes being frozen minimum target prices and greater planting flexibility. Most of the commodity program provisions of this Act were superseded by the Federal Agriculture Improvement and Reform Act of 1996.

Food grain. Cereal seeds most commonly used for human food, chiefly wheat and rice.

Food Security Act of 1985 (1985 Farm Act) (P.L. 99-198). The omnibus food and agriculture legislation signed into law on December 23, 1985, that provided a 5-year framework (1986-90) for the Secretary of Agriculture to administer various agricultural and food programs.

Forage. Vegetable matter, fresh or preserved, that is gathered and fed to animals as roughage; includes alfalfa hay, corn silage, and other hay crops.

Forward contracting. A method of selling crops before harvest by which the buyer agrees to pay a specified price to a grower for a portion, or all, of the grower's crops.

Fungicide. A chemical substance used as a spray, dust, or disinfectant to kill fungi infesting plants or seeds.

Futures contract. An agreement between two people, one who sells and agrees to deliver and one who buys and agrees to receive a certain kind, quality, and quantity of product to be delivered during a specified delivery month at a specified price.

General Agreement on Tariffs and Trade (GATT). An agreement originally negotiated in 1947 to increase international trade by reducing tariffs and other trade barriers. The agreement provides a code of conduct for international commerce and a framework for periodic multilateral negotiations on trade liberalization and expansion. The Uruguay Round Agreement established the World Trade Organization (WTO) to replace the GATT. The WTO officially replaced the GATT on January 1, 1995.

Genetic engineering. Genetic modification of organisms by recombinant DNA, recombinant RNA, or other specific molecular gene transfer or exchange techniques.

Genome. All the genetic material in the chromosomes of a particular organism.

Gleaning. Collecting of unharvested crops from the fields, or obtaining agricultural products from farmers, processors, or retailers without charge.

Gopher. The Internet Gopher client/server is a distributed information delivery system around which a campuswide information system can readily be constructed. While providing a delivery vehicle for local information, Gopher facilitates access to other Gopher and information servers throughout the world.

Grade A milk. Milk, also referred to as fluid grade, produced under sanitary conditions that qualify it for fluid (beverage) consumption. Only Grade A milk is regulated under Federal milk marketing orders.

Grade B milk. Milk, also referred to as manufacturing grade, not meeting Grade A standards. Less stringent standards generally apply.

Grafting. The process of inserting a scion of a specified variety into a stem, root, or branch of another plant so that a permanent union is achieved.

Great Plains. A level to gently sloping region of the United States that lies between the Rockies and approximately the 98th meridian. The area is subject to recurring droughts and high winds. It consists of parts of North Dakota, South Dakota, Montana, Nebraska, Wyoming, Kansas, Colorado, Oklahoma, Texas, and New Mexico.

Green manure. Any crop or plant grown and plowed under to improve the soil, by adding organic matter and subsequently releasing plant nutrients, especially nitrogen.

Ground water. Water beneath the Earth's surface between saturated soil and rock, which supplies wells and springs.

Group Risk Plan (GRP). A crop insurance plan that uses an index—the expected county yield—as the basis for protection. When the yield for the insured crop in the county falls below the yield level chosen by the farmer, an indemnity is paid. GRP protection involves less paperwork and costs less than the farm-level coverage described above. However, individual crop losses may not be covered if the county yield does not suffer a similar level of loss.

Hedgerow. Trees or shrubs grown closely together so that branches intertwine to form a continuous row.

Herbicide. Any agent or chemical used to destroy plants, especially weeds.

Humus. The well decomposed, relatively stable portion of the partly or wholly decayed organic matter in a soil, which provides nutrients and helps the soil retain moisture.

Hydroponics. Growing of plants in water containing dissolved nutrients, rather than in soil. This process is being used in greenhouses for intensive off-season production of vegetables.

Infrastructure. The transportation network, communications systems, financial institutions, and other public and private services necessary for economic activity.

Integrated crop management. An agriculture management system that integrates all controllable agricultural production factors for long-term sustained productivity, profitability, and ecological soundness.

Integrated pest management (IPM). The control of pests or diseases by using an array of crop production strategies, combined with careful monitoring of insect pests or weed populations and other methods. Some approaches include selection of resistant varieties, timing of cultivation, biological control methods, and minimal use of chemical pesticides so that natural enemies of pests are not destroyed. These approaches are used to anticipate and prevent pests and diseases from reaching economically damaging levels.

