

AGRICULTURAL OUTLOOK



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Cover: Cabbage field, Matanuska Valley, Alaska. Grant Heilman, Grant Heilman Photography.

Asia Crisis . . . Farm Income . . . Leafy Vegetables . . . Dairy Markets

U.S. Economy To Cool in 1998

GDP growth in the U.S. is expected to slow in 1998 to 2.5 percent, following 3.8-percent growth estimated for 1997. With the labor market expected to remain tight, slightly higher wages and high capacity utilization rates in 1998 will bump inflation up by a very small amount. Interest rates are expected to be stable over the course of 1998. The Asian financial crisis will curtail growth in the U.S. rural economy in 1998 because of both weaker farm exports and increased competition in the manufacturing sector.

The Asia Crisis & the Farm Economy

Although forecasts can reflect only a best guess as to how the markets will “bottom out” until the current financial crisis in Asia stabilizes, business forecasters have all lowered their expectations for global economic growth in 1998. The slowdown in Asian and world economic growth and the weakening of Asian currencies relative to the U.S. dollar will affect the U.S. rural and agricultural sectors through a reduction in international demand for U.S. exports and, therefore, slower U.S. economic growth. U.S. agricultural exports are expected to grow more slowly in fiscal 1998 and 1999, reaching a level 3-6 percent lower than would be expected without the Asia events.

U.S. Farm Income: Below Record But Strong

While not likely to equal the record set in 1996, farm income estimates for 1997 and prospects for 1998 look quite favorable. *Net farm income* is forecast to be around \$46 billion for both 1997 and 1998, above the average for 1990-95 (\$43 billion), but lower than the record \$52 billion for 1996. The lower farm income forecasts for 1997 and 1998 derive from a modest \$1.6-billion decline in crop and livestock receipts from 1996's record of \$202 billion and a modest increase in expenses. Export market uncertainties, triggered by the Asia crisis, will be important in evaluating farm income prospects for 1998.

Americans Eating More Leafy Green Vegetables

Consumption of leafy green vegetables—including lettuce, endive, escarole, cabbage, spinach, broccoli, collards, turnip greens, mustard greens, and kale—has been trending higher over the past two decades, accounting for 16 percent of all farm cash receipts for vegetables in 1996, up from 13 percent in 1986. Lettuces of all types account for the largest share of farm cash receipts for leafy green vegetables, amounting to more than half in 1996. Production of leaf and romaine varieties have jumped 40 percent from 1989 to 1996.

Per capita use of all leafy green vegetables, despite a longrun upward trend, has remained stable during the 1990's at around 50 pounds, with the overall numbers influenced strongly by trends for head lettuce—the leader in consumption of leafy greens. Exports provide a key market for several leafy greens. About 21 percent of fresh-market broccoli supplies are exported, up from 17 percent in 1990. About 14 percent of the U.S. fresh-market spinach supply is exported, 12 percent of leaf and romaine lettuce, and 6 percent of head lettuce.

U.S. Dairy Product Markets Restructuring

Technological advances and automation in the U.S. dairy industry have increased productivity and improved product quality and consistency, leading to fewer and larger farms and processing plants. Reduced transportation costs have led to integration of local markets into regional or even national markets, and rapid capital flows and ownership changes have altered the objectives of marketing and distribution firms.

The dairy sector is divided into several distinct markets, each with unique characteristics. Cooperatives have been most important in the bulk raw milk and manufactured product markets, while proprietary firms have gravitated toward fluid milk processing and frozen products, as well as yogurt and cheese.

Farmers' Use of "Green" Practices Varies Widely

Farmers increasingly face pressures to convert from traditional production systems to “green” practices that are potentially more friendly to the environment. These practices are used for a variety of purposes, including pest management, nutrient management, irrigation water management, and crop residue management, and include techniques such as pest scouting; soil testing; applying fertilizer at or after, rather than before, planting; and conservation tillage.

Farmers' use of green practices varies widely among crops and from year to year, but some positive trends can be identified. For example, surveys show that no-till, a form of conservation tillage, occurred on nearly 15 percent of land planted to crops in 1996, up from 5 percent in 1989. Farmers have also been improving irrigation water management by switching from gravity-flow irrigation to pressurized sprinkler irrigation, by scheduling irrigation according to plant needs, and by using improved gravity irrigation practices.

Agricultural Economy



Jack Harrison

U.S. Economy To Cool in 1998

GDP growth in the U.S. is expected to slow in 1998 to 2.5 percent, following 3.8-percent growth estimated for 1997. With the labor market expected to remain tight, slightly higher wages and high capacity utilization rates in 1998 will bump inflation up. We expect the GDP deflator—a measure of overall inflation in the economy—to move up 2.3 percent in 1998, from a very low 2.1 percent in 1997.

Interest rates are expected to be relatively stable in 1998. Short-term interest rates are expected to be stable in part due to the expected stability of monetary policy. Long-term interest rates, which began 1998 at near-30-year lows, are expected to remain relatively unchanged in 1998. The dollar, which before the financial crises in Asia had been expected to depreciate in 1998, is now expected to appreciate sharply relative to 1997.

Robust growth in consumer, business equipment, and inventory spending led the strong GDP growth in 1997. Substantial gains in disposable income and record-high consumer confidence pushed consumer spending in 1997 to its fastest increase in the past 7 years of economic expansion. The strong consumer spending

growth over the last 2 years stimulated inventory buildup in 1997. Business equipment spending has also increased, driven by strong profit growth, new technology, the need to economize on increasingly scarce and expensive labor, and vigorous export growth.

In 1997, more jobs were added to the economy and real compensation rose more rapidly than in any previous year of the current expansion. The shortage of qualified job seekers, however, constrained job growth in late 1997. These hiring bottlenecks likely will persist in 1998 because the economy, most analysts believe, has reached full employment.

The rural unemployment rate, which has been about the same as the urban rate for the last 4 years, was a low 5.2 percent in 1997. During 1997, employment growth in rural areas trailed urban areas—rural areas added jobs at more than a full percentage point below the rate for urban areas. Wage and salary growth, however, has been stronger in rural areas—4.3 percent over the 12 months ending September 1997, compared with 3.5 percent in urban areas over the same period. Rural earnings growth has been greater than urban over this expansion, and rural areas have seen income inequality decline slightly in the 1990's.

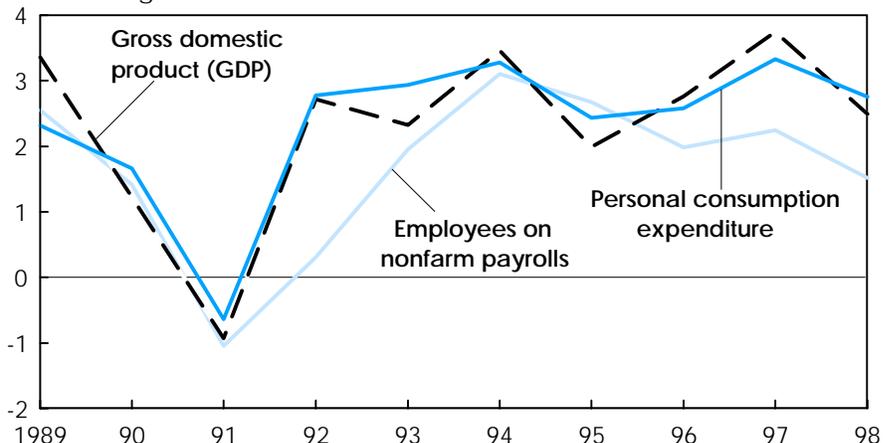
The continued shortage of qualified workers will limit job growth, slowing growth of disposable income and, ultimately, growth of consumer spending in 1998. As growth in spending on consumer goods slows with more sluggish job growth in 1998, the desired inventory buildup is expected to slow. The serious slowdown in Asia's growth and the dollar's gain relative to the depreciating Asian currencies and the currencies of other U.S. trading partners will substantially slow export growth and accelerate imports in 1998. Business, in turn, is expected to curtail growth in equipment spending. This combination of events will lead to a slowing of GDP growth for 1998 to 2.5 percent.

Asian Events Will Curb Growth In Farm & Rural Economy

Real growth in U.S. agriculture has been more export-driven in the 1990's than most U.S. industries. Growth in U.S. agricultural exports to Asia has contributed significantly to growth in U.S. agriculture. Thus, growth in U.S. agriculture will slow as a result of the Asian crisis. The economies of South Korea, Japan, and the developing Southeast Asian countries—particularly Thailand, Malaysia, the Philippines, and Indonesia—have provided expanding markets for U.S. field crops, meats, and specialty products. Cuts in

1998 To See Slower Growth in GDP, Consumer Spending, and Employment

Percent change



1997 estimate. 1998 forecast.

Source: Bureau of Economic Analysis, U.S. Dept. of Commerce; Bureau of Labor Statistics, U.S. Dept. of Labor.

Economic Research Service, USDA

their demand for U.S. agricultural products will have a strong negative effect on U.S. agricultural export sales.

U.S. exports will also grow much more slowly and imports will rise as the strong dollar increases domestic prices to Asian and other customers, at the same time world economic growth slows. In addition, the slowdown in U.S. growth attributable to the Asia crisis will soften domestic demand for animal products and put downward pressure on field crop prices. This adds to the price declines caused by a reduction in foreign demand.

The Asia downturn will also curtail growth in the U.S. rural economy in 1998, because of both weaker farm exports and the effect on the manufacturing sector. Many rural manufactured goods compete in the domestic market with exports from South Asia, and the strong dollar will make Asian manufacturing exports much cheaper relative to U.S. goods. In addition, as with farm exports, the Asian financial crisis will cut exports of U.S. manufactured products to Asia in 1998, while the impact on world growth from the Asian situation will reduce global demand growth for U.S. manufactured goods.

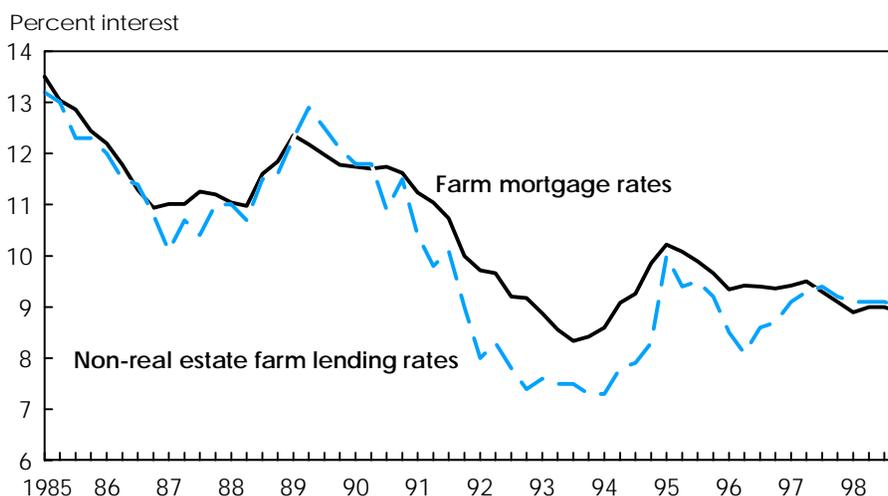
Manufacturing is a key employer in rural areas, where it provides disproportionately more jobs than in urban areas. Rural areas have been gaining manufacturing jobs during the 1990's, even in the face of declining manufacturing employment nationwide. Slowed growth in manufacturing will contribute to sluggish rural employment growth in 1998.

Low Inflation Means Slow Growth in Farm Expenses

A slight increase in inflation is expected in 1998 due to continued tight labor markets and some increases in manufacturing capacity utilization. Energy prices are expected to fall modestly in 1998, and wage increases will be small, leaving producer price inflation below 2 percent. Consumer prices are expected to rise 2.4 percent.

Inflation was lower in 1997 than in 1996 despite a booming economy. In fact, consumer prices in 1997, minus energy and food, rose at the lowest rate in 32 years.

Farm Mortgage and Non-Real Estate Farm Lending Rates To Remain Stable in 1998



Rates for commercial bank mortgages and commercial non-real estate lending only.

Economic Research Service, USDA

The dollar was strong, pressure on raw materials prices was largely absent, and in particular, energy prices fell sharply early in the year. Producer prices dropped for 7 straight months, resulting in a likely annual rise of less than 0.5 percent for 1997. Despite growing real wages, consumer prices rose only 2.4 percent, down from 1996's modest 2.9-percent rise.

The economy set the stage for the modest growth in farm expenses seen in 1997. Manufactured input prices declined, due largely to falling energy prices and some declines in raw materials prices. Interest expenses grew less than 2 percent, and the growth was primarily from increasing farm debt, not higher interest rates. Although other operating expenses, which are strongly influenced by wage costs, outpaced the general inflation rate, these reflected real wage increases seen throughout the economy.

The expected drop in energy prices in 1998, some declines in other raw materials prices, and a strong dollar will constrain manufactured input price increases. Fertilizer prices, given a modest expected decline in natural gas prices, may actually decline. Wage-related inputs such as services and contract labor will likely see small increases. As interest rates are expected to remain flat in

1998, nonfarm input expense growth should be modest. At the same time, the slower growth of the rural economy in 1998 will likely also slow growth in farm households' off-farm employment.

Farm, Rural Interest Rates Relatively Stable for 1998

Interest rates are expected to be stable over the course of 1998. On a year-over-year basis, short-term interest rates are expected to be little changed over those of 1997. Little change is expected in 1998 due to an expected stable monetary policy and continued low default risk on most debt securities and loans. Long-term interest rates will remain about steady in 1998, near their 30-year lows seen at the beginning of the year. On a year-over-year basis, long-term interest rates should remain below 1997 levels.

Any changes in farm and rural lending rates will likely be smaller than any potential increase in interest rates in the national economy. Three main factors will hold down movements in farm and rural lending rates from commercial banks.

First, overall bank lending premiums—the difference between loan rates and cost of funds—have narrowed in recent years. This downward movement in premiums

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for business lending stems from record bank profits, competition for financial services, and lower perceived business default risk, which have made business lending more attractive to commercial banks. The trend is expected to continue in 1998. In agricultural lending, the perceived risk in farm lending has been curbed by strong growth in overall farm real estate values in 1997 and by strong farm income in recent years.

Second, many banks heavily involved in agricultural and rural lending are relatively small rural banks. These smaller banks are highly dependent on consumer-type deposits that are not very sensitive to short-term movements in open market rates. Thus, most small bank deposit rates will be only slightly affected by any

potential increases in Treasury market interest rates in 1998.

Third, commercial banks, especially smaller banks in relatively isolated areas, determine their lending rates based in part on their average costs of funds. This method of pricing loans results in lower volatility for bank lending rates and bank profits. Farm operators and rural businesses have benefited from this interest rate stability, especially over the last several years.

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Upcoming Reports—USDA's Economic Research Service

The following reports will be issued electronically on dates and at times (ET) indicated.

February

- 19 *Livestock, Dairy, & Poultry*
(3 p.m.)
- 20 *Agricultural Outlook**
*Agricultural Income and Finance**
- 23 *AGRICULTURAL OUTLOOK FORUM*
*Agricultural Exports**
- 24 *AGRICULTURAL OUTLOOK FORUM*
- 27 *U.S. Agricultural Trade Update*
(3 p.m.)

*Release of summary, 3 p.m.

UPCOMING IN
AGRICULTURAL OUTLOOK:

INTEREST RATE OUTLOOK

AND

FARM CREDIT OUTLOOK

Commodity Spotlight



Leafy Greens Council

Leafy Greens: Foundation of The Vegetable Industry

Leafy green vegetables are arguably the foundation of the vegetable industry. Lettuces such as leaf and romaine are basic ingredients in vegetable-based salads. Iceberg lettuce supplies the main garnish for sandwiches and burgers. Cabbage is the basic ingredient in coleslaw, a frequent luncheon side dish and a picnic mainstay. And spinach is versatile enough to be a salad ingredient as well as a plate vegetable prepared from fresh, canned, or frozen product.

The term “leafy greens” refers to vegetables such as lettuce, cabbage, endive, escarole, spinach, broccoli, collards, turnip greens, mustard greens, and kale. Consumption of leafy green vegetables has been trending higher over the past two decades. Leafy greens accounted for about \$2.5 billion or 16 percent of all farm cash receipts for vegetables in 1996, up from 13 percent (\$1.1 billion) in 1986. California is the leading source for fresh-market leafy green vegetables, producing two-thirds of the U.S. total.

Most leafy green vegetables carry impressive nutritional credentials. Leafy greens are excellent sources of vitamins A and C, and several other nutrients. Cooking or canning does not diminish and may even enhance the vitamin A content of greens like spinach, turnip greens, and collards. For example, canned spinach delivers about 30 percent more of the recommended daily dietary allowance (RDA) of vitamin A than an equal weight of fresh spinach. One cup (214 grams, drained weight) of canned spinach contains more than three times the adult male RDA of vitamin A and half the vitamin C. The fact that cooking still leaves a nutritionally potent product is important for leafy greens because many greens are sold either in canned or frozen form or require cooking of the raw product for optimal palatability.

Lettuce: Leader of the Pack

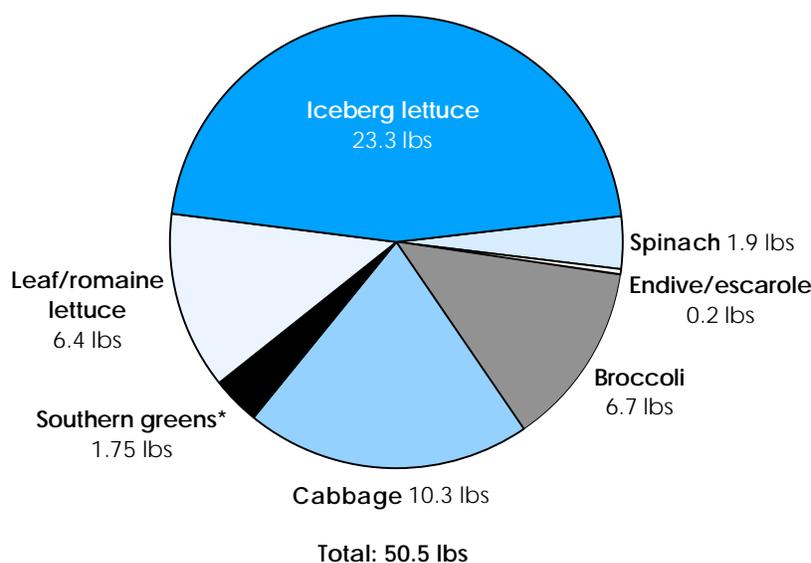
Lettuces of all types account for the largest share of farm cash receipts for leafy green vegetables, amounting to more than half in 1996. The U.S. is the world’s second leading producer of lettuce, behind China.

Total U.S. lettuce production in the 1990’s is up about 12 percent from the average of the 1980’s. During the past 5 years, total U.S. lettuce production has remained constant, but this stability masks dynamic changes within the industry—demand for iceberg or head lettuce has declined as consumption of other lettuces has surged.

Over 1992-96, leaf and romaine production has jumped more than 40 percent, offsetting an 11-percent reduction in iceberg lettuce from its 1989 production peak of 7.5 billion pounds. Demand for romaine has been particularly strong in the 1990’s, with production jumping 74 percent since 1992 in response. The popularity in both the foodservice and retail markets of Caesar salad (which features romaine) is undoubtedly a major factor behind this surge.

However, some of the shift in lettuce production and consumption patterns is likely due to increased nutritional awareness among consumers, the success of prepackaged salads, and a general desire for diversity in foods. Lettuces like leaf and romaine are higher in vitamins, minerals, and fiber than iceberg, and fresh-cut salads offer consumers variety while reducing preparation time. Nevertheless,

Iceberg Lettuce Leads in Per Capita Use of Leafy Green Vegetables



1996 data. Fresh-weight equivalent.
 *Includes kale, and collard, turnip, and mustard greens.
 Economic Research Service, USDA

Commodity Spotlight

iceberg lettuce remains the top leafy green vegetable in terms of both production and per capita use.

Per capita use of all leafy green vegetables, despite a longrun upward trend, has remained fairly stable during the 1990's at around 50 pounds. Influenced strongly by iceberg lettuce trends, total per capita use of leafy greens peaked at nearly 52 pounds in 1989, a year of very strong vegetable consumption in general, reflecting high household disposable incomes and strong restaurant food sales.

Americans consumed 6.2 billion pounds of *iceberg lettuce* in 1996. At 23.3 pounds per capita, iceberg lettuce is second only to potatoes as the largest fresh-market vegetable consumed in the U.S. However, per capita use of iceberg has declined 5.5 pounds since the 1989 peak, returning to the level of the mid-1980's and early 1970's.

While iceberg lettuce's star may have dimmed slightly over the last few years, the rising stars have been *leaf and romaine lettuce*. Per capita use of leaf and romaine is up to a record-high 6.4 pounds, and the rise is expected to continue. Use has doubled since the last half of the 1980's. Among the likely factors driving

consumption gains in these lettuces are the popularity of Caesar salads, the introduction of salad mixes such as mesclun, increased nutritional awareness among consumers, and a general desire for new tastes and foods.

Broccoli use surged in the late 1980's and then cooled off in the early 1990's, reaching a low point in 1993. However, broccoli use has since picked up and fresh-market use is now sitting at an all-time high of 4.1 pounds per person. Broccoli use in frozen form has also reached a record high of 2.6 pounds (fresh equivalent) per person. The continued strong association of broccoli with good health plus the introduction of new products like broccoli coleslaw and various time-saving pre-cut items have undoubtedly played roles in the resurgence of demand.

Per capita use of *fresh-market cabbage*, after bottoming out in 1980, embarked on a slow, long-term upward trend. Per capita use during the 1990's averaged 9.1 pounds, 5 percent above the average of the 1980's. Per capita use in 1996 was up from the previous year at 9.1 pounds, but still far below the record 27 pounds reached in the early 1920's. Increased use during the 1990's could be due in part to the popularity of various fresh-cut

products containing cabbage, the continued popularity of products like coleslaw, and the increasing nutritional awareness of consumers.

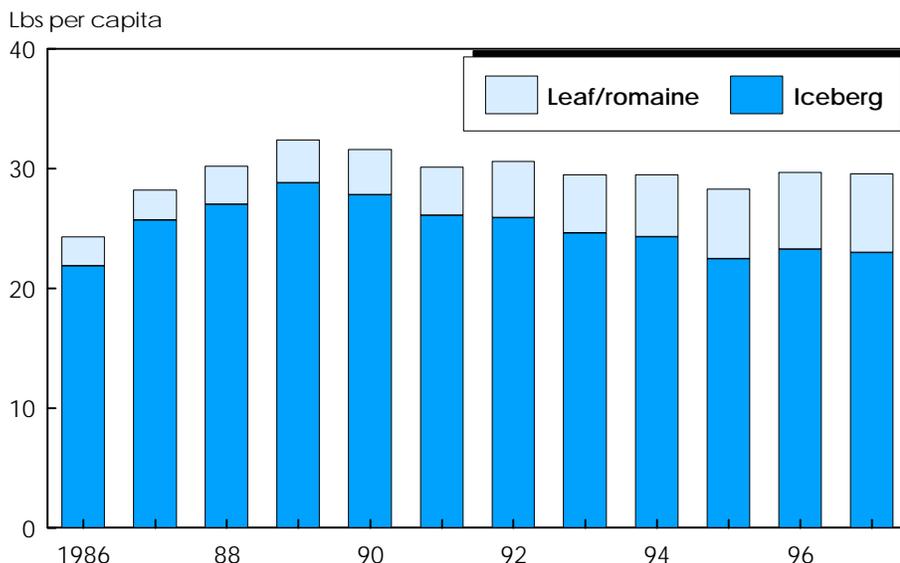
Americans used about 171 million pounds of fresh *spinach* in 1996. Per capita use peaked in the early 1990's at 0.8 pound but slipped to 0.6 pound in 1996. The popularity of well-stocked salad bars and of spinach salad in general was likely responsible for much of the growth in use during the early 1990's. However, consumers are fickle, and food fads come and go. While fresh spinach use is still double the level of the 1970's, it seems to have slowed a bit during the past 3 years and is now at the same level as in the late 1980's.

Per capita use of *endive and escarole* had been on a steady longrun decline since the early 1970's. It appears that the decline has halted during the past few years, and use has stabilized at 0.2 pound per person. Although most consumers have heard of endive and escarole, these salad ingredients still seem to suffer from their relative unfamiliarity.

In the 1990's, grower prices for the major fresh-market leafy greens have averaged about 26 percent of the retail prices paid by consumers. The other 74 percent of the retail price is the marketing margin—expenses associated with packaging, wholesaling, distributing, and retailing of the vegetables. Because the total retail price is dominated by several relatively stable components such as store labor, electricity, and rent, there exists a perception that changes in retail prices do not adequately reflect changes in grower prices. Retail prices do eventually follow changes in grower prices, but the retail changes tend to be less noticeable because of the small share of the total retail price earned by growers.

The 26-percent grower share of retail prices for leafy greens is about average for major fresh vegetables. For fresh tomatoes, for example, the grower share is 28 percent, for fresh potatoes 20 percent, and for onions 32 percent.

Consumption of Leaf and Romaine Lettuce Is Rising



The Varieties of Greens

Leafy green vegetables include a wide range of commodities. Most greens are high in vitamins A and C, and many also contain minerals such as calcium and iron. Many varieties need no introduction. Others, although familiar in one region of the country, may be virtually unknown in another. Collard greens, for example, are popular in the South but are not marketed widely in the Northeast.

Eliminating the veil of mystery surrounding some leafy greens and improving their visibility is a major mission of the National Leafy Greens Council. Founded in 1974, this industry association provides market, nutritional, and educational information to both growers and consumers.

Following is a descriptive sampling of specialty leafy greens:

Arugula (also called rocket salad): Tender with a sharp mustard flavor; popular as a salad green in Europe. Considered an aphrodisiac by ancient Romans. In India, the seeds are crushed for oil.

Belgian endive (endive or witloof): Force-grown under cover; white pod-shaped head with yellow-tipped leaves; mild, delicate flavor; used in salads but can also be steamed, baked, or sautéed; popular in Europe.

Bok choy (Chinese chard): An oriental cabbage; resembles celery, with long thick white stocks topped with shiny dark green leaves; mild flavor similar to cabbage; good steamed and in stir-fry and soups.

Collard greens: A traditional southern green; wide, flat, loaf-shaped dark green leaves with a taste similar to cabbage; often slow-boiled with salt pork, fried with bacon or salt pork, or simmered in seasoned broth. In South Carolina, it is considered good luck to eat collards on New Year's Day.

Escarole (Batavian endive): Crisp green heads with large loose bunches of green ragged-edged leaves; used mostly

raw in salads and salad mixes; can also be boiled or steamed.

Kale: Another traditional southern leafy green; dark green curly leaves used in salads (young leaves are sweeter), steamed or sautéed, or added to soups and cheese-based pies; used as garnish on plates and salad bars.

Mustard greens: Oval-shaped leaves with scalloped edges and a sharp, radish-like flavor; young leaves add zest to salads while mature leaves add flavor to soups, stews, and sautés; slow cooking mellows the flavor.

Radicchio (red chicory): Red broadleaf heading form of chicory; distinctive bittersweet flavor when raw; favored by Europeans in salads; can also be grilled, roasted, or used as colorful garnish.

Rapini (also called broccoli raab): Slightly bitter green; stalks topped with dark green, chard-like leaves; used in Chinese recipes and Italian pasta dishes; cooks like broccoli.

Swiss chard: Has oval-shaped, glossy, crisp, dark green leaves with white center ribs, on fleshy green or red stalks (for red chard); mild taste similar to beets, leaves used in salads; both leaves and stalks can be steamed or sautéed.

Turnip greens: The tops to the root crop; slightly fuzzy green leaves known for their sharp flavor; traditionally prepared in broths flavored with ham or salt pork.

Watercress: Small green heart-shaped leaves clustered on long thin stalks; peppery, spicy flavor; used most often as a garnish for salads and other recipes.

Dandelion greens: Commercially grown varieties popular in parts of the South, high in Vitamin A; generally less bitter and lighter green than wild plants; can be cooked like other greens or used in salads.

Acreage & Sales Up for Traditional Greens

Nutritional awareness is likely behind the recent robust gain in acreage planted to traditional southern greens like kale, collard greens, turnip greens, and mustard greens. These dark green vegetables are especially rich in nutrients such as beta carotene, vitamins A and C, and a range of minerals. While USDA does not collect production and value statistics for traditional southern greens, the census of agriculture reports that 47,000 acres of these four leafy greens were harvested in 1992—up 14 percent from the previous census in 1987. Assuming no increase in acreage since 1992, ERS estimates suggest the combined per capita use of these four greens is likely close to 2 pounds today.

Georgia plants about a fourth of U.S. acreage of these specialty leafy greens, accounting for 27 percent of collard green area, 19 percent of kale, 20 percent of turnip greens, and 18 percent of mustard greens. Substantial acreage is also found in California, Texas, Tennessee, and South Carolina.

Information on market volume for these crops is limited to data on *processed* products—frozen vegetable production, and canned and frozen supermarket volume. Data from the American Frozen Food Institute indicate that frozen kale production has declined since the early 1980's. However, acreage of kale has more than doubled since 1982. Most of the additional kale has likely moved into the fresh market, where its popularity has

risen as a salad green and as a garnish for plates and salad bars.

Supermarket sales of these four greens have increased during the 1990's, according to information from Nielsen Marketing Research. The data indicate that supermarket volume of the processed forms of these four greens rose 30 percent between 1989 and 1996. For canned products, retail sales volume was up 36 percent, led by mixed greens (up 164 percent) and collard greens (up 109 percent). For frozen greens, the sales volume rose 17 percent, led by collard greens (up 29 percent) and kale (22 percent). In 1996, supermarket sales of these four frozen leafy greens totaled \$14 million, while canned sales were valued at \$23 million.

Commodity Spotlight

The U.S. Is a Net Exporter

The U.S. has remained a net exporter of leafy green vegetables. Exports of the major fresh-market leafy greens (lettuce, cabbage, broccoli, and spinach) were valued at \$257 million in 1996, while imports totaled just \$36 million. Fresh-market broccoli was the highest valued export at \$85 million, followed closely by iceberg lettuce at \$82 million and other lettuces at \$58 million.

Exports provide a key market for several leafy greens. About 21 percent of fresh-market broccoli supplies are now exported—up from 17 percent in 1990. Since 1990, the volume of fresh-market broccoli exports has grown 66 percent to 279 million pounds. As with most U.S. fresh vegetable exports, Canada is the leading foreign market, taking 58 percent of the volume. Japan follows with 36 percent.

Exports are also important to spinach and lettuce growers. About 14 percent of the U.S. fresh-market spinach supply is exported, with virtually all going to Canada. Exports also take 12 percent of the supplies of leaf and romaine lettuce, 6 percent of head lettuce, and 4 percent of

fresh cabbage. Canada receives about 80 percent of all U.S. lettuce exports, while Hong Kong and Mexico each account for 7 percent. Canada is also the top export market for cabbage, but substantial volumes also move to places like Hong Kong and Russia.

Unlike with other major vegetables like tomatoes, bell peppers, and squash, imports do not play a significant role in most fresh leafy green markets. While imports of fresh tomatoes, for example, account for 30 percent of use, leafy green imports account for less than 2 percent of domestic use.

Leafy greens are cool-season crops, which grow best at moderate temperatures and can withstand an occasional light frost. Kale, in fact, becomes sweeter following a light frost. Thus, it is not necessary to import large volumes of leafy vegetables to supplement winter supplies, since most can be grown in sufficient volume year-round in the U.S.

Fresh cabbage and lettuce are the highest valued imports at \$8 million each, followed by broccoli at \$7 million. Leafy green imports come primarily from

Mexico and Canada. Iceberg lettuce would qualify for a “made-in-America” award, since only half a percent of domestic consumption comes from import sources.

Backed by the urgings of the Federal Government, industry groups, nutritionists, and the medical community, demand for all vegetables is expected to remain strong into the next century. Since vegetables like spinach, collards, kale, and broccoli are among the most nutritious foods grown in the U.S., leafy greens will likely continue to play an important role as Americans “strive for five” and move closer to consuming five servings or more a day of fruits and vegetables.

Many growers, especially former tobacco growers, are looking for profitable alternative crops. If the industry can spur demand in other regions of the country for the traditional leafy greens like collards and kale, more acreage of these crops could be planted. Future growth depends principally on industry’s effectiveness in getting the word out to consumers that leafy greens are both tasty and nutritious.
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World Agriculture & Trade



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Events in Asia Lower Prospects For U.S. Farm & Rural Economy

A 15-percent depreciation of Thailand's baht on July 2, 1997, has cascaded into a series of declines in currencies and stock prices in Asia. The fall of the Thai baht followed a policy decision to let the country's currency float, as the Thai central bank had nearly depleted its financial resources to hold up the currency's value. The foreign exchange reserve drain was also caused by international investors pulling out their short-term loans, because of concerns about excessive lending to some industries and in real estate.

The devaluations spread to other countries in Southeast Asia whose banking sectors, like Thailand's, have systemic problems, and whose economies also relied heavily on short-term foreign loans. The currency dives spotlighted weak regulation of financial and other enterprises in Malaysia, Indonesia, South Korea, and the Philippines, as well as Thailand. Currencies of Japan and Taiwan have lost value as well, but to a lesser extent than in Southeast Asia and Korea.

As investors pulled their money out of the problem countries in Asia and from other potentially shaky emerging markets, they turned to U.S. government bonds for safe investments. So the value of the dollar rose against the currencies of other major U.S. customers and competitors, including Australia and Canada. The contagion has been reflected in some declines in stock markets around the globe, as investors anticipated lower profits for some multinational corporations.

The current financial crisis in Asia inevitably raises questions about its impact on the U.S. economy in general, and on the farm and rural economy in particular. Economic forecasters have moved from an assumption of "minimal effect" to concern that the crisis might dampen the economic performance for some U.S. businesses beginning in the final quarter of 1997. Business forecasters have all lowered their expectations for global economic growth in 1998.

But until the situation stabilizes, economic forecasts can only reflect a best guess as to how the markets will "bottom out." While currencies in Asia continue to lose value, while the potential remains high for banking crises to spread to other emerging economies, and while the outlook for economic growth in Japan continues to sour, forecasters will not settle on a consensus regarding the severity of the situation.

The Asian countries most directly affected by the crisis—Thailand, Indonesia, Malaysia, the Philippines, and South Korea—accounted for about 12 percent of U.S. agricultural exports in 1997. Taiwan and Japan, where the problems are somewhat different, accounted for nearly 25 percent of U.S. agricultural exports in 1997. Steep currency devaluations in Southeast Asia and South Korea will result in a sharp cut in their demand for imports, and in profits of firms operating in the region. The region's welfare will suffer from its financial downturn, experiencing higher import prices, losses in stock markets, weak domestic demand, and credit constraints.

Most international analysts agree that these problems will persist until banking systems are reformed, and until other

commercial operations that are effectively bankrupt are allowed to fail. In Thailand, as in the rest of Southeast Asia, South Korea and to a lesser extent Japan, excessive lending had led to overbuilding in real estate and many industrial sectors. With the devaluations, higher priced imports are feeding inflation, while domestic demand plummets and loans denominated in foreign currencies become harder to repay. Even with the required banking and institutional reforms complete, the affected countries will have to sharply boost exports to restore economic growth.

The speed with which governments are able to implement the needed reforms will vary, and the reforms will take some time to return the economies to their previous growth rates. In some countries, such as Thailand, many analysts believe the IMF will speed the reforms, while in other countries, such as Japan, the needed reforms are not yet on the horizon. The pace of institutional reform will determine the duration of the economic turmoil.

Current thinking has some Southeast Asian countries and Korea resuming trend growth within 3 years; recovery for some others in the region likely will take longer. In contrast, Mexico's post-devaluation rebound took just 1 year from the 1994-95 peso crisis. But there is a key difference between the Mexican and Asian situations: there is no large market to absorb an increase in Asian exports, as the U.S. did for Mexico.

Since exports account for over 45 percent of Southeast Asia's gross domestic product (GDP), the region's recovery requires a dramatic increase in exports. However, over 40 percent of developing Asia's exports have been intraregional, as have much of its transborder investments. As demand throughout the region plunges, exports will have to expand rapidly outside the region, and investment funds will also have to come from outside. Japan's ongoing financial crisis and lackluster economic growth rule it out as a prime market for Asia's exports. Instead, the developed economies—primarily the U.S. and the European Union—will face more and cheaper Asian imports. And at the same time that the steep decline in Asia's growth rates means it is no longer the

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most important U.S. export market outside the North American Free Trade Area, the region's currency depreciations raise competitive pressures on U.S. exports in other markets as well.

U.S. Economic Growth To Reflect Asia Downturn

Analysts agree that the reverberations of the economic crisis in Asia on the U.S. economy will be mixed. With a stronger U.S. dollar and lower incomes in Asian countries, the effect is for U.S. export growth to slow markedly and imports to rise. Imports to the U.S. become cheaper—a plus for consumers and for industries that import their inputs. And as more capital is diverted into investments in the U.S., interest rates decline—a plus for businesses and consumers wishing to borrow. But the trade balance effect will dominate: the U.S. trade deficit will rise as total exports grow much more slowly and imports rise, pulling down U.S. economic growth, albeit by a modest amount, as demand for U.S. products slows.

U.S. merchandise exports to Asia account for about 30 percent of total U.S. exports and 3.4 percent of GDP. A 10-percent decline in total U.S. exports to Asia would translate into a drop in U.S. GDP growth of about half a percent.

Any impact of the Asian currency devaluations is smaller on U.S. agricultural exports than on some other sectors—forestry and fishing, textiles and apparel, and durable manufactures, for example. Foreign demand for most U.S. agricultural products is less sensitive to drops in foreign incomes and increases in domestic prices than is foreign demand for products from other sectors. On the import side, the U.S. will buy more products than it would have otherwise.

Because manufactured goods will account for much of the slowdown in U.S. export growth and the increase in imports, any resulting declines in income and employment growth will affect the rural economy more than urban areas. Manufacturing accounts for a larger share of the rural than the urban economy, where services have become increasingly important. Further, raw materials prices will be under downward pressure, curbing growth in mining, another sector important for the rural economy. As a result, the rural economy will see slower job growth compared with the rest of the Nation in 1998. This will also dampen employment prospects for many farm families who increasingly rely on off-farm income.

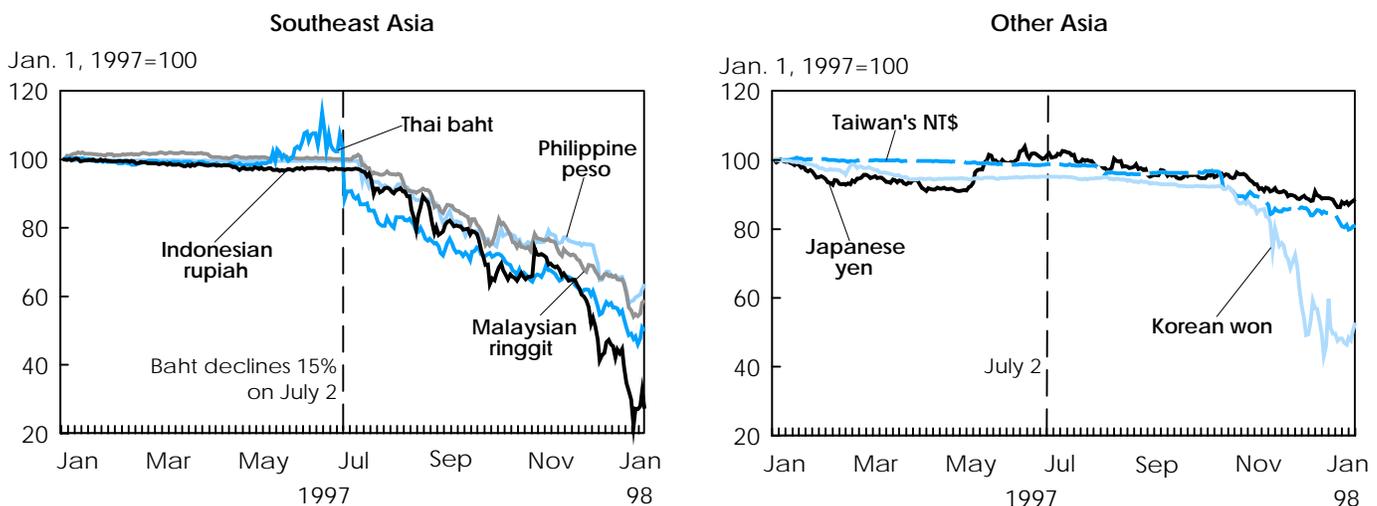
Downward Pressure on U.S. Ag Exports & Income

The slowdown in world economic growth due to events in Asia will affect the U.S. agricultural sector through two channels. One is the resulting slowdown in U.S. economic growth; the other is the reduction in international demand for U.S. agricultural exports.