International trade barriers. Regulations used by governments to restrict imports from

other countries. Examples include tariffs, embargoes, import quotas, and unnecessary sanitary restrictions.

Internet. The global connection of interconnected local, mid-level, and wide-area automated information/communications networks.

Land-grant universities. Institutions, including State colleges and universities and Tuskegee University, eligible to receive funds under the Morrill Acts of 1862 and 1890. The Federal Government granted land to each State and territory to encourage practical education in agriculture, homemaking, and mechanical arts.

Land-use planning. Decisionmaking process to determine present and future uses of land. The resulting plan is the key element of a comprehensive plan describing recommended location and intensity of development of public and private land uses such as residential, commercial, industrial, recreational, and agricultural.

Leaching. The process of removal of soluble materials by the passage of water through soil.

Legumes. A family of plants that includes many valuable food and forage species such as peas, beans, soybeans, peanuts, clovers, alfalfas, and sweet clovers. Legumes can convert nitrogen from the air to nitrates in the soil through a process known as nitrogen fixation. Many of these species are used as cover crops and are plowed under for soil improvement.

Lint. Cotton fiber remaining after the seeds have been ginned out.

Loan deficiency payments. A provision begun in the 1985 Farm Act to provide direct payments to producers who, although eligible to obtain price support loans for wheat, feed grains, upland cotton, rice, or oilseeds and thereby receive marketing loan gains, agree not to obtain loans.

Loan rate. The price per unit (bushel, bale, pound, or hundredweight) at which the Commodity Credit Corporation will provide loans to farmers enabling them to hold their crops for later sale.

Market Access Program (MAP). Formerly the Market Promotion Program. Participating organizations include nonprofit trade associations, State and regional trade groups, and private companies. Fund authority is capped at $90 million annually for FY 1996-2002.

Market basket of farm foods. Average quantities of U.S. farm foods purchased annually per household in a given period. Retail cost of these foods used as a basis for computing an index of retail prices for domestically produced farm foods. Excluded are fishery products, imported foods, and meals eaten away from home.

Marketing allotments. Provides each processor or producer of a particular commodity a specific limit on sales for the year, above which penalties would apply.

Marketing orders. Federal marketing orders authorize agricultural producers to promote orderly marketing by influencing such factors as supply and quality, and to pool funds for promotion and research. Marketing orders are initiated by the industry, and are approved by the Secretary of Agriculture and by a vote among producers. Once approved, a marketing order is mandatory.

Marketing spread. The difference between the retail price of a product and the farm value of the ingredients in the product. This farm-retail spread includes charges for assembling, storing, processing, transporting, and distributing the products.

Marketing year. Year beginning at harvest time during which a crop moves to market.

Metropolitan statistical area (MSA). A county or group of contiguous counties that contain at least one city of 50,000 inhabitants or more, or twin cities with a combined population of at least 50,000. In addition, contiguous counties are included in an MSA if they

are socially and economically integrated with a central city.

Migrant farmworker. A person who travels across State or county boundaries to do agricultural work of a seasonal or other temporary nature, and who is required to be absent overnight from his or her permanent place of residence. Exceptions are immediate family members of an agricultural employer or a farm labor contractor, and temporary foreign workers.

Multiple peril crop insurance (MPCI). Refers to the numerous perils (drought, excess moisture, cold and frost, wind, flood, and unavoidable damage from insects and disease) generally covered by a Federal crop insurance policy. Policies covering one peril, like hail, exist and are not federally subsidized.

National forest. A Federal reservation dedicated to protection and management of natural resources for a variety of benefits — including water, forage, wildlife habitat, wood, recreation, and minerals. National forests are administered by USDA's Forest Service, while national parks are administered by the Interior Department's National Park Service.

National grassland. Land, mainly grass and shrub cover, administered by the Forest Service as part of the National Forest System for promotion of grassland agriculture, watersheds, grazing wildlife, and recreation.

Nematode. Microscopic soil worm, which may attack root or other structures of plants and cause extensive damage.