Three components of the Asian financial crisis will influence the demand for U.S. agricultural exports. First is the significant loss in the value of Asian currencies relative to the U.S. dollar, and also the strengthening of the U.S. dollar relative to the currencies of major customers and competitors in the region, such as Australia and Canada. Second is the response of producers and of consumers globally for the next several years to the new set of exchange rates and changed pattern of world growth. Third is the decline in economic growth in the region and the resulting slowdown in the region's consumer spending.

In world markets, most agricultural commodities are priced and traded in U.S. dollars. A loss in a currency's value relative to the U.S. dollar has the effect of raising the price of imported food and agricultural products. For example, the

Currency Depreciation Spread From Thailand to Other Asian Countries



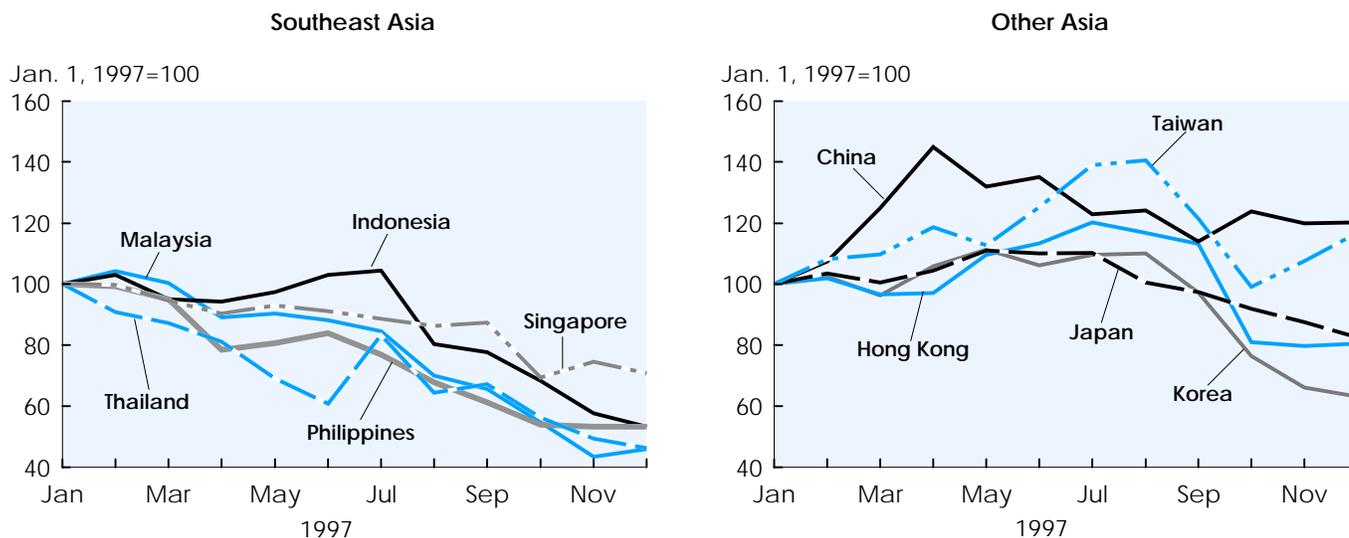
Nominal currency movements against U.S. dollar, January 1, 1997, to January 15, 1998.

Source: Pacific Exchange Rate Service.

Economic Research Service, USDA

World Agriculture & Trade

Stock Prices Have Declined Most in Southeast Asia and South Korea



Economic Research Service, USDA

price of meat products on the international market (denominated in U.S. dollars) has weakened somewhat over the past 6 months. However, the depreciation in the Indonesian currency relative to the dollar means that the domestic price of imported U.S. beef to Indonesian consumers increased by roughly 200 percent. The much higher price to Indonesian consumers will result in a fall in demand for the imported product.

Asian consumers are thought to be more sensitive to price changes for higher-valued products such as meats, horticultural products, and processed food products than for staples such as wheat products and rice. That is, a significant price increase for the higher-valued imported products would spur Asian consumers to halt consumption of the product, or to look for lower cost alternatives, such as domestically produced chicken. The currency/price effect is expected to have a more significant effect on the higher-valued U.S. agricultural exports.

There is a secondary longer term effect associated with the appreciation of the U.S. dollar. With some lag in timing, the higher price in local currency terms stimulates increased production in the importing country. A stronger effect likely will come from competitor countries, like

Australia, whose dollar is also depreciating against the U.S. dollar. For example, Australia might become more competitive in the wheat and barley markets and in the beef and cotton markets. Thailand is likely to offer increased competition in the Asian market for poultry parts, as it now does in sugar.

Separating the Asia fallout from other events occurring in world agricultural commodity markets is difficult. This fiscal year, large coarse grain crops in China, Eastern Europe, and Ukraine are displacing U.S. exports. And Canada and Australia's large wheat crops, as well as their more competitive currencies, are exerting large impacts on the wheat trade.

Empirically based theoretical models can control for some of these other factors, to arrive at a picture "with other things being equal." With such a tool, tempered by analysts' judgment, USDA's Economic Research Service (ERS) found, for example, that U.S. exports of red meat and poultry are likely to drop 5-6 percent in fiscal 1998 and 1999, with more impact on red meats as Australia's beef gains market share. These estimates are relative to what U.S. exports would have been had the Asian economies maintained their fast-paced growth.

U.S. exports of horticultural products will be down about 4 percent. The decline in grain exports is likely to be about 2 percent in fiscal 1998, as consumer demand for these commodities is less sensitive to changes in price or incomes. However, the effect on grains and other bulk commodities likely will be greater than 2 percent in future years, when producers and consumers globally have time to adjust to the new price and economic growth patterns that result from the Asia situation.

Overall, the Asia situation likely means that U.S. agricultural exports will be down about 3-6 percent in fiscal 1998 and 1999 from what the level would have been without the Asia crisis. All these estimates incorporate ERS's "best guess" as to when the Asian economies will turn around, based on events through late December.

Lower GDP growth in Asia implies lower global demand for U.S. products and services. So U.S. economic growth, disposable income, and consumer expenditures will be less than otherwise expected. As a result, U.S. business demand for labor will soften, and wages will rise more slowly than expected earlier. Among agricultural products at the domestic retail level, this downward pressure on U.S.

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incomes primarily affects livestock and poultry products. Consumer demand for these products will be lower in 1998 than had been expected.

Slower-paced retail demand for meat products leads to lower retail prices, which in turn lead to lower farm prices. Farm prices for livestock and poultry will be lower than otherwise as a result. But

international factors will reduce the price of feed, so the profit picture is not going to change much for livestock producers. As a result, livestock and poultry producers will leave their output close to what it would have been without the events in Asia.

Slower growth in demand for U.S. agricultural products in general leads to downward pressure on U.S. net farm

income. USDA forecasts that net cash income in 1998 will be about the same as in 1997, at \$54.5 billion, down 2-3 percent, adjusted for inflation. The "Asian financial flu" is among the factors affecting farm income prospects this year.

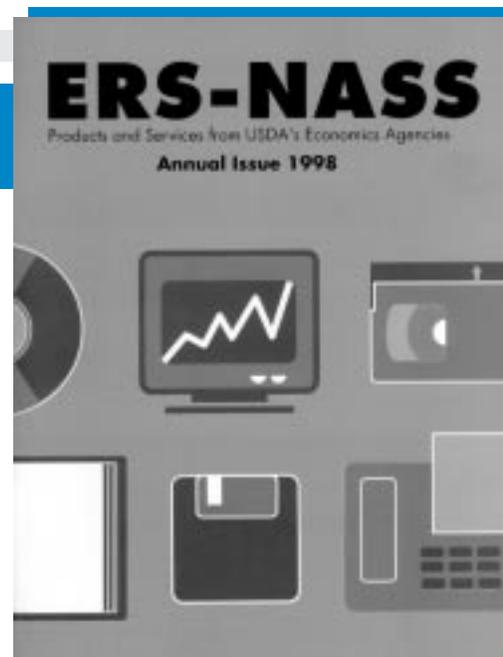
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Farm Finance



Jack Harrison

U.S. Farm Income: Down From Record But Strong

While not likely to equal the record set in 1996, farm income estimates for 1997 and prospects for 1998 look quite favorable, despite an expected small decline in real terms. The farm income record set in 1996 was the result of good, though not record, production of major field crops and above-average prices, which remained strong even after harvest. This set of circumstances is unlikely to repeat itself in 1997 and 1998, even though cash receipts will remain relatively high.

The lower farm income forecasts for 1997 and 1998 derive from the small declines in expected receipts from 1996 and a modest increase in expenses. Expectations for 1998 can change, of course, as weather patterns, output, and market and export conditions unfold over the year. Uncertainty regarding the export market, triggered by the unstable economic situation in Asia, will be particularly important in evaluating farm income prospects for 1998.

Net value added, the economic returns to all providers of resources to production agriculture—farm employees, landlords, lenders, and the farm operator—is expected to be around \$89 billion in both 1997 and 1998. Net value added is a measure of the farm sector's contribution to the national economy. Compared with the average for the first half of the 1990's (\$79 billion), production agriculture's addition to the national economy in 1997 and 1998 is projected to be relatively strong, though less than the \$95 billion achieved in 1996.

Net cash income, the return to farm operators from sales and other cash income minus out-of-pocket expenses, is expected to be about \$54.5 billion in 1997 and 1998. Although slightly better than the average for 1990-95 (\$53 billion), net cash income will be less than the nearly \$60-billion record achieved in 1996. Net cash income, historically less variable than other farm sector income measures, is the best indicator to gauge the funds available from farming for family living expenses and retirement of debt.

When changes in farm inventories and noncash income and expenses are included, *net farm income* is forecast to be around \$46 billion for both 1997 and

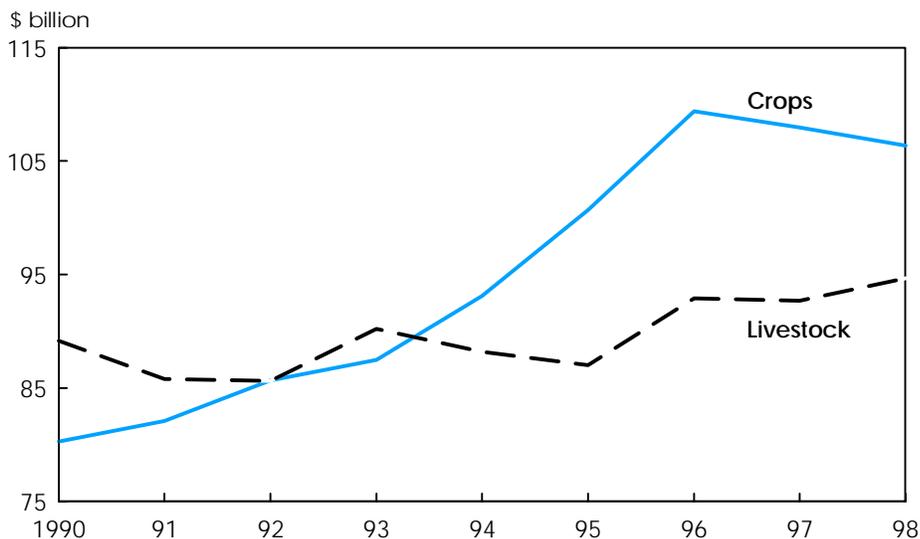
1998. This figure is also above the average for the first half of the 1990's (\$43 billion), but lower than the record \$52 billion for 1996.

Cash Receipts Expected Down Modestly

The 1997 estimate for crop and livestock receipts, based on production and price observations during the calendar year, is for a modest \$1.6-billion decline from 1996's record of \$202 billion. Farm marketings for 1998, given present crop and livestock production and price expectations, are projected to be about \$201 billion. Lower expected cash receipts for 1997 and 1998 largely reflect the expectation of smaller crop returns. In contrast, livestock receipts are expected to increase for 1998. The upward direction of livestock receipts is a reversal of the downward trend from 1993 to 1995.

Corn receipts in 1997 are expected to fall by around \$3 billion from 1996's \$21.6 billion—average 1997 monthly corn prices were well below 1996 levels. Smaller exports have also contributed to the lower corn receipts in 1997. The value of exports to Asia, accounting for almost two-thirds of the corn exports in 1996, ran about 33 percent lower through the third

Livestock Receipts Rising Again, As Crop Receipts Decline



1997 and 1998 forecast.

Economic Research Service, USDA

Farm Finance

quarter of 1997. A slightly larger 1998 corn crop, and prices similar to 1997, would yield corn receipts close to 1997's estimate of \$18.4 billion. A smaller 1998 harvest might boost prices later in the year, but a considerable share of 1998 corn receipts will already have been derived from corn produced in 1997 and sold in the first half of calendar 1998.

Wheat receipts fell about \$1 billion in 1997 from 1996's almost \$10 billion. Production of wheat in 1997 was the highest since 1990, and as a consequence, prices were pressured downward by abundant supplies. Exports could not absorb the additional 1997 production, as overseas sales were down by 25 percent in quantity and 40 percent in value through the first three quarters of 1997, compared with the same period in 1996. Despite some improvement indicated in the fourth quarter, total 1997 wheat exports will fall short of the \$6.2 billion achieved in 1996. With an average or better crop and increased stocks from 1997's large harvest, wheat prices and receipts may be expected to be lower in 1998.

Increased *soybean receipts* prevented total crop receipt forecasts from declining further in 1997 and are expected to add stability in 1998. Soybeans are projected to earn close to \$2 billion more in 1997 than the record \$16.2 billion in sales obtained in 1996. The 1997 increase follows the upward trend of soybean receipts throughout the 1990's and reflects the largest acreage ever planted to soybeans—70 million.

Yet even with the larger crop in 1997, prices remained fairly strong after the harvest. Undoubtedly, a vigorous export market contributed to the increase in soybean receipts for 1997, projected to be the third best export year on record. A return to average output and slower international trade in 1998 could lead to a modest drop in soybean receipts. Weather and acreage planted in the U.S., Argentina, and Brazil, coupled with changing demand in export markets, are key factors that could affect soybean markets in 1998.

Livestock receipts in 1997 should be about equal to the \$93 billion attained in 1996 and be even modestly higher in 1998, due mainly to higher beef cattle

prices. Even so, projected cattle and calf receipts will not recover to 1993 levels. Hog production is expected to be at least as high in 1997 as in 1996, and still greater in 1998. Even with lower expected prices, hog receipts in 1997 and 1998 are likely to remain roughly \$12 billion, the level achieved in 1996. Smaller anticipated pork exports to Asian markets are a factor in lower projected pork prices.

Federal Payments & Exports Decline, Expenses Rise

Already a relatively small portion of cash income (3.3 percent in 1996), direct government payments are expected to begin declining in 1998. In 1997, payments represented a mix of funds from former commodity programs and disbursements based on production flexibility contracts as provided for in the 1996 Farm Act. Payments received in 1998 will be governed wholly by the new legislation, and total government payments will begin to follow the declining levels allocated for production flexibility contract payments through the year 2002.

Throughout the 1990's, the earnings of U.S. farmers have been sustained and augmented by growth in exports. In late 1997, the international economic forces underlying these high levels of export sales deteriorated, with the likely consequence that the growth prospects for U.S. exports in 1998 have been dampened. Recent devaluations of Asian currencies translate into declining effective demand from Asia for exports from countries supplying agricultural products—the U.S., Australia, Brazil, and Canada, among others. The slackening demand will increase competition among exporting countries for remaining markets, putting downward pressure on export prices.

In the 1980's, U.S. agricultural products became more competitive in import markets around the world. The developing Southeast Asian economies, South Korea, and Japan have been growth markets for U.S. field crops, meats, and specialty products. U.S. exports will grow more slowly in 1998 as the domestic price to Asian customers rises due to a strong dollar and slowing income growth in Asian countries. Moreover, the near-term Asian growth slowdown has spilled over to non-

Asian countries, slowing world growth and further decreasing demand for U.S. farm exports.

Total farm production expenses are estimated to have increased 2.7 percent (\$4.8 billion) in 1997, the smallest rise since total expenses decreased slightly in 1992. From 1993 through 1996, total production expenses rose \$6.7-\$7.6 billion (4-5 percent) each year. During 1994-96, the increased outlays occurred despite drops in feeder livestock and poultry purchases by producers of about \$1 billion each year. In 1997, the largest proportion of the rise in total production costs is due to an increase in livestock and poultry purchases.

In 1998, in response to slightly lower planted acreage and a fall in the number of cattle on feed, total outlays are forecast down around \$600 million, an amount equal to around 0.3 percent. The relatively small increase in forecast prices paid for production items, interest, taxes, and wages—less than 1 percent—will be an important factor in 1998.

Farm Assets, Debt, & Equity To Continue Rising

The value of U.S. farm business assets will significantly exceed the \$1-trillion mark in 1997 and is expected to continue growing in 1998. The value of farm real estate, the largest share of the sector's assets, increased 5.9 percent during 1997 and is expected to grow by 5 percent in 1998. Farm business debt is expected to grow a little over 3 percent in both 1997 and 1998. The combination of strong growth in the value of farm assets and a modest expansion in farm debt indicates a rising net worth (equity) for the farm sector in 1997 and 1998.

Increased variability in net returns to farm assets under the new, more market-oriented 1996 Farm Act could affect future *farmland values*. With decoupling, more of the price and financial risk is transferred from the Federal Government to the individual producer. Farmland prices will also continue to adjust to account for expected lower government payments. Both the additional risk assumed by producers and the reduction in revenue from government payments will be factored into what purchasers are

Off-Farm Income Aids Farm Households

Most farm households rely heavily on off-farm income because their farms are too small to support a family. Since the official definition of a farm requires an operation to have only \$1,000 worth of agricultural sales to qualify, many rural households are classified as farm households, despite very low or negative net farm earnings. Limited sales typically result from only modest resources being devoted to farming or from a low return on farm assets.

Data from the 1996 Agricultural Resource Management Study (ARMS) indicate that, on average, farm operator households received only 16 percent of their income from farming. Their household income from both farm and off-farm sources, however, averaged \$50,361, similar to the \$47,123 average for all U.S. households. The ARMS replaced the Farm Costs and Returns Survey (FCRS), which also reported a similar low percentage of earnings from farming between 1988 and 1995. Data from an earlier USDA farm household income series indicate off-farm income has been at least 50 percent of income for farm households, as a group, since the early 1960's.

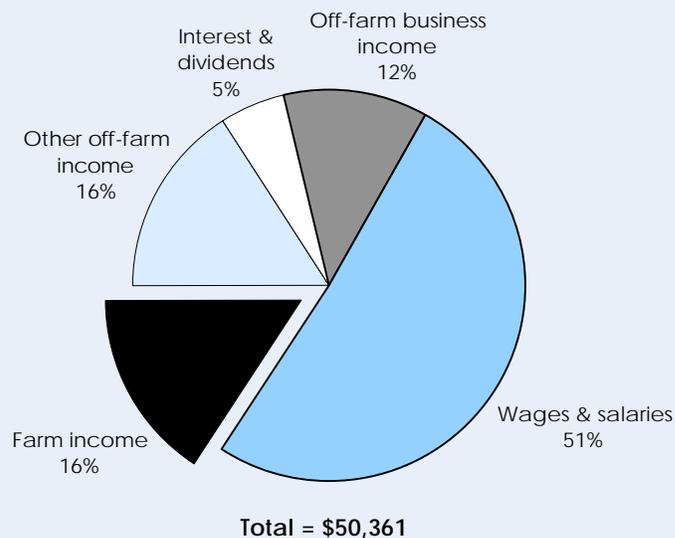
Dependence on farming for household income varies with farm size, as measured by farm sales. For example, households operating commercial farms (sales of at least \$50,000) received 55 percent of their income in 1996 from farming, and net earnings from farming activities averaged \$40,623. Their total household income averaged \$74,519, or 58 percent more than the average for all U.S. households. These households, however, accounted for only about 26 percent of all farm households.

Households operating noncommercial farms (sales less than \$50,000), which made up 74 percent of all farm households in 1996, relied on off-farm sources for virtually all of their income. On average, farms with less than \$50,000 in sales lost money farming, but received \$45,418 in off-farm income. Wages and salaries were the largest component of their off-farm income and accounted for 61 percent of their total off-farm income. Because of off-farm income, the total average household income for this group of farmers was on a par with the average for all U.S. households.

Lower average operator household income forecast for 1997 and 1998 is not significantly different from 1996. Any forecast decline in earnings from farming, however, would be expected to have the greatest effect on households operating commercial farms. Households operating noncommercial farms will continue to rely heavily on off-farm income, particularly wages and salaries, for their livelihood.