Net farm income. A measurement of the profit or loss associated with a given year's production. It is an approximation of the net value of agricultural production, regardless of whether the commodities were sold, fed, or placed in inventory during the year. Net farm income equals the difference between gross farm income and total expenses. It includes nonmoney items such as depreciation, the consumption of farm-grown food, and the net imputed rental value of operator dwellings. Additions to inventory are treated as income.

Nitrogen. A chemical element essential to life and one of the primary plant nutrients. Animals get nitrogen from protein feeds; plants get it from soil; and some bacteria get it directly from air.

Nonfarm income. Includes all income from nonfarm sources (excluding money earned from working for other farmers) received by farm operator households.

Nonpoint source pollution. Pollutants that cannot be traced to a specific source, including stormwater runoff from urban and agricultural areas.

Nonprogram crops. Crops—such as potatoes, vegetables, fruits, and hay—that are not included in Federal price support programs.

Nonrecourse loan program. Provides operating capital to producers of wheat, feed grains, cotton, peanuts, tobacco, rice, and oilseeds. Sugar processors are also eligible for nonrecourse loans. Farmers or processors participating in government commodity programs may pledge a quantity of a commodity as collateral and obtain a loan from the CCC at a commodity-specific, per-unit loan rate. The borrower may repay the loan with interest within a specified period and regain control of the commodity, or forfeit the commodity to the CCC after the specified period as full settlement of the loan with no penalty. For those commodities eligible for marketing loan benefits, producers may repay the loan at the world price (rice and upland cotton) or posted county price (wheat, feed grains, and oilseeds).

Nutrient. A chemical element or compound that is essential for the metabolism and growth of an organism.

Off-farm income. Includes wages and salaries from working for other farmers, plus nonfarm income, for all owner operator families (whether they live on a farm or not).

Oilseed crops. Primarily soybeans, and other crops such as peanuts, cottonseed, sunflower seed, flaxseed, safflower seed, rapeseed, sesame seed, castor beans, canola, rapeseed, and mustard seeds used to produce edible and/or inedible oils, as well as high-protein animal meal.

Oilseed meal. The product obtained by grinding the cakes, chips, or flakes that remain after most of the oil is removed from oilseeds. Used as a feedstuff for livestock and poultry.

Organic farming. There is no universally accepted definition, but in general organic farming is a production system which avoids or largely excludes the use of synthetically compounded fertilizers, pesticides, growth regulators, and livestock feed additives. To the maximum extent feasible, organic farming systems rely on crop rotation, crop residues, animal manures, legumes, green manure, off-farm organic wastes, mechanical cultivation, mineral bearing rocks, and aspects of biological pest control to maintain soil productivity and tilth; to supply plant nutrients; and to control weeds, insects, and other pests.

Payment limitations. Limitations set by law on the amount of money any one person may receive in Federal farm program payments each year under the feed grain, wheat, cotton, rice, and other farm programs.

Percolation. The downward movement of water through soil under the influence of gravity.

Permanent legislation. Legislation that would be in effect in the absence of all temporary amendments (Farm Acts). The Agricultural Adjustment Act of 1938 and the Agricultural Act of 1949 serve as the basic laws authorizing the major commodity programs. Technically, each new Farm Act amends the permanent legislation for a specified period.

Plant germplasm. Living material such as seeds, rootstock, or leaf plant tissue from which new plants can grow.

Pomology. The science or study of growing fruit.

Price index. An indicator of average price change for a group of commodities that compares price for those same commodities in some other period, commonly called the base period.

Price support level. The price for a unit of a farm commodity (pound, ton) that the Government will support through price-support loans, purchases, and/or payments. Price support levels are determined by law and are set by the Secretary of Agriculture.

Price support programs. Government programs that aim to keep farm prices from falling below specific minimum levels. Price support programs for selected commodities (peanuts, tobacco, sugar, and milk) are carried out through loans or purchases. With price-support loans, producers (or processors in the case of sugar) use their production of a commodity as collateral for a loan with the Commodity Credit Corporation (CCC). Loans enable the loan taker to store the commodity during periods of low prices. The loans may be redeemed later if commodity prices rise sufficiently to make the sale of the commodity on the market profitable, or the loan taker may forfeit the commodity used as collateral for the loan to CCC in lieu of cash repayment. In the case of milk, CCC is authorized through December 31, 1999, to purchase manufactured dairy products in order to support the price of fluid milk at statutorily prescribed levels.

Production Credit Associations. Lending groups, owned by their farmer borrowers, that provide short and intermediate-term loans for up to 10 years from funds obtained from investors in money markets. These associations are an integral part of the Farm Credit System.

Production flexibility contract payments. The payments to be made to farmers for contract crops in 1996 through 2002 under the 1996 Farm Act. Payments for each crop are allocated each fiscal year based on budgetary levels and crop-specific percentages in the 1996 Farm Act.

Production flexibility contract payment quantity. The quantity of production eligible for production flexibility contract payments under the 1996 Farm Act. Payment quantity is calculated as the farm's program yield (per acre) multiplied by 85 percent of the farm's contract acreage.

Production flexibility contract payment rate. The amount paid per unit of production to each participating farmer for eligible payment production under the 1996 Farm Act.

Productive capacity. The amount that could be produced within the next season if all the resources currently available were fully employed using the best available technology. Productive capacity increases whenever the available resources increase or the production of those resources increases.

Productivity. The relationship between the quantity of inputs (land, labor, tractors, feed, etc.) employed and the quantity of outputs produced. An increase in productivity means that more outputs can be produced from the same inputs or that the same outputs are produced with fewer inputs. Both single-factor and multifactor indexes are used to measure productivity. Single-factor productivity indexes measure the output per unit of one input at the same time other inputs may be changing. Multifactor productivity indexes consider all productive resources as a whole, netting out the effects of substitution among inputs. Crop yield per acre, output per work hour, and livestock production per breeding animal are all single-factor productivity indicators. The Total Farm Output per Unit of Input Index is a multifactor measure.

Program crops. Crops for which Federal support programs are available to producers, including wheat, corn, barley, grain sorghum, oats, extra long staple and upland cotton, rice, oilseeds, tobacco, peanuts, and sugar.

Public Law 480 (P.L. 480). Common name for the Agricultural Trade Development and Assistance Act of 1954, which seeks to expand foreign markets for U.S. agricultural products, combat hunger, and encourage economic development in developing countries. Title I of P.L. 480, also called the Food for Peace Program, makes U.S. agricultural commodities available through long-term dollar credit sales at low interest rates for up to 30 years. Donations for humanitarian food needs are provided under Title II. Title III authorizes "food for development" grants.

Rangeland. Land which is predominantly grasses, grasslike plants, or shrubs suitable for grazing and browsing. Rangeland includes natural grasslands, savannahs, many wetlands, some deserts, tundra, and certain shrub communities. It also includes areas seeded to native or adapted and introduced species that are managed like native vegetation.

Renewable resources. Resources such as forests, rangeland, soil, and water that can be restored and improved.

Revenue insurance. RMA's three revenue insurance plans all provide a guaranteed level of revenue by different means. Generally, indemnities are paid when any combination of yield and price shortfalls results in revenue that is less than the revenue guarantee. Revenue is determined differently by the particular plans of insurance. All three plans provide traditional MPCI yield protection and include provisions to account for price variability.

Riparian rights. Legal water rights of a person owning land containing or bordering on a water course or other body of water in or to its banks, bed, or waters.

RNA (ribonucleic acid). A molecule similar to DNA that functions primarily to decode instructions for protein synthesis that are carried by genes.

Ruminant. Animal having a stomach with four compartments (rumen, reticulum, omasum, and abomasum). Their digestive process is more complex than that of animals having a true stomach. Ruminants include cattle, sheep, and goats, as well as deer, bison, buffalo, camels, and giraffes.

Rural. An area that has a population of fewer than 2,500 inhabitants and is outside an urban area. A rural area does not apply only to farm residences or to sparsely settled areas, since a small town is rural as long as it meets the above criteria.

Sales closing date. The final date that an application for crop insurance may be filed. This is the date for producers to make changes in their crop insurance coverage for the crop year.

Saline soil. A soil containing enough soluble salts to impair its productivity for plants.

Silage. Prepared by chopping green forage (grass, legumes, field corn, etc.) into an air-tight chamber, where it is compressed to exclude air and undergoes an acid fermentation that retards spoilage. Contains about 65 percent moisture.