Earnings of the operator household from farming activities is not a complete measure of economic well-being provided by the farm. For example, a farm-owned dwelling represents a contribution to household income because it frees up cash that would otherwise be spent on housing. Households with noncommercial farms may also focus on an economic benefit from farming other than cash income: accumulating wealth by increasing farm assets and equity. Earnings from farming activities do not necessarily reflect the large net worth—the difference between assets and liabilities—of many farm operator households.

Income From the Farm Only 16 Percent of Average Farm Household Income



Economic Research Service, USDA

Real estate accounted for most (69 percent) of the assets of farms held by operator households. Real estate made up a larger share of the assets of noncommercial farms (79 percent) than commercial farms (61 percent), reflecting commercial farmers' greater propensity to rent land and their likelihood of holding other assets such as equipment, machinery, and inventories.

The farm accounted for most of the net worth of both commercial and noncommercial farm households in 1996, and not surprisingly, net worth was substantially more for households with commercial farms (\$713,800) than for their counterparts with noncommercial farms (\$297,400). Households with commercial farms had a net worth close to the average for all U.S. self-employed households (\$731,500) and above the average for all U.S. households in 1995, the most recent year for which data are available for all U.S. households. Operator households with noncommercial farms had a smaller net worth than the average for all self-employed households, but their average net worth was still above the average for all U.S. households.

Noncommercial farm households may consider living a farm lifestyle more important than either wealth accumulation or farm income. In response to questions in the 1995 Farm Costs and Returns Survey, about 57 percent of operators of noncommercial farms rated a rural lifestyle as very important, well above the 31 percent who rated increasing the equity and assets of the farm as very important and the 29 percent who rated as very important that the farm provide adequate income without off-farm work.

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Farm Finance

prepared to pay for farmland in the future. However, the effects of nonagricultural factors, such as urban pressure on farmland values, could mitigate the expected slower growth.

Farm business debt is estimated to have reached \$162 billion by the end of 1997, up from \$156 billion in 1996, and is expected to rise another 3 percent in 1998. Rising debt levels do not signal pending financial distress in the farm sector. Despite the increase in debt, farm business balance sheets have shown steady improvement throughout the 1990's. Debt-to-asset ratios have improved, as the 16-percent increase in farm business debt from 1992 through 1997 has been more than offset by the 25-percent rise in the value of farm business assets.

The value of farm real estate has risen by a third from 1992 through the end of 1997, while farm mortgage balances have increased less than 12 percent. As a result, the degree to which U.S. farmland is leveraged has declined substantially, providing most producers with *added equity* to cushion the impact of short-term declines in income. Nevertheless, a 9-percent decline in sectorwide net cash income in 1997 will not be evenly distributed across all U.S. farm operations, and producers specializing in wheat, corn, other grains, and dairy will likely face relatively greater income reductions in 1998.

Farmers are expected to use their available credit lines more fully in 1998, as evidenced by the rise in *debt repayment capacity utilization*. For farm operators, income available for debt service can be used to determine the maximum loan payments a farmer could make. Given current market interest rates and an established repayment period, the maximum debt a farmer could carry with the maximum loan payment can be determined.

Farm debt repayment capacity utilization (actual debt expressed as a percentage of maximum feasible debt) measures the extent to which farmers are using the

amount of debt their incomes could support. In 1998, farmers are expected to use over 57 percent of the debt that could be supported by their current incomes. Use of debt repayment capacity rose from 45 percent in 1993 to 56 percent in 1995. Despite the 1996 rise in farm business debt, high net cash income levels and lower interest rates resulted in a drop in the use of debt repayment capacity to 49 percent. The effects of expected favorable interest rates throughout 1997 and 1998 will not be sufficient to offset the combined effects of rising debt and lower net cash income.

Farm business equity is expected to continue rising in 1998 as farm asset values rise more rapidly than farm debt. In current dollars, \$1.132 trillion in assets minus \$168 billion in farm debt yields a sector net worth of nearly \$964 billion. Farm business equity by the end of 1998 is expected to be almost \$90 billion more than in 1996, and over \$300 billion greater than in 1985.

Indicators used to measure the solvency of the farm sector remain favorable for 1997 and 1998. The *debt-to-asset ratio* indicates the relative dependence of farm businesses on debt and their ability to use additional credit without impairing their risk-bearing ability. The lower the debt-to-asset ratio, the greater the overall financial solvency of the farm sector. The debt-to-asset ratio is forecast to be 14.8 percent in 1998, compared with 15.0 percent expected in 1997. Over the last decade, this ratio declined steadily from 23 percent in 1985 to 15.6 percent in 1995.

Current income rates of return on farm assets and equity, indicators of the profitability of farm sector investments, remained near 1996 levels in 1997. Total returns on farm business assets, including capital gains, declined from 6.5 percent in 1996 to an estimated 5.7 percent in 1997, with 3.7-percent growth in current income and 2-percent growth in capital gains. The lower farm income forecast for 1998, combined with a continued rise in farm

sector asset and equity values, suggests slightly lower rates of return on farm assets and equity. Total *returns on farm business assets* are forecast at 5.2 percent in 1998, reflecting both the lower expected returns to farm assets from current income and somewhat slower appreciation in farm asset values.

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February Releases—USDA's Agricultural Statistics Board

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

February

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Egg Products
Poultry Slaughter
- 4 *Broiler Hatchery*
Dairy Products
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Crop Production (8:30 a.m.)
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Food & Marketing



DairyField Magazine

U.S. Dairy Product Markets Restructuring

The U.S. dairy industry has been changing at all levels in the last 50 years. Once heavily dependent on human labor, most dairy farming activities, including milking, are now mechanized. Farms with 100 cows were large in 1950. Today, those with 5,000 head are not uncommon, especially in the West. Onfarm milk storage and milk assembly have shifted from 40-quart cans picked up at the farm by the processor's truck to bulk tank storage pumped into tank trucks (most operated or hired by dairy cooperatives) for delivery to processing or manufacturing sites.

Technological developments have also brought about changes in processing and distribution. Large-scale processing and manufacturing plants are more common. Over half of all milk was delivered to the home in quart bottles in 1950; today, that share is only 2 percent—most milk is now sold through supermarkets in gallon jugs. Retail sales of cheese, butter, ice cream, yogurt, and other dairy products are now mostly branded products sold through supermarkets.

Four common themes of change run through all levels of the dairy industry. First, technological advances have improved raw milk and dairy product quality and consistency, leading to larger economies of plant size and fewer opportunities for product differentiation.

Second, economies of size on the farm and in plants have been facilitated by automation. Third, reduced transportation costs have led to integration of local markets into regional or even national markets. Finally, rapid capital flows and ownership changes have altered the objectives of dairy marketing and distribution firms. Investment decisions on the farm seem to be based less on prior experience in the industry than on new factors such as investment opportunities, market pressures to expand production, and recognition of the declining role of government in the industry.

Milk Production & Pricing Have Been Changing

Changes in milk production and pricing in the last 30 years have changed the face of the dairy industry. Both aggregate production and milk per cow have increased since 1970. Farm numbers have declined and herd size has increased, but ownership and production remain firmly in the hands of individuals and families. Most

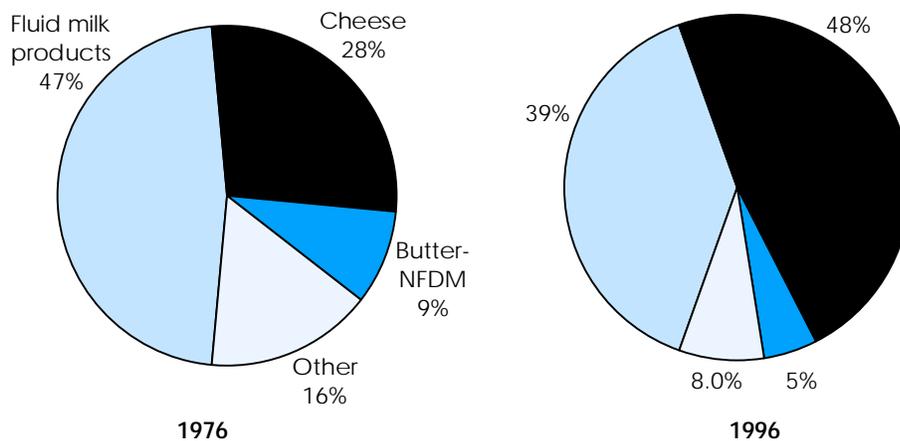
large corporate farms are family-owned and operated.

Production growth in the Southern Plains, Mountain, and Pacific regions has led to changes in the regional pattern of production. Readily available land, good climate, ample supplies of high-quality forages, lower production costs, growing markets—both local and more distant—for fluid milk and other dairy products, and relatively stable prices combined to make these western areas fast-growing milk production centers.

The consequent growth of milk supplies in Idaho, California, New Mexico, and Washington has stimulated construction of large modern dairy product manufacturing plants, as well as rehabilitation of older plants. Cheese and associated dry whey production in the region has grown especially rapidly, though production of butter and nonfat dry milk remains important. Both cooperatives (e.g., Darigold) and proprietary firms (e.g., Leprino) have built or purchased additional cheese capacity in the West. The trend toward milk production for manufactured product markets will likely continue, since fluid markets, though they continue to grow, are more than amply supplied.

For 50 years, Federal price supports have been the backbone of the pricing system

Cheese Overtakes Fluid Milk As Largest User of Raw Milk



NFDM = Nonfat dry milk.
Economic Research Service, USDA

Food & Marketing

for milk and dairy products. The method for determining the support level has changed over the years, however, and fixed support prices have declined since 1995 to the point that they have little effect. The milk support price will decline until it reaches \$9.90 per cwt in 1999. After 1999, some support for prices will continue to come from Dairy Export Incentive Program (DEIP) activity.

Previously, the support price underpinned the entire price structure for bulk milk sold directly by farmers or cooperatives. USDA's Commodity Credit Corporation (CCC) stood ready to buy as much butter, nonfat dry milk, and Cheddar cheese as manufacturers wanted to sell at specified prices. These prices were designed to return the support price to the farmer. The price support program thus provided a floor under wholesale milk product prices and the price of milk used to manufacture these products, and indirectly provided support for all milk in all uses.

Milk and dairy product prices have been more volatile in recent years. The 1980's saw large government expenditures for support as surplus milk production grew. As the surplus of the 1980's was brought under control, however, industry participants found themselves operating in a much-changed environment characterized by reduced manufacturing flexibility and cheese price premiums for Midwestern plants, two situations related to the growing mismatch between regional milk supplies and required manufacturing plant capacities.

Two other factors contributing to the changed industry environment were the destabilizing effects of subsidized and some commercial exports, and a tendency to carry stocks insufficient to avoid seasonal price swings dramatically larger than storage costs. The industry appears to be moving toward correcting these structural disequilibria, so prices may become less volatile than very recently, although they will probably remain more variable than in the past.

Firms in the Milk Business Consolidating

Dairy cooperatives and private companies supply both fluid milk and manufactured

dairy products. The number of suppliers has declined over time, and the market shares of cooperatives vs. private companies have shifted. About 86 percent of the milk sold to plants and dealers in 1994 was handled by cooperatives, up from 76 percent in 1973. This trend is expected to continue. As of January 1, 1998, four of the larger cooperatives became one, representing producers throughout the country. This single cooperative, Dairy Farmers of America, will market just over 20 percent of all U.S. milk.

From the 1930's to the 1970's, eight large, specialized proprietary dairy companies dominated the marketing of fluid milk and manufactured dairy products, shaping the structure of the industry and the nature of competition. Since then, corporate restructuring through mergers, acquisitions, and divestitures has put all eight firms out of the dairy business. Large foreign companies increased their share of U.S. dairy processing 11 percentage points from 1950 to 1994, partly by purchasing U.S. firms. Currently, most large corporations in the dairy industry are concentrating on core businesses in branded products—cheese, yogurt, and premium and superpremium ice creams.

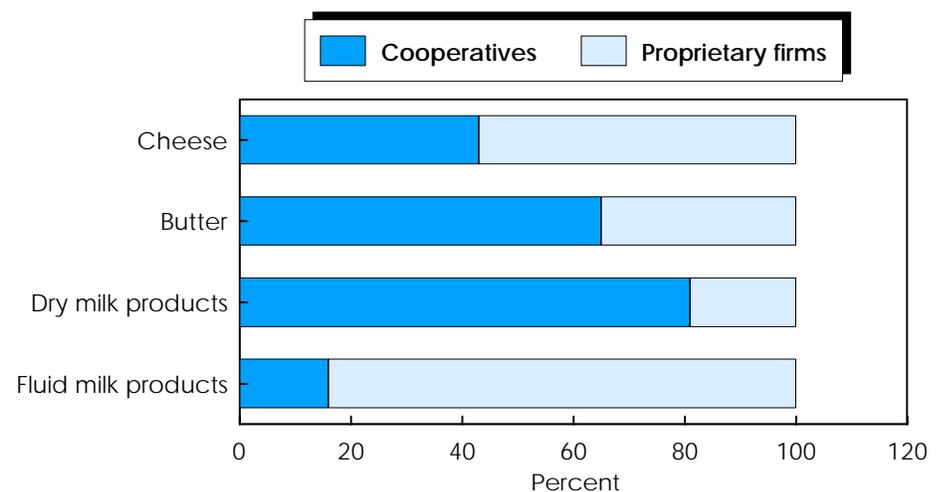
Dairy cooperatives grew into larger regional entities in the 1960's and 1970's

as a result of mergers. Some dairy cooperatives confine their activities to bargaining for the sale and price of milk to processors. Others process milk and/or manufacture dairy products. In 1992, about 68 percent of dairy cooperatives could be considered bargaining-only.

Dairy Product Markets Are Distinct

The dairy sector is divided into several distinct markets, including bulk raw milk, bulk natural cheese, processed cheese, butter, packaged fluid milk products, frozen desserts, and ingredients (dry milk products). Each market has unique characteristics and participants. Although several firms are active in multiple markets, no one firm is involved in all markets. Cooperatives have been most important in the manufactured product markets, while proprietary firms have gravitated toward fluid milk processing and frozen products, as well as yogurt and cheese. Branded consumer dairy products—including cheese, ice cream, yogurt, frozen yogurt, and sour cream—are made primarily by proprietary companies. These companies have spearheaded product development, much of which emphasizes low fat content.

Cooperatives Dominate in Manufactured Product Markets, Proprietary Firms in Fluid Milk Markets



1992 data.

Source: Rural Business and Cooperative Development Service, USDA
Economic Research Service, USDA

Fluid milk processing has changed dramatically during the last 40 years as participation in the business by large dairy companies, supermarket chains, convenience stores, and dairy cooperatives has changed. Fluid milk processing has changed from an emphasis on service to an emphasis on efficiency and minimizing costs. Beverage milk is sold as a set of homogeneous commodity lines—whole milk, 2% milk, 1% milk, and skim—so lower cost is the only competitive element. As a result of increasing efficiencies, fluid milk plant numbers fell from almost 10,000 in 1940 to 460 in 1996, accompanied by an increase in average volume processed from 1.2 million to 128.3 million product pounds per year. Plant and company numbers will almost certainly decline further.

Each market participant has contributed in its own way to the evolution of the fluid, milk processing business. Until the 1950s, home delivery of fluid milk prevailed, although supermarket and dairy store sales were increasing rapidly. Fluid milk processors were numerous in most markets, and competition generally deferred to the going price structure. All market participants recognized the repercussions of destructive competition.

However, the markets could not always assimilate changes taking place in the structure of the fluid milk business, and price wars commonly marked such adjustments. Current competitive conditions in fluid processing rest on the nearly wholesale switch from home delivery to supermarket sales. With centralized buying by chains and retailer groups, the pricing policies of supermarket chains selling their own brand are now the major determinant of milk prices. As more chains retire captive plants with too much capacity or outdated technology, their incentive to maintain margins and profits using foods they manufacture themselves will weaken.

As in the fluid industry, plant numbers in the *manufactured product markets* have declined while average volume produced or sold has increased. Pricing of all manufactured dairy products, except for frozen products, generally involves formula pricing: buyers and sellers use a quoted reference price, commonly from an exchange

such as the Chicago Mercantile Exchange, and then make various adjustments to establish prices. In recent years, this pricing method has come under fire as a result of allegations of price manipulation on the now-defunct National Cheese Exchange. Frozen products tend to be priced more closely to “what the market will bear,” partly because of increased demand for superpremium ice creams and nonfat products.

Among nonfluid dairy products, cooperatives dominate the butter and ingredient markets. The *butter-powder industry*, as it was known in the 1950’s and 1960’s, no longer exists. Throughout that period, surplus milk, especially Grade B but some Grade A as well, flowed almost exclusively to butter-powder plants. Organizations such as Land O’Lakes made some butter and powder in separate plants that were part of an organized system, with the milk separated at the butter plant and the skim milk moved to a powder plant. Since then, surplus whole milk has gradually disappeared, with separate surpluses of butterfat and skim milk arising at different points in the dairy marketing system.

As lowfat milks replaced much whole milk, cream sales declined and the fat content of fluid products shrank. Butterfat use in fluid milk products fell below the butterfat content of milk coming into fluid milk plants. The surplus went first to ice cream manufacture, as many ice cream operations were integrated or nearby. Any remaining fat was made into butter. Cheese plants manufacturing part-skim Mozzarella, American, and other cheeses also had a cream surplus, which often went to butter production. However, there was no skim surplus to be moved to powder plants.

Butter production today is predominantly in the hands of cooperatives. In 1994, Land O’Lakes marketed almost all of the branded consumer butter—136 million of the total 140 million pounds. Store brands account for almost half the butter sold in supermarkets, while almost one-third of all butter sold goes to restaurants. Butter production has changed from serving as an outlet for surplus butterfat to requiring active pursuit of butterfat to meet customer demand.

Dry and bulk condensed milk products, which are used almost entirely as ingredients in other dairy and nondairy food products, are made mostly by cooperatives and sold in competitive markets. Changes in the nonfat dry milk, casein, and whey product markets during the last 40 years have been dramatic. Around 1960, the bakery market was by far the most important ingredient use for nonfat dry milk. Whey replaced nonfat dry milk as bakers found that a “baker’s mixture” composed of dry whey, sodium caseinate, and mineral salts worked better and cost less than nonfat dry milk, particularly in the emerging continuous-mix process of bread baking. In prepared dry mixes for cakes, rolls, and related products and in confectionery, the use of milk ingredients increased, although whey products have been increasingly substituted for nonfat dry milk.

The use of nonfat dry milk and whey in manufactured dairy products has increased, mainly in frozen desserts, processed cheese foods and spreads, and cottage cheese. Whey is being substituted for nonfat dry milk in frozen desserts and processed cheese foods and spreads. Processed meat products, once a significant outlet for nonfat dry milk, use much less. A small portion of that decline was taken up by casein, whey, yeast proteins, and single-cell proteins.

The *natural cheese market* is shared—43 percent cooperatives, 57 percent proprietary firms in 1992. American cheese, which can be sold to the CCC under the Federal price support program, is produced mostly by cooperatives—71 percent in 1992—and largely by the big cooperatives. Proprietary companies supply the largest proportion of Italian cheese—74 percent in 1992. About half of the natural cheese goes to the “industrial” market and is used in processed cheese and in frozen pizzas and other manufactured food products.

Most of the natural cheese used in products is produced by cooperatives under long-term agreements. The major cooperative cheesemakers include AMPI, Mid-Am, and Land O’Lakes. (Mid-Am and part of AMPI have become part of Dairy Farmers of America.) AMPI produces natural cheese and was Kraft’s largest suppli-

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er in the early 1990's. It also produces unbranded processed cheese from its own natural cheese. Mid-Am produces Italian, American, and packaged cheese and buys cheese to meet its sales commitments. It produces shredded Cheddar cheese for Taco Bell and large quantities of Mozzarella for pizza. Land O'Lakes is a supplier of bulk cheese to Kraft and Schreiber and produces branded natural, processed, and shredded products.

Kraft and Borden are the major sellers of *branded processed cheese*. (Borden recently sold its cheese business, including the label, to Mid-Am.) During 1988-93, about 45 percent of all processed cheese sold at retail carried the Kraft brand name; Borden had about 8 percent of the retail market in 1992. Both companies purchase cheese to meet their needs—Kraft buys 60 percent of the cheese it uses. Although 75 percent of Kraft's sales are through retail stores, Kraft plays an important role in other segments of the cheese market.

Food service buys a substantial share of cheese for pizzas, cheeseburgers, tacos, and salad bars. Most is produced by large firms, both cooperative and proprietary, under long-term contracts with fast-food and restaurant chains or their suppliers. The firms supplying the foodservice industry are mostly different companies from those in the branded food markets.

Private firms dominate the *frozen products market*. Ice cream was primarily a soda fountain product until the 1930's. The growth of supermarkets and the appearance of specialty ice cream stores transformed ice cream merchandising. Retail sales rapidly shifted to supermarkets after

the introduction of prepackaged half-gallon containers in the late 1940's. The specialty ice cream stores that became common in the 1950's and 1960's sold relatively high-priced ice cream with different characteristics (higher butterfat content, a different texture, a wider selection of flavors) than the ice creams available in supermarkets. Borden introduced the first nationally distributed premium ice cream—Lady Borden.

Premium ice cream accounted for 42 percent of supermarket sales of ice cream in 1994. Superpremium ice creams, essentially created in 1959 with the introduction of Haagen Dazs, accounted for an additional 13 percent of sales. Superpremiums have national or regional distribution, mostly through supermarkets, but the volume in most markets does not justify operating an ice cream plant. Most often, distribution is by another ice cream or frozen food firm under contract, and production may be contracted to the distributor as well.

Frozen products, yogurt, and cheese are the only dairy products that have attracted large publicly traded companies in recent years. Many of the large companies involved in frozen products (mainly ice cream) are foreign-owned. In 1988, Pillsbury, which had acquired Haagen Dazs in 1983, was in turn bought by Grand Metropolitan plc, a British firm. As a result, Haagen Dazs achieved worldwide distribution. Unilever, a British-Dutch company that has long owned Good Humor, purchased Kraft's ice cream division in 1993. At the time, Kraft's Breyer's brand was the largest selling brand of ice cream. Kraft retained their Frusen Gladje superpremium line. The large ice cream

manufacturers are consolidating manufacturing operations in fewer locations and establishing distribution depots—sometimes using closed ice cream plants.

The Future of U.S. Dairy Product Markets

What does the future hold for dairy markets? Dairy farmers, who supply a relatively standardized raw material to processors, will have few opportunities to market differentiated, identity-preserved products, except perhaps organic or non-BST milk. With a bulk commodity, the chief opportunity for individual farmers to earn premiums will be for volume and quality, and for components of value to dairy product manufacturers as ingredients, such as protein or butterfat. With more volatile markets, returns to producers will largely depend on the bargaining power of cooperatives.

Dairy cooperatives could face a significant change in role as public dairy programs are either reduced or eliminated. Members may expect efforts to reduce price volatility, set production quotas to limit milk production, manage product supplies and inventories, and expand marketing activities related to sales. However, as cooperatives have grown, their membership has become more diverse, meaning member satisfaction may be more elusive. The outcome of the merger of four large, essentially regional cooperatives into one large, national cooperative, Dairy Farmers of America, may offer some insights on how to secure satisfaction for a diverse membership.

Proprietary firms will continue to emphasize production and marketing of branded consumer products, much as in the recent past. They will, however, face a different business environment with the formation of Dairy Farmers of America, which as a large national cooperative has diverse marketing and production facilities, some overlapping the proprietary firms' holdings. It is likely that mergers and acquisitions will continue to play a role in the future of proprietary dairy firms.

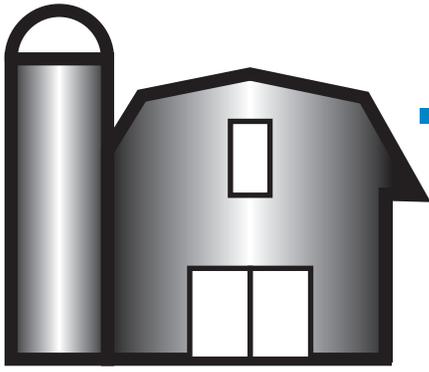
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For more information on the U.S. dairy industry . . .

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Announcing . . .

The 1997 Census of Agriculture

The census of agriculture is a complete accounting of U.S. agricultural production and the only source of uniform, comprehensive agricultural data for **every county** in the Nation. Taken every 5 years, it was last conducted in 1992 by the Bureau of the Census. The census of agriculture now is the responsibility of a USDA agency, the National Agricultural Statistics Service (NASS).

In late December 1997, questionnaires were mailed to farmers and ranchers across the U.S. The census defines a farm as any operation where \$1,000 or more of agricultural products was produced and sold, or normally would have been sold, during the census year. The 1997 Census of Agriculture will be similar to the 1992 and 1987 censuses, containing data on:

- *land use and ownership*
- *operator characteristics*
- *crops area & production*
- *machinery & equipment*
- *livestock*
- *fertilizer*
- *poultry*
- *chemicals*
- *value of products*
- *energy expenditures*
- *irrigated land*
- *production expenses*
- *type of organization*
- *farm programs*
- *corporate structure*

Census of Agriculture Publications, 1992

Agricultural Atlas
Census History
Congressional Tabulation
Coverage Evaluation
Ram & Ranch Irrigation
Geographic Area Series - Vol. 1
Horticulture Specialties (1987)
Outlying Areas
Public Use File
Ranking-States & Counties
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Next year's annual issue of the ERS-NASS Catalog will provide up-to-date information on products and services that will be available from the 1997 Census of Agriculture.

Special Article



Agricultural Research Service

Farmers' Use of "Green" Practices Varies Widely

Farmers increasingly face economic and societal pressures to convert from traditional or conventional production systems to "green" practices that are potentially friendlier to the environment. "Green" practices are known variously as improved practices, best management practices, conservation practices, water quality practices, environmentally friendly practices, and in some settings, sustainable and organic practices.

Such practices may be applied at various stages of production management. Farmers frequently use more than one green practice, and some may potentially contribute to multiple environmental goals. Which techniques are actually friendlier to the environment depends on where, when, and how they are applied, and on climatic factors in a given year.

Farmers are the primary decisionmakers on how they will combine land, water, commercial inputs, labor, and their management skills into systems and practices that produce food and fiber. To sustain production over time, farmers must make a profit and preserve their resource and financial assets. At the same time, society at large wants not only food and fiber at reasonable prices, but also products that are safe to consume and aesthetically pleasing, and production systems that preserve or even enhance the environment. The often competing goals and pressures are reflected not only in the inputs made available for production, but also in the methods of combining and managing the inputs.

USDA's Economic Research Service recently released information on farmers' use of some key green practices in *Agricultural Resources and Environmental Indicators: 1996-97*. Relying mostly on USDA's Cropping Practices and Chemical Use surveys conducted annually from 1990 to 1995 for major field crops, and biennially for selected fruits and vegetables, the report reveals that farmers' use of green practices varies widely among crops and from year to year. While few obvious trends could yet be identified, the data provide some measure of the extent of green practices in use compared with traditional or conventional practices.

"Green" Practices for Pest Management . . .

Most farmers currently rely on pesticides to control the insects, diseases, and weeds that cause significant yield and quality losses to U.S. crops. Two general management systems utilizing green practices can be employed in pest management. *Integrated pest management (IPM)* combines efficient use of chemical pesticides with cultural, biological, and other nonchemical methods aimed at controlling pests economically while minimizing danger to human health and environmental quality. *Ecologically based pest management* focuses primarily on nonchemical methods.

Scientists have developed pest scouting, economic thresholds, and other *pesticide-efficiency techniques* to help producers determine when to make pesticide applications, which pesticides to use, and how much to use. The techniques of *pest scouting* and *economic thresholds* are widespread in specialty crop production. Scouting involves checking a field for the presence, density, and developmental stage of weeds, insects, or diseases. Economic thresholds are pest population levels that, if left untreated, would likely result in reductions in revenue that exceed treatment costs. Growers use these threshold levels, developed primarily by land-grant university scientists, to determine when pesticide applications are economically justified.

Nearly two-thirds of fruit and nut acreage and nearly three-quarters of vegetable acres were scouted for insects in 1991-92, mostly by chemical dealers, crop consultants, and other professionals. Potato growers reported that 85 percent of their acreage was scouted in 1993, and thresholds were used in making insecticide application decisions on nearly three-fourths of their acreage.

Growers of two-thirds to three-fourths of corn and soybeans over the period 1990-95 reported scouting, mostly by themselves or a family member, and use of thresholds. Insect pests cause large economic losses in cotton production, and entomologists have been developing thresholds for these pests for several decades. Nearly 90 percent of cotton acreage was scouted in 1990-95—40 percent by commercial scouting services.

Another pesticide-efficiency technique is the *application of herbicides in bands or strips*, rather than broadcast over the field. This technique, which can reduce per-acre application rates, was practiced on about one-third of cotton acres during 1990-95, but on only 4-9 percent of corn and soybeans and 1-4 percent of fall potatoes. *Applying herbicides only after planting and weed*

Major Sources of Data on Farmers' Use of "Green" Practices

The **Agricultural Resource Management Study (ARMS)**, developed from combining USDA's Cropping Practices Survey (CPS) and Farm Costs and Returns Survey (FCRS), was conducted by the National Agricultural Statistics Service (NASS) for the first time in 1996. The ARMS poses questions about agricultural resource use and costs, farm sector financial conditions, and farm production practices, including Integrated Pest Management (IPM), on major field crops.

Chemical Use surveys, part of USDA's Pesticide Data Program (PDP), were initially funded under the 1989 President's Food Safety Initiative. The objective is to improve the pesticide data base by establishing pesticide residue monitoring activities and by expanding pesticide use surveys. Fruit and vegetable crops are the primary target of the survey program, with even-year surveys to cover vegetables and odd-year surveys to cover fruits and nuts. In each year, certain commodities are targeted in order to obtain more comprehensive information on management practices and costs for those commodities. A significant emphasis has been placed on collecting data on IPM and on organic production.

Cropping Practices Surveys (CPS) and predecessor surveys were conducted annually by NASS from 1964 through 1995, and merged into the ARMS in 1996. The CPS collected annual data on fertilizer and pesticide use, tillage systems, crop sequence, and data on other inputs and cultural practices. Fertilizer information has been reported from these surveys since 1964. In the mid-1980's, pesticide use, tillage operations, and prior crop questions were added to the survey. IPM and nutrient management questions were included in the 1990's. The final 1995 CPS gathered data on corn, cotton, soybeans, wheat, and potatoes and represented about 182

million acres, including acreage in major producing States and accounting for 70-90 percent of total U.S. acreage for these crops. Due to changing information requirements and funding, the number of surveyed crops and States varied from year to year.

The **Crop Residue Management (CRM) survey** is conducted annually by the Conservation Technology Information Center (CTIC), a division of the National Association of Conservation Districts, to provide State and national statistics on adoption of alternative crop residue management systems for all U.S. planted cropland. The CRM survey provides estimates on five different tillage systems: no-till, mulch till, ridge till (30 percent or more residue); reduced till (15-30 percent residue); and conventional till (less than 15 percent residue). A panel of local directors of USDA program agencies and others knowledgeable about local residue management practices complete the survey each summer as a group effort. These local judgments are summarized to provide State, regional, and national estimates. Several States also conduct physical surveys of crop residue levels for validation of the panel-derived estimates.

The **Farm and Ranch Irrigation Survey (FRIS)** is a follow-on survey to the U.S. census of agriculture. The FRIS, conducted in 1979, 1984, 1988, and 1994, has followed the last four agriculture censuses. The survey is based on a sample of producers reporting irrigation use in the census, excluding irrigation in Alaska and Hawaii and on horticultural specialty, institutional, experimental, research, and Indian reservation farms. Data are collected on irrigation water sources, costs, application technologies and frequency, crop yields, water conservation activities, and water management practices, covering from 17 to, most recently, 24 crops.

emergence, a technique which can leave lower herbicide residues in the soil, was used on 52-72 percent of fall potatoes during those years; 20 percent or more of corn, soybeans, and wheat; but just 10 percent or less of cotton acres.

Biological methods for managing pests include the use of pheromones, pest-resistant varieties, and beneficial organisms such as *Bacillus thuringiensis* (Bt) and pest predators and parasites. In the early 1990's, fruit and nut growers used *pheromone traps* on 37 percent of the surveyed acreage, *pest-resistant varieties* on 22 percent, and *beneficial insects* on 19 percent. Use of these practices on vegetables was much lower at 3-7 percent. However, 46-75 percent of organic vegetable growers used at least one of these practices. *Foliar application of Bt*, a microbial substance that kills certain insects, ranged from 1 percent of corn acres to 9 percent of cotton and over 50 percent of some specific fruits and vegetables in 1994-95.

Bioengineered insect-resistant varieties of corn, cotton, and potatoes were approved for commercial production in 1994-96.

Bt-enhanced seed was used on 3 percent of corn acreage in 1995. Results are being closely monitored because of concerns that widespread use of bioengineered Bt varieties will accelerate development of pest resistance to foliar Bt treatments.

A number of *cultural production techniques and practices* can be effective in managing crop pests. These include crop rotations, mechanical cultivation for weed control, alterations in planting and harvesting dates, trap crops, sanitation procedures, irrigation techniques, soil fertilization, physical barriers, border sprays, and habitat provision for natural enemies of crop pests.

Use of *crop rotations*, one of the most important of the current cultural techniques, varies among crops and production regions. Most corn, soybeans, wheat, and potatoes are grown in some kind of rotation. In contrast, less than one-third of cotton acres is grown in a rotation; cotton's high per-acre returns provide incentive for continuous planting. Corn production has provided an example of the effectiveness of crop rotation in reducing pesticide use—only 11 percent of producers rotating corn with other

Special Article

crops in the early 1990's used insecticides, compared with 46 percent of those who planted corn 2 years in succession.

Weed control through cultivation is widely practiced for row crops, mostly in conjunction with herbicide use. Almost all of the potato and cotton acreage received cultivations in 1995, versus only 66 percent of corn and 41 percent of soybean acreages. *Field sanitation* (removing or destroying plant materials that encourage pests) is widely used on fruit and nut crops, with 60 percent of all fruit and nut acreage under this practice in the early 1990's. *Adjusted planting dates* to avoid high insect periods were used as a cultural control by over half of organic vegetable growers and on 15 percent of the surveyed area in vegetables. *Water management* (for maintaining healthy plants or hindering insect activity) was used by 44 percent of certified organic vegetable producers, and on 31 percent of all fruit and nut crop acreage.

Research continues on new cultural techniques such as solarization—heating the soil to kill crop pests. However, most cultural practices do not involve a marketable product, and research and development depends almost entirely on public-sector funding. In addition, while cultural practices may be effective for controlling pests, reducing pesticide use, and lowering input costs, these techniques require a knowledgeable producer and increased management.

. . . & for Nutrient Management

Nutrients applied to soil, which are essential for ensuring adequate crop yields and profitability, have long been associated with surface-water and groundwater contamination. Improved nutrient management practices attempt to foster crop yields and profitability while minimizing the loss of nutrients into the environment. Improved practices exist for each of the steps in nutrient management: assessing nutrient needs, product selection, timing nutrient application, nutrient placement, and cropping management. The efficacy of each practice is strongly influenced by field conditions, operators' management knowledge and skill, economic factors, and weather.

Assessing nutrient needs. Most acreage of major crops receives commercial fertilizer each year. Farmers following conventional practices often apply fertilizer at rates based on optimistic yield goals and may not take into account the nutrients already available in the soil. Improved nutrient management requires more information about the available nutrients in order to avoid over- or underapplication.

Soil tests for available nutrients can help improve nutrient management, although many farmers do not conduct annual tests of their fields. Over 1990-95, use of soil testing ranged from over 80 percent of potato acres in major producing States to about one-fifth of wheat acres. Soil testing of corn, soybean, and cotton acres ranged from 25 to 41 percent. The extent of soil testing of these crops varied from year to year. During the 1990-95 period, soil testing increased on lands being planted to wheat and cotton.

Testing of plant tissues for nutrient deficiency during the growing season allows farmers to apply fertilizers initially at low rates based on realistic or average yield expectations, and then to detect and correct any deficiency in nutrients that might result from rapid plant growth under better-than-average growing conditions. In 1994, the only year in which data were collected on tissue testing, farmers used the practice on 61 percent of potato acres and 12 percent of cotton acres, primarily to determine nitrogen deficiency. No data were collected for other crops.

Improved nutrient management should *account for nutrients provided by other sources*. Up to 17 percent of the acreage in major crops received manure application in 1990-95. Analysis of the nutrient content of manure allows farmers to factor this in when determining additional nutrient needs from other sources. Data for 1994 and 1995 indicate that manure analysis occurred on 30-40 percent of cotton and potato acres receiving manure, but on only 6-12 percent of corn and wheat acres receiving manure.

Previously planted legumes provided nutrients to about half of the corn acres and up to one-fifth of the potatoes in the major growing States during 1990-95. On about half of the corn acres with previous legumes, and most of the potatoes, farmers reported either soil testing or giving credit for the legumes in determining commercial nutrient needs.

Nutrient product selection. *Nitrogen stabilizers or inhibitors* (urease inhibitors and nitrification inhibitors) delay the transformation of nitrogen fertilizer from ammonia into nitrate and help time the nitrate supply to peak plant demand. The potential for economic benefit from nitrification inhibitors is greatest where soils are poorly or excessively drained, no-till cultivation is used, nitrogen is applied in the fall, crops require a large amount of nitrogen fertilizer, or excessively wet soil conditions prevent the application of nitrogen during the growing season. The practice is not widely used. During 1990-95, farmers used nitrogen inhibitors on 5-10 percent of corn acres, and on even less of the area in cotton, fall potatoes, and winter wheat.

Timing nutrient applications. In addition to assessing nutrient needs, timing applications to the biological needs of a crop leaves less nitrogen available for leaching, runoff, denitrification, and other losses, potentially reducing the total amount applied. For example, corn requires most of its nitrogen supply in mid-summer. If nitrogen is applied either in the fall or early spring before planting, it is more readily lost to the environment than if applied at or after planting, and farmers often apply a larger amount to make up for the anticipated loss.

Economic considerations can lead farmers to apply nitrogen during fall and spring rather than during the growing season. Uncertain weather conditions may shorten the window in which fertilizer can be applied during the growing season, increasing the risk of yield loss from inadequate nitrogen availability. Farmers' opportunity cost of labor and application arrangements may be significantly higher during the late spring and growing season, when labor and machinery demands are at a peak, than during the fall, when most farmers experience a relatively slack

Glossary of "Green" Practices Terminology

Pest Management

Pest scouting involves checking a field for the presence, density, and/or developmental stage of weeds, insects, or diseases.

Insect pests, for example, can be scouted by using sweep nets, leaf counts, plant counts, soil samples, and general observation.

Economic thresholds are levels of pest population that, if left untreated, would result in reductions in revenue that exceed treatment costs. The use of economic thresholds in making pesticide treatment decisions requires information on pest infestation levels from scouting.

Application of herbicides in bands or strips spreads herbicides over, or next to, each row of plants. Banding herbicides often requires row cultivation to control weeds in the row middles.

Applying herbicides only after planting and weed emergence (post-emergence) is considered more environmentally sound than applying pre-emergence herbicides because post-emergence herbicides have little or no soil residual activity.

Bacillus thuringiensis (Bt) is a bacterium used to control numerous larva, caterpillar, and other insect pests in agriculture. Bt is most often applied directly to the leaves of plants, but some new varieties of corn contain natural genes and bio-engineered genes produced from the soil bacteria Bt to give them host-plant resistance to certain insect pests.

Pheromones, biochemical agents that attract insects and modify their behavior, are used in traps or lures to draw insects away from plants in the field.

Beneficial organisms are pest predators and parasites that are used to control crop pests and weeds.

Crop rotation involves alternating the crops grown in a field on an annual basis, which interrupts the life cycle of insect pests by placing them in a non-host habitat.

Weed control through cultivation or tillage can destroy pests in a variety of ways, for example, by directly destroying weeds and volunteer crop plants in and around the field.

Field sanitation procedures remove or destroy crops and plant material that are diseased, provide overwintering pest habitat, or encourage pest problems in other ways.

Adjusted planting dates can be used to avoid periods of heavy pest infestations. Delayed planting of fall wheat seedlings may help avoid damage from the Hessian fly, for example.

Water management can be used as a pest management technique either directly, by hindering pest activity, or indirectly, by improving the overall health of the plant and, in turn, its ability to resist pests.

Nutrient Management

Soil and plant tissue testing provides information about the nutrient levels in the soil or plant tissue and helps farmers match application of fertilizer to crop needs.