Silviculture. A branch of forestry dealing with the development and care of forests.

Sodbuster. A portion of the Highly Erodible Land Conservation provision of the Food Security Act of 1985 that is designed to discourage the conversion of highly erodible land from extensive conserving uses, such as grasslands and woodlands, to intensive production of agricultural commodities. If highly erodible grasslands or woodlands are converted to intensive crop production without the application of appropriate conservation practices, producers may lose eligibility for many USDA program benefits. Also see "Conservation Compliance."

Staple. Term used to designate length of fiber in cotton, wool, or flax.

State Agricultural Experiment Station. State-operated institutions, established under the Hatch Act of 1887 and connected to land-grant universities in each State, which carry out research of local and regional importance in the areas of food, agriculture, and natural resources.

Stubble mulch. A protective cover provided by leaving plant residues of any previous crop as a mulch on the soil surface when preparing for the following crop.

Subsistence farm. A low-income farm where the emphasis is on production for use of the operator and the operator's family rather than for sale.

Supplementary imports. Farm products shipped into this country that add to the output of U.S. agriculture. Examples include cattle, meat, fruit, vegetables, and tobacco (see complementary imports).

Sustainable agriculture. An integrated system of plant and animal production practices having a site-specific application that will, over the long term, satisfy food and fiber needs, enhance environmental quality and natural resources, make the most efficient use of nonrenewable resources and on-farm resources, integrate natural biological cycles and controls, sustain the economic viability of farm operations, and enhance the quality of life.

Swampbuster. This provision was authorized by the Food Security Act of 1985; it discourages the conversion of natural wetlands to cropland use. With some exceptions, producers converting a wetland area to cropland may lose eligibility for many USDA program benefits.

Terminal market. A metropolitan market that handles agricultural commodities.

Tissue culture. The technique of growing a whole plant from a single engineered cell or piece of plant tissue.

Unit cost. The average cost to produce a single item. The total cost divided by the number of items produced.

Upland cotton. A fiber plant developed in the United States from stock native to Mexico and Central America. Includes all cotton grown in the continental United States except Sea Island and American Pima cotton. Staple length of upland cotton ranges from 3/4 inch to 1 1/4 inches.

Urban. A concept defining an area that has a population of 2,500 or more inhabitants.

Uruguay Round. The Uruguay Round of Multilateral Trade Negotiations (UR) under the auspices of the GATT; a trade agreement designed to open world agricultural markets. The UR agricultural agreement covers four areas: export subsidies, market access, internal supports, and sanitary and phytosanitary rules. The agreement is implemented over a 6-year period, 1995-2000.

Vegetative cover. Trees or perennial grasses, legumes, or shrubs with an expected lifespan of 5 years or more.

Viticulture. The science and practice of growing grapes.

Watershed. The total land area, regardless of size, above a given point on a waterway that contributes runoff water to the flow at that point. A major subdivision of a drainage basin. The United States is generally divided into 18 major drainage areas and 160 principal river drainage basins containing some 12,700 smaller watersheds.

Water table. The upper limit of the part of the soil or underlying rock material that is wholly saturated with water.

Wetlands. Land that is characterized by an abundance of moisture and that is inundated by surface or ground water often enough to support a prevalence of vegetation typically adapted for life in saturated soil conditions.

Wholesale price index. Measure of average changes in prices of commodities sold in primary U.S. markets. "Wholesale" refers to sales in large quantities by producers, not to prices received by wholesalers, jobbers, or distributors. In agriculture, it is the average price received by farmers for their farm commodities at the first point of sale when the commodity leaves the farm.

Zoonotic diseases. Diseases that, under natural conditions, are communicable from animals to humans.

4-H. International youth organization that empowers young people 5-19 years old through programs and activities that foster agricultural, science, and technology literacy; citizenship; and other lifelong living skills, such as self-esteem, career and personal development. The national 4-H staff is located in the Families, 4-H, and Nutrition unit of the Cooperative State Research, Education, and Extension Service. The 4-Hs stand for Head, Heart, Hands, and Health.

1890 Land-Grant Colleges and Universities and Tuskegee University. Historically Black land-grant colleges and universities. Through the Act of August 30, 1890, and several other authorities, these institutions may receive Federal funds for agricultural research, extension, and teaching.

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