Nitrogen stabilizers or inhibitors delay the transformation of nitrogen fertilizer from ammonia to nitrate and help match the timing of nitrate supply with peak plant demand.

Precision farming is a technology that divides whole fields into small areas and uses a variable-rate fertilizer spreader and a global positioning system to apply the exact amount of nutrient needed at a specific location.

Cover crops planted between crop seasons can reduce nutrient loss by preventing the buildup of residual nitrogen in the soil and minimizing soil erosion.

Rotating nitrogen-using crops with legumes adds nutrients to the soil and reduces the need for fertilizer.

Banded application of fertilizer next to the plant or seed, as opposed to broadcasting, reduces loss of nutrients.

Irrigation Management

Pressurized sprinkler irrigation uses pressure to spray water over the field surface, usually from above-ground piping. Compared with gravity-flow irrigation that relies on gravity alone to distribute water across the field, sprinkler irrigation usually permits better adjustment of water application to the needs of the crop and reduces water and nutrient loss.

Low-flow irrigation, including drip, trickle, and micro-sprinkler systems, is a pressurized system that applies water in small, controlled quantities near or below ground level.

Soil moisture sensing devices and commercial irrigation scheduling help farmers determine when and how much water to apply.

Crop Residue Management

Reduced tillage includes tillage types that leave 15-30 percent residue cover after planting, or 500-1,000 pounds per acre of small grain residue equivalent throughout the critical wind erosion period.

Conservation tillage includes any tillage and planting system that maintains at least 30 percent of the soil surface covered by residue after planting to reduce soil erosion by water, or at least 1,000 pounds per acre of flat, small grain residue equivalent on the surface throughout the critical wind erosion period. Weed control is accomplished with herbicides and/or cultivation. Types of conservation tillage include:

No-till, in which the soil is left undisturbed from harvest to planting except for nutrient injection. Planting or drilling is accomplished in a narrow seedbed or slot. Weed control is accomplished primarily with herbicides.

Ridge-till, in which the soil is left undisturbed from harvest to planting except for nutrient injection. Planting is completed in a seedbed prepared on ridges that are rebuilt during cultivation. Residue is left on the surface between ridges.

Mulch-till, in which the soil is disturbed prior to planting, but less intensively than reduced or conventional tillage.

Special Article

period. Fertilizer pricing patterns (lower in the fall than spring) also tend to encourage fall application.

Nevertheless, during 1990-95, growers of corn, cotton, and potatoes generally avoided applying fertilizer in the fall on about two-thirds or more of the acres, and in the spring before planting on about half of the acres.

Nutrient placement. For the major crops surveyed in the Cropping Practices Survey, broadcasting—spreading fertilizer across the whole field—was the dominant method of applying fertilizers. Broadcasting has a relatively low field application cost, but broadcast nitrogen is more susceptible to loss to the environment. In contrast, *banded applications*—including injection, knifed-in, or side dressing—place nitrogen fertilizer closer to the seed or plant for increased crop uptake and reduced leaching and volatilization. Moreover, banded applications can result in higher yields. While the per-acre operation cost of injection applications is higher than the per-acre operation cost of broadcast applications, the overall cost is generally lower because of lower fertilizer expenses. During 1990-95, banding was practiced on one-fifth of the cotton and winter wheat acreage, and 40-51 percent of the acres in corn and fall potatoes.

Precision farming, also referred to as site-specific farming, is a promising new technology for improving nutrient placement. Precision farming divides whole fields into small areas and uses a variable-rate fertilizer spreader and a satellite-guided global positioning system (GPS) to apply the exact amount of nutrient needed at each area to achieve the expected yield. Assessments are underway on how precision farming affects yield, fertilizer use, farm-level profitability, and the environment.

Crop selection and management. *Rotating nitrogen-using crops* with a nitrogen-fixing legume crop can reduce the need for commercial fertilizer. Legume crops at the early stage of growth absorb residual nitrogen in the soil and reduce nitrate leaching. In addition, crops in rotation reduce soil insect problems, improve plant health, and increase nitrogen uptake efficiency. Most potatoes, three-fourths of corn, and 49-61 percent of winter wheat acres were grown in rotations during 1990-95.

Planting *cover crops*—such as small grains or hairy vetch—between crop seasons can improve soil fertility and texture, absorb residual nitrogen during dormant seasons, and reduce nutrient loss to the environment. Because planting cover crops contributes little to current profits, few farmers use the practice.

“Green” Management of Irrigation Water . . .

Improving the management of irrigation water can protect the environment by, for example, increasing stream flow and by reducing nutrient losses and soil erosion. Excessive irrigation water applications can carry nutrients and other pollutants into offsite water systems and can increase nitrogen leaching, reducing nutrient concentration in the soil and lowering plant uptake. Too little irrigation water, on the other hand, can stunt plant growth, reducing crop nutrient uptake and increasing residual nutrient levels susceptible to storm runoff.

Farmers have been improving irrigation water management by switching from gravity-flow irrigation to pressurized sprinkler irrigation, by scheduling irrigation according to plant needs, and by using improved gravity irrigation practices. The cost of irrigation improvements can be substantial, but for many farmers the economic benefits from higher yields and savings on water, labor, and nutrient expenses offset the cost.

Gravity-flow irrigation has been decreasing in most regions, and sprinkler irrigation increasing. Sprinkler systems now irrigate nearly half of total irrigated area, up from 37 percent in 1979. Nearly two-thirds of sprinkler systems were center pivot in 1994, up from less than one-half in 1979, giving farmers even greater control of water applications. In addition, more irrigators are using soil moisture sensing devices to determine when water is needed—10 percent in 1994, up from 8 percent in 1984—as well as commercial irrigation scheduling, up to 5 percent in 1994 from 1984's 3 percent.

An emerging technology with potential to achieve optimal plant moisture is low-flow irrigation, a pressurized method in which water is applied in small, controlled quantities near or below ground level. Field application efficiency of 95 percent or greater (water loss of 5 percent or less) can be achieved under low-flow systems, although proper design and management are required to avoid crop moisture stress and soil-salinity accumulation. Low-flow irrigation systems—including drip, trickle, and micro-sprinklers—are used on 4 percent of irrigated cropland acreage, up more than fourfold since 1979. Low-flow systems are used most commonly for production of vegetables and for perennial crops such as in orchards and vineyards, although experimentation and limited commercial applications on some row and field crops are occurring.

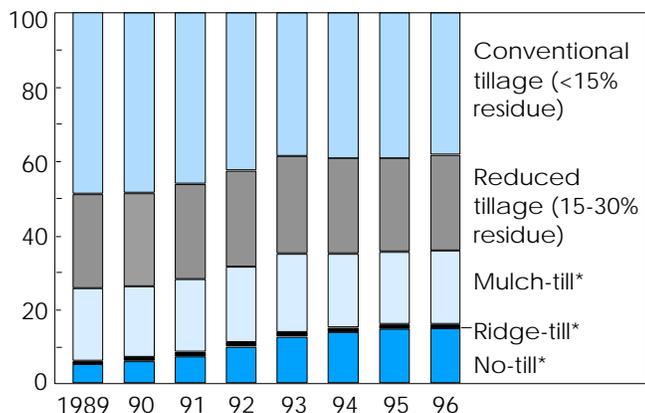
. . . & Crop Residue

Potential long-term environmental benefits of “green” management of crop residue include reduced erosion and surface runoff, cleaner surface runoff, higher soil moisture and water infiltration, improved soil organic matter and long-term productivity, and improved air quality through reduced release of carbon gases. Practices for managing residue from the previous crop include removing it, burning it, incorporating it into the soil, or leaving it on the soil surface. While farmers once took pride in clean-tilled fields free of surface residue, increasingly they are using tillage practices that leave 15 percent or higher residue cover on the soil surface after planting.

Conservation tillage leaves 30 percent or more of the soil surface covered by crop residue after planting, and *reduced tillage* leaves 15-30 percent residue coverage. In 1996, farmers practiced conservation tillage on over 35 percent of planted acres, up from 26 percent in 1990, and reduced tillage on about 26 percent. Use of conservation tillage has been growing, and conventional tillage decreasing, primarily because of farmers' expanded use of *no-till*, a form of conservation tillage that leaves the soil undisturbed from harvest to planting except for nutrient injections. No-till use occurred on nearly 15 percent of land planted to crops in 1996, up from 5 percent in 1989. The highest relative

Use of Conventional Tillage Declines as Use of No-Till Grows

Percent of planted acres



*Conservation tillage (30% or more residue).
Economic Research Service, USDA

use of no-till was on corn and soybean acreage, with the most rapid expansion occurring for soybeans. Use of no-till on wheat and other small grains is more limited but steadily expanding.

Farmers planting crops on highly erodible lands are required by USDA's Conservation Compliance Program to have an implemented conservation plan to protect soil from erosion. In addition, farmers generally wish to preserve the fertility of their

soils. These factors have stimulated greater use of conservation tillage on highly erodible lands than on less erodible lands. But on many soils and in many field situations, conservation tillage also results in lower costs—requiring fewer trips over the field—while maintaining or increasing yields.

While crop residue management is environmentally friendly in terms of sediment reduction, whether it is also friendly in terms of pesticide use and loss to the environment remains under study. Both the quantity and mix of pesticides used under different tillage practices need to be examined, as well as the movement offsite of residuals in water or attached to sediment.

Farmers' use of green practices is being promoted in various conservation and water quality programs and through expanded information dissemination by government agencies, universities, and equipment manufacturers. Improvements are also being made in applicability and economic feasibility of many green practices.

While use of green practices has varied from year to year and by crop and area, some positive trends are becoming apparent. Starting in 1996, data gathering began on practices used with major field crops, as part of USDA's new Agricultural Resource Management Study (ARMS). As additional years of data are compiled and analyzed, trends may become apparent for more of these practices.

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U.S. & Foreign Economic Data

Table 2—U.S. Gross Domestic Product & Related Data

	1994	1995	1996	1996				1997		
				I	II	III	IV	I	II	III R
<i>Billions of current dollars (quarterly data seasonally adjusted at annual rates)</i>										
Gross Domestic Product	6,947.0	7,265.4	7,636.0	7,426.8	7607.7	7,676.0	7,792.9	7,933.6	8,034.3	8,124.3
Gross National Product	6,955.2	7,270.6	7,637.7	7,426.6	7610.5	7,669.1	7,796.1	7,919.2	8,013.6	8,103.5
Personal consumption expenditures	4,717.0	4,957.7	5,207.6	5,060.5	5189.1	5,227.4	5,308.1	5,405.7	5,432.1	5,527.4
Durable goods	579.5	608.5	634.5	625.2	638.6	634.5	638.2	658.4	644.5	667.3
Nondurable goods	1,428.4	1,475.8	1,534.7	1,522.1	1532.3	1,538.3	1,560.1	1,587.4	1,578.9	1,600.8
Food	714.5	735.1	756.1	765.8	752.2	757.4	766.6	775.5	771.4	779.3
Clothing and shoes	247.8	254.7	264.3	261.2	265.7	265.7	266.2	275.2	274.8	280.5
Services	2,709.1	2,873.4	3,038.4	2,913.2	3018.2	3,054.6	3,109.8	3,159.9	3,208.7	3,259.3
Gross private domestic investment	1,007.9	1,038.2	1,116.5	1,068.9	1105.4	1,149.2	1,151.1	1,193.6	1,242.0	1,250.2
Fixed investment	946.6	1,008.1	1,090.7	1,070.7	1082.0	1,112.0	1,119.2	1,127.5	1,160.8	1,201.3
Change in business inventories	61.2	30.1	25.9	-1.7	23.4	37.1	31.9	66.1	81.1	48.9
Net exports of goods and services	-90.9	-86.0	-94.8	-86.3	-93.8	-114.0	-88.6	-98.8	-88.7	-111.3
Government consumption expenditures and gross investment	1,313.0	1,355.5	1,406.7	1,383.7	1407.0	1,413.5	1,422.3	1,433.1	1,449.0	1,457.9
<i>Billions of 1992 dollars (quarterly data seasonally adjusted at annual rates) ¹</i>										
Gross Domestic Product	6,610.7	6,742.1	6,928.4	6,813.8	6926.0	6,943.8	7,017.4	7,101.6	7,159.6	7,214.0
Gross National Product	6,619.1	6,748.7	6,932.0	6,814.4	6930.1	6,940.2	7,023.1	7,091.8	7,144.4	7,198.8
Personal consumption expenditures	4,486.0	4,595.3	4,714.1	4,649.1	4712.2	4,718.2	4,756.4	4,818.1	4,829.4	4,896.2
Durable goods	561.2	583.6	611.1	599.2	614.8	611.9	617.1	637.8	629.0	656.1
Nondurable goods	1,389.9	1,412.6	1,432.3	1,436.1	1431.6	1,433.9	1,441.2	1,457.8	1,450.0	1,465.5
Food	687.9	690.5	689.7	709.2	690.3	687.3	689.0	694.6	688.2	689.5
Clothing and shoes	247.1	257.5	267.7	262.5	268.4	270.8	270.0	277.1	273.8	281.3
Services	2,535.5	2,599.6	2,671.0	2,614.7	2666.5	2,672.8	2,698.2	2,723.9	2,749.8	2,776.1
Gross private domestic investment	975.7	991.5	1,069.1	1,011.4	1059.2	1,100.3	1,104.8	1,149.2	1,197.1	1,204.6
Fixed investment	915.5	962.1	1,041.7	1,013.3	1035.7	1,060.9	1,068.7	1,079.0	1,111.4	1,149.3
Change in business inventories	60.6	27.3	25.0	-3.5	21.3	37.9	32.9	63.7	77.6	47.5
Net exports of goods and services	104.6	-98.8	-114.4	-104.0	-112.6	-138.9	-105.6	-126.3	-136.6	-164.1
Government consumption expenditures and gross investment	1,252.3	1,251.9	1,257.9	1,254.7	1265.1	1,261.5	1,261.8	1,260.5	1,270.1	1,273.4
GDP implicit price deflator (% change)	2.4	2.5	2.3	2.2	1.7	2.6	1.9	2.4	1.8	1.4
Disposable personal income (\$ bil.)	5,052.7	5,355.7	5,608.3	5,479.6	5573.5	5,644.6	5,695.8	5,790.5	5,849.9	5,908.9
Disposable per. income (1992 \$ bil.)	4,805.1	4,964.2	5,076.9	5,034.0	5061.3	5,094.8	5,103.8	5,161.1	5,200.9	5,234.1
Per capita disposable pers. income (\$)	19,381.0	20,349.0	21,117.0	20,712	21012	21,229.0	21,373.0	21,689.0	21,865.0	22,034.0
Per capita disp. pers. income (1992 \$)	18,431.0	18,861.0	19,116.0	19,028	19081	19,161.0	19,152.0	19,331.0	19,439.0	19,518.0
U.S. resident population plus Armed Forces overseas (mil.) ²	260.7	263.2	265.6	264.6	265.2	265.8	266.4	266.9	267.4	268.1
Civilian population (mil.) ²	259.0	261.5	264.0	263.0	263.6	264.2	264.9	265.4	265.9	266.5
				Annual		1996		1997		
	1994	1995	1996 R	Sep	Apr	May	Jun R	Jul R	Aug R	Sep P
<i>Monthly data seasonally adjusted</i>										
Total industrial production (1987=100)	110.0	116.0	120.2	122.5	120.9	121.0	127.9	128.2	129.0	130.2
Leading economic indicators (1987=100)	101.4	100.8	102.0	102.6	103.5	103.7	104.1	104.4	104.5	104.6
Civilian employment (mil. persons) ³	123.1	124.9	126.7	127.6	129.4	129.6	129.8	129.7	129.9	130.6
Civilian unemployment rate (%) ³	6.1	5.6	5.4	5.3	4.9	4.8	4.9	4.9	4.7	4.6
Personal income (\$ bil. annual rate)	5,791.8	6,150.8	6,495.2	6,615.2	6,801.0	6,822.8	6,912.2	6,935.5	6,974.4	7,028.0
Money stock-M2 (daily av.) (\$ bil.) ⁴	3,502.1	3,655.0	3,819.3	3,798.3	3,905.0	3,904.7	3,940.5	3,960.0	3,975.8	3,998.8
Three-month Treasury bill rate (%)	4.29	5.51	5.02	5.03	5.17	5.13	5.13	4.97	4.95	5.15
AAA corporate bond yield (Moody's) (%)	7.97	7.59	7.37	7.10	7.73	7.58	7.22	7.15	7.00	6.87
Total housing starts (1,000) ⁵	1,457.0	1,354.1	1,476.8	1,486	1,483	1,402	1,395	1,507	1,519	1,531
Business inventory/sales ratio ⁶	1.41	1.42	1.39	1.37	1.36	1.37	1.37	1.36	1.37	--
Sales of all retail stores (\$ bil.) ⁷	2,241.3	2,346.3	2,465.1	2,06.0	209.9	209.4	214.4	213.8	213.5	214.1
Nondurable goods stores (\$ bil.)	1,353.4	1,405.6	1,457.8	122.4	124.5	124.6	126.4	126.8	126.7	126.4
Food stores (\$ bil.)	405.6	408.4	424.2	35.6	35.8	354.8	36.0	36.3	36.3	36.4
Apparel and accessory stores (\$ bil.)	107.8	109.5	113.0	9.4	9.5	9.6	10.0	9.8	9.8	9.8
Eating and drinking places (\$ bil.)	224.8	239.9	238.4	20.1	20.2	20.2	20.4	20.6	20.5	20.3

P = Preliminary. R = Revised. -- = Not available. 1. In April 1996, 1992 dollars replaced 1987 dollars. 2. Population estimates based on 1990 census.

3. Data beginning January 1994 are not directly comparable with data for earlier periods because of a major redesign of the household survey questionnaire.

4. Annual data as of December of the year listed. 5. Private, including farm. 6. Manufacturing and trade. 7. Annual total.

Information contact: David Johnson (202) 694-5324

Table 3—World Economic Growth

	Calendar Year									
	1989	1990	1991	1992	1993	1994	1995	1996 E	1997 F	1998 F
	<i>Real GDP, annual percent change</i>									
World	3.6	2.4	1.8	1.7	1.2	2.4	2.2	3.0	3.1	2.9
World, less U.S.	3.6	2.9	2.8	1.3	0.8	2.0	2.3	3.0	2.8	3.1
Developed	3.7	2.6	1.8	1.6	0.7	2.4	1.8	2.5	2.7	2.4
Developed, less U.S.	3.8	3.4	3.3	1.1	-0.1	1.8	1.7	2.3	2.0	2.4
U.S.	3.4	1.3	-1.0	2.7	2.2	3.5	2.0	2.8	3.8	2.5
Canada	2.4	-0.3	-1.8	0.8	2.3	4.6	2.2	1.5	3.6	2.8
Japan	4.9	5.1	4.0	1.0	0.1	0.4	0.9	3.7	1.0	1.6
European Union	3.5	3.0	3.6	1.1	-0.6	2.1	1.9	1.6	2.4	2.7
Germany	3.6	5.7	13.2	2.2	-1.1	0.0	0.0	1.5	2.3	2.8
Central Europe	-0.6	-6.3	-10.6	-3.8	0.5	3.4	5.3	2.8	1.8	3.5
Former Soviet Union	2.1	-3.7	-5.7	-13.6	-9.7	-14.7	-5.4	-5.6	0.1	2.1
Russia	1.9	-3.6	-5.0	-14.5	-8.7	-12.6	-4.0	-5.0	0.7	2.4
Developing	3.8	3.5	4.0	5.2	5.1	4.7	4.7	5.6	5.2	4.8
Asia	6.1	6.1	6.0	8.1	7.9	8.8	8.3	7.5	6.3	5.8
Pacific-Asia	6.2	6.4	8.1	9.2	9.5	9.9	9.1	7.9	6.5	5.8
China	4.1	3.7	9.5	14.6	13.9	13.0	10.7	9.7	9.0	8.5
South Asia	6.1	5.6	1.2	5.4	3.8	5.9	5.8	6.4	6.0	5.8
India	6.6	5.6	0.5	5.3	4.0	6.3	6.1	6.7	6.1	5.9
Latin America	1.0	-0.1	3.4	2.8	3.6	1.2	0.0	3.3	4.3	4.0
Mexico	3.4	4.5	3.6	2.9	0.7	3.6	-7.2	5.1	5.7	5.0
Caribbean/Central	4.6	1.0	2.4	4.2	3.7	2.4	2.8	3.0	3.0	3.1
South America	-0.1	-1.4	3.5	2.6	4.4	5.4	1.8	2.9	4.1	3.8
Brazil	3.3	-4.6	0.5	-1.2	4.5	5.8	3.0	2.9	3.0	3.1
Middle East	3.4	4.8	2.6	5.3	4.7	0.7	3.4	4.6	4.0	3.6
Africa	3.3	1.5	0.8	0.5	-0.7	1.9	2.2	3.8	3.3	3.2
North Africa	3.3	2.2	1.6	0.8	-0.5	2.1	1.8	4.7	4.0	3.8
Sub-Saharan	3.2	1.1	0.3	0.2	-0.8	1.7	2.4	3.2	2.9	2.8

E = Estimate. F = Forecast.

Information contact: Alberto Jerardo (202) 694-5323

Farm Prices

Table 4—Indexes of Prices Received & Paid by Farmers, U.S. Average

	Annual			1996			1997			
	1994	1995	1996	Dec	Jul	Aug	Sep	Oct	Nov	Dec
	<i>1990-92=100</i>									
Prices received										
All farm products	100	102	112	110	107	108	107	107	107	104
All crops	105	112	126	116	114	117	114	115	114	110
Food grains	119	134	157	137	111	122	126	124	122	119
Feed grains and hay	106	112	146	116	113	115	114	113	112	111
Cotton	109	127	122	114	111	111	115	115	112	108
Tobacco	101	103	105	111	91	92	101	103	106	110
Oil-bearing crops	110	104	128	124	134	128	111	111	119	119
Fruit and nuts, all	90	99	118	103	125	128	135	129	114	96
Commercial vegetables	109	120	111	123	111	125	117	146	125	110
Potatoes and dry beans	110	107	114	86	111	110	88	86	93	92
Livestock and products	95	92	99	103	100	99	99	97	98	97
Meat animals	90	85	87	90	95	94	92	89	88	87
Dairy products	99	98	114	109	93	97	101	107	112	111
Poultry and eggs	106	107	120	130	119	118	116	108	113	107
Prices paid										
Commodities and services										
Interest, taxes, and wage rates	106	110	115	115	116	116	116	116	116	116
Production items	106	109	115	115	116	116	116	115	115	115
Feed	105	104	130	121	119	118	121	116	116	117
Livestock and poultry	94	82	75	82	100	97	96	94	93	94
Seeds	108	110	115	117	120	120	120	120	120	120
Fertilizer	105	120	124	124	121	119	119	119	117	116
Agricultural chemicals	112	115	119	121	120	121	121	122	123	124
Fuels	95	94	105	116	95	100	101	102	102	102
Supplies and repairs	109	112	115	116	118	118	118	118	118	118
Autos and trucks	107	107	108	109	109	108	108	109	109	109
Farm machinery	113	120	125	126	127	127	127	129	129	129
Building material	109	114	115	116	118	118	118	118	118	118
Farm services	112	118	118	117	118	118	119	118	118	118
Rent	108	116	119	119	119	119	119	119	119	119
Int. payable per acre on farm real estate debt	94	101	105	105	106	106	106	106	106	106
Taxes payable per acre on farm real estate	106	109	112	112	115	115	115	115	115	115
Wage rates (seasonally adjusted)	110	114	117	120	119	119	119	126	126	126
Production items, interest, taxes, and wage rates	105	109	114	114	116	115	116	115	115	116
Ratio, prices received to prices paid (%)*	94	93	98	96	92	93	92	92	92	90
Prices received (1910-14=100)	634	647	712	698	678	686	680	682	679	661
Prices paid, etc. (parity index) (1910-14=100)	1,397	1,437	1,504	1,509	1,525	1,522	1,527	1,525	1,524	1,526
Parity ratio (1910-14=100) (%)*	45	45	47	46	44	45	45	45	45	43

R = revised. P = preliminary. -- = not available. *Ratio of index of prices received for all farm products to index of prices paid for commodities and services, interest, taxes, and wage rates. Ratio uses the most recent prices paid index. Prices paid data are quarterly and are published in January, April, and October. Information contact: David Johnson (202) 694-5324. For historical data or for categories not listed here, call the National Agricultural Statistics Service (NASS) Information Hotline at 1-800-727-9540. Internet users can access the NASS Home Page at <http://www.usda.gov/nass>.

Table 5—Prices Received by Farmers, U.S. Average

	Annual ¹			1996			1997			
	1994	1995	1996	Dec	Jul	Aug	Sep	Oct	Nov	Dec
Crops										
All wheat (\$/bu.)	3.45	4.55	4.30	4.06	3.23	3.56	3.67	3.55	3.50	3.40
Rice, rough (\$/cwt)	6.78	9.15	9.50	9.63	10.00	9.94	9.85	10.10	9.71	10.10
Corn (\$/bu.)	2.26	3.24	2.70	2.63	2.43	2.50	2.52	2.54	2.51	2.48
Sorghum (\$/cwt)	3.80	5.69	4.20	3.93	3.95	4.09	3.99	4.06	3.93	3.96
All hay, baled (\$/ton)	86.70	82.20	93.00	90.80	98.40	101.00	101.00	103.00	101.00	97.70
Soybeans (\$/bu.)	5.48	6.72	6.85	6.91	7.53	7.25	6.72	6.50	6.85	6.68
Cotton, upland (cents/lb.)	72.00	75.40	70.60	69.30	67.10	67.10	69.40	69.60	67.60	65.50
Potatoes (\$/cwt)	5.58	6.77	5.11	4.32	6.34	6.33	5.16	4.96	5.36	5.21
Lettuce (\$/cwt) ²	13.30	23.50	14.80	24.90	17.00	22.80	22.30	35.10	22.10	13.60
Tomatoes fresh (\$/cwt) ²	27.40	25.80	28.50	28.00	26.80	26.10	23.30	24.30	44.20	48.80
Onions (\$/cwt)	9.87	9.87	9.58	10.30	14.20	14.40	10.70	9.44	10.20	10.70
Beans, dry edible (\$/cwt)	22.50	20.80	24.20	24.10	22.70	20.40	16.30	16.90	18.30	19.20
Apples for fresh use (cents/lb.)	18.60	24.00	20.90	22.60	14.10	19.00	24.70	25.30	22.90	23.20
Pears for fresh use (\$/ton)	223.00	272.00	375.00	561.00	310.00	330.00	360.00	334.00	330.00	287.00
Oranges, all uses (\$/box) ³	6.37	6.11	6.93	3.91	5.08	6.93	6.95	3.69	2.15	2.53
Grapefruit, all uses (\$/box) ³	5.26	4.61	4.63	1.72	6.92	5.78	4.18	4.15	2.49	2.57
Livestock										
Cattle, all beef (\$/cwt)	66.50	61.80	58.70	61.00	62.80	63.90	63.60	63.30	63.30	63.20
Calves (\$/cwt)	87.10	73.10	58.40	61.80	86.90	88.00	86.90	84.30	82.90	83.70
Hogs, all (\$/cwt)	39.50	40.50	51.90	55.60	58.90	55.30	50.40	47.30	45.10	42.50
Lambs (\$/cwt)	64.80	78.20	88.20	88.20	81.30	92.70	90.60	87.40	83.50	--
All milk, sold to plants (\$/cwt)	13.01	12.78	14.75	14.30	12.20	12.70	13.20	14.00	14.60	14.50
Milk, manuf. grade (\$/cwt)	11.85	11.79	13.43	11.80	10.80	11.90	12.70	13.20	13.60	13.40
Broilers, live (cents/lb.)	35.00	34.40	38.10	41.60	40.10	40.10	38.50	35.00	34.30	32.10
Eggs, all (cents/doz.) ⁴	67.25	62.40	75.00	87.70	65.70	63.50	69.60	65.80	80.60	78.70
Turkeys (cents/lb.)	40.70	41.00	43.30	43.20	41.10	40.70	41.10	40.30	42.30	38.60

P = Preliminary. R = Revised. -- = Not available. 1. Season-average price by crop year for crops. Calendar year average of monthly prices for livestock.

2. Excludes Hawaii. 3. Equivalent on-tree returns. 4. Average of all eggs sold by producers including hatching eggs and eggs sold at retail.

Information contact: David Johnson (202) 694-5324. For historical data or for categories not listed here, call the National Agricultural Statistics Service (NASS) Information Hotline at 1-800-727-9540. Internet users can access the NASS Home Page at <http://www.usda.gov/nass>

Producer & Consumer Prices

Table 6—Consumer Price Indexes for All Urban Consumers, U.S. Average (not seasonally adjusted)

	Annual			1996			1997			
	1994	1995	1996	Dec	Jul	Aug	Sep	Oct	Nov	Dec
					1982-84=100					
Consumer Price Index, all items	148.2	152.4	156.9	158.6	160.5	160.8	161.2	161.6	161.5	161.3
CPI, all items less food	149.0	153.1	157.5	159.0	161.1	161.3	161.8	162.2	162.1	161.8
All food	144.3	148.4	153.3	156.3	157.0	157.6	157.9	158.2	158.5	158.7
Food away from home	145.7	149.0	152.7	155.0	157.1	157.4	157.8	158.2	158.6	159.0
Food at home	144.1	148.8	154.3	157.7	157.7	158.5	158.6	159.0	159.1	159.2
Meats ¹	135.4	135.5	140.2	144.4	144.6	145.5	145.6	145.2	144.6	143.4
Beef and veal	136.0	134.9	134.5	137.8	136.5	137.0	137.2	137.1	137.0	136.9
Pork	133.9	134.8	148.2	155.4	157.5	158.6	158.9	157.4	155.5	153.0
Poultry	141.5	143.5	152.4	157.8	157.9	155.6	156.8	155.6	157.4	155.2
Fish and seafood	163.7	171.6	173.1	175.1	174.9	177.5	176.5	178.4	178.9	177.2
Eggs	114.3	120.5	142.1	162.9	132.9	137.7	136.9	135.9	145.1	151.1
Dairy Products ²	131.7	132.8	142.1	148.6	143.3	143.4	143.5	145.7	147.0	147.8
Fats and oils ³	133.5	137.3	140.5	140.7	141.4	141.4	142.0	141.7	140.4	140.3
Fresh fruit	201.2	219.0	234.4	251.1	229.9	237.0	243.9	242.6	233.9	239.4
Processed fruits	133.1	137.1	145.2	147.3	149.7	148.7	148.5	148.4	147.8	148.4
Fresh vegetables	172.3	193.1	189.2	181.2	190.3	192.3	189.5	192.8	205.2	205.2
Potatoes	174.3	174.7	180.6	160.2	181.9	194.0	191.7	181.6	174.3	175.0
Processed vegetables	136.6	138.3	143.9	145.1	147.9	149.1	146.8	145.9	146.2	145.9
Cereal and bakery products	163.0	167.5	174.0	175.7	178.3	178.6	178.1	178.4	178.0	178.4
Sugar and sweets	135.2	137.5	143.7	144.7	149.2	147.8	148.5	148.2	147.4	147.9
Nonalcoholic beverages	123.2	131.7	128.6	126.9	136.3	136.7	136.7	136.6	134.7	133.1
Apparel										
Apparel, commodities less footwear	131.2	129.3	128.5	126.6	126.3	125.9	129.6	131.4	131.4	127.6
Footwear	126.0	125.4	126.6	125.9	125.9	126.3	127.4	130.6	129.3	128.2
Tobacco and smoking products	220.0	225.7	232.8	234.3	242.0	243.4	246.5	250.2	250.7	251.2
Alcoholic beverages	151.5	153.9	158.5	160.5	162.9	163.2	163.5	163.7	163.7	164.0

1. Beef, veal, lamb, pork, and processed meat. 2. Includes butter. 3. Excludes butter.

Information contact: David Johnson (202) 694-5324. For historical data or for categories not listed here, call the Bureau of Labor Statistics' CPI Information Hotline at (202) 606-7828.

Table 7—Producer Price Indexes, U.S. Average (not seasonally adjusted)

	Annual			1996	1997					
	1994	1995	1996	Dec	Jul	Aug	Sep	Oct	Nov	Dec
	<i>1982=100</i>									
All commodities	120.4	124.8	127.7	128.2	127.0	127.4	127.2	126.9	127.2	127.5
Finished goods ¹	125.5	127.9	131.3	131.8	131.6	131.6	131.6	131.3	131.7	131.8
All foods ²	125.2	126.7	132.5	135.0	132.5	133.5	131.8	131.6	132.6	132.7
Consumer foods	126.8	129.0	133.6	135.6	134.3	135.2	134.0	134.0	134.8	134.8
Fresh fruits and melons	82.6	85.7	100.8	119.5	102.2	110.8	91.1	82.3	81.1	92.2
Fresh and dry vegetables	129.1	144.4	135.0	106.4	111.2	111.3	108.8	112.1	131.7	125.0
Dried fruits	121.1	121.2	124.2	124.3	125.7	125.7	125.7	125.7	125.7	125.7
Canned fruits and juices	126.0	129.4	137.5	138.8	139.5	139.1	137.1	137.5	137.3	136.1
Frozen fruits, juices and ades	111.9	115.9	123.9	126.1	120.1	120.1	120.0	120.9	117.1	114.9
Fresh veg. except potatoes	117.8	139.8	120.9	91.3	109.6	103.2	112.2	115.7	125.2	121.8
Canned vegetables and juices	116.3	116.6	121.2	121.9	120.1	119.8	119.6	119.3	119.7	119.5
Frozen vegetables	126.0	124.2	125.4	126.0	125.6	125.7	125.7	126.7	125.7	125.9
Potatoes	142.3	142.6	133.9	111.7	78.3	76.0	96.1	106.9	159.0	148.3
Eggs for fresh use (1991=100)	80.9	86.3	105.1	107.7	87.6	86.9	79.4	96.6	88.0	100.1
Bakery products	160.0	164.3	169.8	171.3	173.4	173.8	173.5	173.9	173.9	127.5
Meats	104.6	102.9	109.0	112.2	112.4	115.7	113.0	113.1	115.5	112.5
Beef and veal	103.6	100.9	100.2	103.6	103.1	105.3	102.1	100.9	104.7	103.8
Pork	101.3	101.4	120.9	125.5	124.6	132.2	128.7	130.9	131.9	123.2
Processed poultry	114.8	114.3	119.8	123.6	117.3	117.1	117.4	118.5	119.7	119.0
Unprocessed and packaged fish	161.5	170.9	165.9	157.4	175.4	180.9	173.1	168.7	166.3	169.5
Dairy products	119.5	119.7	130.4	139.7	127.8	125.9	125.3	124.5	126.0	127.4
Processed fruits and vegetables	121.2	122.4	127.6	128.6	127.2	126.9	126.3	126.6	126.0	125.4
Shortening and cooking oil	138.6	142.5	138.5	140.6	137.2	138.0	136.6	141.4	138.6	136.6
Soft drinks	126.9	133.1	134.0	134.2	133.7	133.5	133.4	133.2	133.0	132.7
Finished consumer goods less foods	121.6	123.9	127.6	128.0	127.7	127.6	128.2	127.7	128.1	128.5
Alcoholic beverages	124.8	128.5	132.8	132.0	135.8	136.1	135.8	135.4	135.5	134.2
Apparel	123.5	124.2	125.1	125.3	125.3	125.5	125.4	125.7	125.6	125.6
Footwear	135.5	139.2	141.6	142.0	143.5	143.7	143.8	143.9	144.5	145.6
Tobacco products	224.7	231.3	237.4	238.2	247.2	248.3	248.5	248.4	247.8	255.7
Intermediate materials ³	118.5	124.9	125.8	126.7	125.3	125.4	125.7	125.5	125.6	126.0
Materials for food manufacturing	118.5	119.5	125.3	129.2	123.8	123.9	122.8	122.3	122.8	123.2
Flour	110.3	122.8	136.8	125.3	124.5	123.4	120.2	114.2	115.4	117.8
Refined sugar ⁴	118.3	119.4	123.7	125.5	125.3	125.4	124.5	120.9	122.2	123.6
Crude vegetable oils	135.0	129.8	118.1	120.4	114.0	117.4	115.8	114.3	110.6	112.5
Crude materials ⁵	101.7	102.7	113.8	112.9	107.9	110.4	107.2	107.2	107.8	108.2
Foodstuffs and feedstuffs	106.5	105.8	121.5	124.9	116.7	117.4	111.5	112.1	111.7	111.1
Fruits and vegetables and nuts ⁶	104.6	108.4	122.5	122.4	112.5	117.5	105.0	101.2	108.2	112.0
Grains	102.7	112.6	151.1	138.7	121.2	116.6	112.4	105.9	106.3	107.2
Slaughter livestock	96.4	92.8	95.2	100.5	101.6	102.6	96.2	98.8	97.9	95.8
Slaughter poultry, live	124.4	125.6	140.5	147.4	127.0	130.9	133.4	146.9	147.9	139.9
Plant and animal fibers	120.7	155.3	129.4	122.8	115.1	116.0	117.5	120.0	121.1	118.3
Fluid milk	95.8	93.7	107.9	119.6	97.6	95.6	93.2	90.7	93.7	95.3
Oilseeds	117.4	112.6	139.4	151.9	151.7	159.1	149.8	146.6	133.9	130.2
Leaf tobacco	101.2	78.9	89.4	110.5	--	--	--	--	92.0	101.4
Raw cane sugar	115.2	119.7	118.6	119.4	116.2	115.9	115.8	117.6	118.6	118.3

-- = Not available. R = Revised. 1. Commodities ready for sale to ultimate consumer. 2. Includes all raw, intermediate, and processed foods (excludes soft drinks, alcoholic beverages, and manufactured animal feeds). 3. Commodities requiring further processing to become finished goods. 4. All types and sizes of refined sugar. 5. Products entering market for the first time that have not been manufactured at that point. 6. Fresh and dried.
Information contact: David Johnson (202) 694-5324. For historical data or for categories not listed here, call the Bureau of Labor Statistics' PPI Information Hotline at (202) 606-7705.

Farm-Retail Price Spreads

Table 8—Farm-Retail Price Spreads

	Annual			1996		1997				
	1994	1995	1996	Oct	May	Jun	Jul	Aug	Sep	Oct
Market Basket¹										
Retail cost (1982-84=100)	145.4	149.4	155.9	159.0	159.0	158.6	159.0	159.8	160.0	160.4
Farm value (1982-84=100)	101.4	102.7	110.8	115.5	107.5	105.3	105.2	106.5	105.2	103.2
Farm-retail spread (1982-84=100)	169.0	174.6	180.3	182.5	186.8	186.7	187.9	188.4	189.6	191.2
Farm value-retail cost (%)	24.4	24.1	24.9	25.4	23.7	23.5	23.2	23.4	23.0	22.5
Meat products										
Retail cost (1982-84=100)	135.4	135.5	140.1	143.6	143.9	144.5	144.6	145.5	145.6	145.2
Farm value (1982-84=100)	96.1	93.8	100.4	107.4	107.2	104.5	103.9	104.1	100.5	97.8
Farm-retail spread (1982-84=100)	175.7	178.2	180.9	180.8	181.6	185.6	186.4	188.0	191.9	193.8
Farm value-retail cost (%)	35.9	35.1	36.3	37.9	37.7	36.6	36.4	36.2	34.9	34.1
Dairy products										
Retail cost (1982-84=100)	131.7	132.8	142.1	149.3	145.4	144.1	143.3	143.4	143.5	145.7
Farm value (1982-84=100)	94.5	92.2	107.2	117.7	100.9	95.3	93.0	91.7	94.0	96.7
Farm-retail spread (1982-84=100)	166.1	170.3	174.3	178.5	186.4	189.1	189.7	191.1	189.2	190.9
Farm value-retail cost (%)	34.4	33.3	36.2	37.8	33.3	31.7	31.1	30.7	31.4	31.8
Poultry										
Retail cost (1982-84=100)	141.5	143.5	152.4	157.1	156.6	156.7	157.9	155.6	156.8	155.6
Farm value (1982-84=100)	114.6	113.7	126.2	131.9	118.6	121.5	128.6	128.4	124.2	114.4
Farm-retail spread (1982-84=100)	172.6	177.7	182.6	186.2	200.4	197.3	191.7	186.9	194.3	203.1
Farm value-retail cost (%)	43.3	42.4	44.3	44.9	40.5	41.5	43.6	44.2	42.4	39.3
Eggs										
Retail cost (1982-84=100)	114.3	120.5	142.1	142.6	133.4	128.8	132.9	137.7	136.9	135.9
Farm value (1982-84=100)	83.5	91.1	114.7	110.3	87.8	78.0	90.2	85.6	99.0	91.4
Farm-retail spread (1982-84=100)	169.4	173.2	191.4	200.6	215.3	220.0	209.6	231.3	205.0	215.8
Farm value-retail cost (%)	47.0	48.6	51.9	49.7	42.3	38.9	43.6	39.9	46.5	43.2
Cereal and bakery products										
Retail cost (1982-84=100)	164.2	167.5	174.0	175.1	176.9	178.2	178.3	178.6	178.1	178.4
Farm value (1982-84=100)	102.6	102.6	102.6	116.7	114.1	107.1	100.6	104.1	106.3	104.5
Farm-retail spread (1982-84=100)	171.5	176.5	183.9	183.2	185.7	188.1	189.1	189.0	188.1	188.7
Farm value-retail cost (%)	7.7	7.5	7.2	8.2	7.9	7.4	6.9	7.1	7.3	7.2
Fresh fruit										
Retail cost (1982-84=100)	208.8	226.9	243.0	255.6	248.9	236.1	237.8	246.6	255.6	254.0
Farm value (1982-84=100)	119.4	136.2	151.7	158.7	128.8	125.3	121.9	139.0	147.2	137.1
Farm-retail spread (1982-84=100)	250.1	268.7	285.2	300.4	304.4	287.3	291.3	296.3	305.6	307.9
Farm value-retail cost (%)	18.1	19.0	19.7	19.6	16.3	16.8	16.2	17.8	18.2	17.1
Fresh vegetables										
Retail cost (1982-84=100)	172.3	193.1	189.2	180.9	187.3	189.1	190.3	192.3	189.5	192.8
Farm value (1982-84=100)	121.1	130.1	113.3	102.0	98.7	115.1	118.9	135.2	117.7	115.0
Farm-retail spread (1982-84=100)	198.6	225.5	228.3	221.5	232.8	227.2	227.0	221.7	226.4	232.8
Farm value-retail cost (%)	23.9	22.9	20.3	19.1	17.9	20.7	21.2	23.9	21.1	20.3
Processed fruits and vegetables										
Retail cost (1982-84=100)	134.5	137.5	144.4	146.4	148.3	148.3	148.8	148.7	147.6	147.2
Farm value (1982-84=100)	112.5	119.2	117.2	122.8	116.7	116.4	115.8	115.0	114.6	114.1
Farm-retail spread (1982-84=100)	141.3	143.2	152.9	153.8	158.2	158.2	159.1	159.2	157.9	157.5
Farm value-retail cost (%)	19.9	20.6	19.3	19.9	18.7	18.7	18.5	18.4	18.5	18.4
Fats and oils										
Retail cost (1982-84=100)	133.5	137.3	140.5	141.6	142.0	141.6	141.4	141.4	142.0	141.7
Farm value (1982-84=100)	125.5	121.3	112.3	111.2	110.0	108.7	111.5	108.0	105.2	104.8
Farm-retail spread (1982-84=100)	136.5	143.1	150.9	151.8	154.3	154.8	153.2	153.9	154.7	154.9
Farm value-retail cost (%)	25.3	23.8	21.5	21.2	20.8	20.5	21.1	20.5	20.0	19.9
	Annual			1996		1997				
	1994	1995	1996	Dec	Jul	Aug	Sep	Oct	Nov	Dec
Beef, Choice										
Retail price (cents/lb.) ²	284.4	280.2	279.5	287.3	279.2	281.0	283.0	279.0	278.0	280.9
Wholesale value (cents) ³	163.9	158.1	158.2	165.3	157.1	161.2	159.4	158.7	160.2	155.6
Net farm value (cents) ⁴	138.4	134.9	137.2	138.7	134.7	138.0	137.8	138.2	139.5	136.5
Farm-retail spread (cents)	147.2	145.3	142.3	148.6	144.5	143.0	145.2	140.8	138.5	144.4
Wholesale-retail (cents) ⁵	120.2	122.1	121.3	122.0	122.1	119.8	123.6	120.3	117.8	125.3
Farm-wholesale (cents) ⁶	27.0	23.2	21.0	26.6	22.4	23.2	21.6	20.5	20.7	19.1
Farm value-retail price (%)	49.0	48.0	49.0	48.0	48.0	49.0	49.0	50.0	50.0	49.0
Pork										
Retail price (cents/lb.) ²	194.8	220.9	231.5	231.2	232.7	236.0	234.7	234.9	231.3	226.8
Wholesale value (cents) ³	98.8	117.2	117.1	126.2	123.4	123.3	117.4	110.5	107.9	101.5
Net farm value (cents) ⁴	66.7	84.6	81.1	87.1	93.3	85.1	78.3	73.2	69.9	62.1
Farm-retail spread (cents)	128.1	136.3	150.4	144.1	139.4	150.9	156.4	161.7	161.4	164.7
Wholesale-retail (cents) ⁵	96.0	103.7	114.4	105.0	109.3	112.7	117.3	124.4	123.4	125.3
Farm-wholesale (cents) ⁶	32.1	32.6	36.0	39.1	30.1	38.2	39.1	37.3	38.0	39.4
Farm value-retail price (%)	34.0	38.0	35.0	38.0	40.0	36.0	33.0	31.0	30.0	27.0

1. Retail costs based on CPI-U of retail prices for domestically produced farm foods, published monthly by the Bureau of Labor Statistics (BLS). Farm value is payment for the quantity of farm equivalent to the retail unit, less allowance for by-product. Farm values, based on prices at first point of sale, may include marketing charges such as grading and packing for some commodities. Farm-retail spread, the difference between retail price and farm value, represents charges for assembling, processing, transporting, distributing. 2. Weighted-average price of retail cuts from pork and choice yield grade 3 beef. Prices from BLS. 3. Value of wholesale (boxed beef) and wholesale cuts (pork) equivalent to 1 lb. of retail cuts adjusted for transportation costs and by-product values. 4. Market value to producer for live animal equivalent to 1 lb. of retail cuts, minus value of by-products. 5. Charges for retailing and other marketing services such as wholesaling, and in-city transportation. 6. Charges for livestock marketing, processing, and transportation.

Information contact: Veronica Jones (202) 694-5387, Larry Duewer (202) 694-5172

Table 9—Price Indexes of Food Marketing Costs

	Annual			1996				1997		
	1994	1995	1996	I	II	III	IV	I	II	III
	<i>1987=100*</i>									
Labor—hourly earnings and benefits	443.6	455.2	459.7	456.0	458.5	459.1	465.3	469.3	472.8	474.5
Processing	460.6	472.5	474.7	469.1	474.6	474.7	480.2	481.4	484.6	487.1
Wholesaling	488.7	502.2	516.0	510.9	514.4	518.3	520.5	526.2	534.3	538.9
Retailing	406.7	417.1	419.9	418.7	417.7	417.3	426.1	432.1	433.9	433.4
Packaging and containers	385.3	415.7	399.8	409.3	400.0	397.0	393.1	392.1	388.7	387.6
Paperboard boxes and containers	338.0	392.1	363.8	388.3	366.1	352.1	348.9	347.2	335.4	334.7
Metal cans	519.0	504.9	498.3	506.6	501.9	502.8	481.8	489.4	496.1	490.8
Paper bags and related products	397.0	457.8	437.8	435.7	434.2	438.2	443.3	443.8	441.6	439.5
Plastic films and bottles	311.9	330.6	326.5	323.3	321.9	328.9	331.9	326.6	325.3	326.9
Glass containers	452.8	463.3	460.5	462.5	460.0	460.3	459.3	449.3	446.9	446.6
Metal foil	238.3	263.1	235.7	242.4	239.9	230.8	229.9	228.2	232.0	237.2
Transportation services	434.9	436.6	429.8	435.2	425.0	428.8	430.2	431.0	430.6	432.7
Advertising	507.7	539.1	580.1	559.0	579.2	580.6	582.8	608.1	608.7	
Fuel and power	660.7	633.7	670.7	635.4	670.3	678.0	699.2	689.5	657.4	658.1
Electric	519.6	511.3	501.3	487.8	503.8	521.0	492.6	488.5	499.0	517.7
Petroleum	596.5	559.7	666.8	593.5	669.3	658.9	745.5	672.8	609.7	574.8
Natural gas	1,152.0	1,091.7	1,136.7	1,105.5	1,123.6	1,136.7	1,180.9	1,261.1	1,165.7	1,179.7
Communications, water and sewage	276.9	284.9	296.8	294.2	297.5	299.1	299.1	301.1	302.2	303.4
Rent	273.6	269.0	268.2	268.9	268.1	268.6	268.3	266.6	265.6	265.0
Maintenance and repair	472.5	486.1	499.6	493.7	497.2	501.4	506.2	509.6	513.0	517.3
Business services	475.2	491.0	501.7	496.8	500.1	503.3	506.6	509.5	511.7	504.8
Supplies	326.0	342.7	338.3	337.0	339.2	338.2	339.0	338.8	337.0	337.5
Property taxes and insurance	529.5	546.8	564.3	558.5	561.8	566.5	570.4	573.6	577.3	582.2
Interest, short-term	96.5	116.1	106.0	101.0	106.8	109.9	106.3	107.6	112.6	109.5
Total marketing cost index	435.0	444.8	452.1	449.0	450.9	451.9	455.6	458.6	458.4	458.9

P = Preliminary. * Indexes measure changes in employee earnings and benefits and in prices of supplies used in processing, wholesaling, and retailing U.S. farm foods purchased for at-home consumption.

Information contact: Veronica Jones (202) 694-5387.

Livestock & Products

Table 10—U.S. Meat Supply & Use

	Beg. stocks	Production ¹	Imports	Total supply	Exports	Ending stocks	Consumption		Primary market price ⁴
							Total	Per capita ²	
							Million lbs. ⁵		Lbs.
Beef									
1995	548	25,222	2,103	27,873	1,821	519	25,533	68	66
1996	519	25,525	2,073	28,117	1,877	377	25,863	68	65
1997	F	377	25,494	2,328	28,199	2,093	25,606	66	66
1998	F	500	25,081	2,700	28,281	1,985	25,946	67	66-71
Pork									
1995	438	17,849	664	18,951	787	396	17,768	52	42
1996	396	17,117	618	18,131	970	366	16,795	49	53
1997	F	366	17,286	627	18,279	1,040	16,824	49	51
1998	F	415	18,707	575	19,697	990	18,282	53	38-41
Veal⁶									
1995	7	319	0	326	0	7	319	1	75
1996	7	378	0	385	0	7	378	1	59
1997	F	7	335	0	342	0	335	1	82
1998	F	7	271	0	278	0	272	1	87
Lamb and mutton									
1995	11	287	64	362	6	8	348	1	76
1996	8	268	73	349	6	9	334	1	85
1997	F	9	260	80	349	6	331	1	88
1998	F	12	231	84	327	8	308	1	91
Total red meat									
1995	1,004	43,677	2,831	47,512	2,614	930	43,968	122	--
1996	930	43,288	2,764	46,982	2,853	759	43,370	119	--
1997	F	759	43,375	3,035	47,169	3,139	43,096	117	--
1998	F	934	44,290	3,359	48,583	2,983	44,808	121	--
Broilers									
1995	458	24,827	1	25,287	3,894	560	20,832	69	56
1996	560	26,124	4	26,688	4,420	641	21,626	71	61
1997	F	641	27,061	5	27,707	4,683	22,399	73	59
1998	F	625	28,556	3	29,184	4,750	23,734	76	54-58
Mature chicken									
1995	14	496	3	513	99	7	406	2	--
1996	7	491	0	498	265	6	228	1	--
1997	F	6	509	0	515	398	110	0	--
1998	F	7	530	0	537	390	142	1	--
Turkeys									
1995	254	5,069	2	5,326	348	271	4,706	18	66
1996	271	5,401	1	5,673	438	328	4,906	19	66
1997	F	328	5,385	1	5,714	599	4,765	18	65
1998	F	350	5,384	1	5,735	610	4,799	18	60-64
Total poultry									
1995	727	30,393	6	31,125	4,342	839	25,944	88	--
1996	839	32,015	5	32,859	5,123	975	26,760	90	--
1997	F	975	32,955	6	33,936	5,680	27,274	91	--
1998	F	982	34,470	4	35,456	5,750	28,675	95	--
Red meat and poultry									
1995	1,731	74,070	2,837	78,637	6,956	1,769	69,912	210	--
1996	1,769	75,303	2,769	79,841	7,976	1,734	70,130	209	--
1997	F	1,734	76,330	3,041	81,105	8,819	70,369	208	--
1998	F	1,916	78,760	3,363	84,039	8,733	73,483	216	--

F = Forecast. -- = Not available. 1. Total including farm production for red meat and federally inspected plus nonfederally inspected for poultry.

2. Retail-weight basis. 3. Red Meat: Carcass to retail conversion; poultry ready-to-cook production to retail weight. 4. Dollars per cwt. for red meat; cents per pound for poultry. Beef: Medium #1, Nebraska Direct 1,100-1,300 lb.; pork: barrows and gilts, Iowa, Southern Minnesota; veal: farm price of calves; lamb and mutton: choice slaughter lambs, San Angelo; broilers: wholesale 12-city average; turkeys: wholesale NY 8-16 lb. young hens. 5. Carcass weight for red meats and certified ready-to-cook for poultry. 6. Beginning in 1989, veal trade is no longer reported separately.

Information contact: LaVerne Williams (202) 694-5190.

Table 11—U.S. Egg Supply & Use

	Beg. stocks	Production	Imports	Total supply	Exports	Hatching use	Ending stocks	Consumption		Primary market price*
								Total	Per capita	
	<i>Million doz.</i>									
									<i>No.</i>	<i>Cts./doz.</i>
1991	11.6	5,800.6	2.3	5,814.5	154.5	708.6	13.0	4,938.5	234.6	77.5
1992	13.0	5,905.0	4.3	5,922.3	157.0	732.0	13.5	5,019.8	235.9	65.4
1993	13.5	6,005.8	4.7	6,023.9	158.9	769.6	10.7	5,084.6	236.4	72.5
1994	10.7	6,177.6	3.7	6,192.0	187.6	805.4	14.9	5,184.1	238.7	67.3
1995	14.9	6,215.6	4.1	6,234.6	208.9	847.2	11.2	5,167.3	235.7	72.9
1996	11.2	6,358.3	5.4	6,374.9	253.1	864.7	8.5	5,248.5	237.2	88.2
1997 P	8.5	6,446.6	6.0	6,461.1	219.1	890.3	8.0	5,343.8	239.3	81.2
1998 F	8.0	6,625.0	4.0	6,637.0	235.0	930.0	10.0	5,462.0	242.4	76.5

F = Forecast. P = Preliminary. * Cartoned grade A large eggs, New York.

Information contact: LaVerne Williams (202) 694-5190

Table 12—U.S. Milk Supply & Use¹

Production	Farm use	Farm Market-ings	Beg. stocks	Imports	commer- cial supply	CCC net re- movals	Ending stocks	Disap- pear- ance	All milk price ¹	Skim solids basis	Total solid basis ²	
												<i>Million doz.</i>
1989	143.9	2.1	141.8	4.3	2.5	148.6	9.4	4.1	135.0	13.6	0.4	4.0
1990	147.7	2.0	145.7	4.1	2.7	152.5	9.0	5.1	138.3	13.7	1.6	4.6
1991	147.7	2.0	145.7	5.1	2.6	153.4	10.4	4.5	138.6	12.2	3.9	6.5
1992	150.9	1.9	149.0	4.5	2.5	155.9	9.9	4.7	141.3	13.1	2.0	5.2
1993	150.6	1.8	148.8	4.7	2.8	156.2	6.7	4.6	145.0	12.8	3.9	5.0
1994	153.7	1.7	152.0	4.6	2.9	159.4	4.8	4.3	150.3	13.0	3.7	4.2
1995	155.4	1.6	153.9	4.3	2.9	161.1	2.1	4.1	154.9	12.7	4.4	3.5
1996	154.3	1.5	152.8	4.1	2.9	159.9	0.1	4.7	155.1	14.7	0.8	0.5
1997 F	156.8	1.4	155.4	4.7	2.8	162.9	1.3	4.5	157.1	13.4	3.7	2.8

F = Forecast. 1. Delivered to plants and dealers; does not reflect deductions. 2. Arbitrarily weighted average of milkfat basis (40 percent) and skim solids basis (60 percent).

Information contact: Jim Miller (202) 694-5184.

Table 13—Poultry & Eggs

	Annual			1996			1997				
	1994	1995	1996	Nov	Jun	Jul	Aug	Sep	Oct	Nov	
Broilers											
Federally inspected slaughter certified (mil. lb.)	23,846.2	23,846.2	23,846.2	2,013.2	2,239.7	2,303.0	2,276.8	2,281.1	2,487.8	2,008.9	
Wholesale price, 12-city (cents/lb.)	55.8	56.2	61.2	64.4	59.1	63.0	63.2	59.9	55.4	54.6	
Price of grower feed (\$/ton) ¹	136.4	139.3	174.4	152.0	170.0	157.0	154.0	145.0	143.0	149.0	
Broiler-feed price ratio ²	5.2	5.0	4.5	5.3	4.4	5.1	5.2	5.3	4.9	4.6	
Stocks beginning of period (mil. lb.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Broiler-type chicks hatched (mil.) ³	7,562.3	7,932.4	8,076.9	631.1	702.5	709.1	709.3	683.2	683.1	648.1	
Turkeys											
Federally inspected slaughter certified (mil. lb.)	4,992.2	5,128.8	5,465.6	468.4	485.1	491.8	456.3	462.6	513.4	456.6	
Wholesale price, Eastern U.S. 8-16 lb. young hens (cents/lb.)	65.7	66.4	66.5	73.6	68.6	68.6	68.1	67.9	67.3	70.1	
Price of turkey grower feed (\$/ton) ¹	125.5	130.1	165.8	142.0	148.0	137.0	138.0	135.0	132.0	134.0	
Turkey-feed price ratio ²	6.6	6.3	5.3	6.4	5.6	6.0	5.9	6.1	6.1	6.3	
Stocks beginning of period (mil. lb.)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Poults placed in U.S. (mil.) ³	317.5	321.7	327.2	23.8	28.4	30.1	26.3	23.9	24.6	23.3	
Eggs											
Farm production (mil.)	74,131.0	74,591.0	76,148.0	6,409.0	6,265.0	6,433.0	6,467.0	6,344.0	6,651.0	6,555.0	
Average number of layers (mil.)	292.0	294.0	297.0	302.0	299.0	299.0	299.0	303.0	306.0	309.0	
Rate of lay (eggs per layer on farms)	254.1	253.0	255.0	21.2	20.9	21.6	21.6	21.0	21.7	21.2	
Cartoned price, New York, grade A large (cents/doz.) ⁴	67.2	72.9	88.2	102.5	68.4	81.9	74.7	82.4	77.0	97.4	
Price of laying feed (\$/ton) ¹	143.1	139.8	178.9	145.0	181.0	160.0	163.0	150.0	151.0	141.0	
Egg-feed price ratio ²	8.6	9.1	8.8	11.3	6.6	8.2	7.8	9.3	8.7	11.4	
Stocks, first of month Frozen (mil. doz.)	10.4	14.8	10.5	10.2	6.4	6.5	7.0	8.4	8.3	8.3	
Replacement chicks hatched (mil.)	382.0	397.0	407.0	31.4	37.0	34.0	32.9	35.8	35.2	27.8	

1. Calculated from price ratios that were revised February 1995. 2. Pounds of feed equal in value to 1 dozen eggs or 1 lb. of broiler or turkey liveweight. (Revised February 1995). 3. Placement of broiler chicks is currently reported for 15 States only; henceforth, hatch of broiler-type chicks will be used as a substitute. 4. Price of cartoned eggs to volume buyers for delivery to retailers.

Information contact: Laverne Williams (202) 694-5190

Table 14—Dairy

	1996			1997						
	1994	1995	1996	Nov	Jun	Jul	Aug	Sep	Oct	Nov
Milk prices, Minnesota-Wisconsin, 3.5% fat (\$/cwt) ¹	12.00	11.83	13.39	11.61	10.74	10.86	12.07	12.79	12.83	12.96
Wholesale prices										
Butter, grade A Chi. (cents/lb.)	67.4	75.6	100.3	74.1	105.5	102.7	102.5	101.6	135.3	148.7
Am. cheese, Wis. assembly pt. (cents/lb.)	131.5	132.8	149.1	133.9	117.9	123.3	137.6	141.4	142.4	143.8
Nonfat dry milk (cents/lb.) ²	107.9	108.6	122.2	126.6	107.9	107.6	107.2	107.1	106.9	107.1
USDA net removals ³										
Total milk equiv. (mil. lb.) ⁴	4,803.9	2,106.1	92.3	5.0	139.4	133.8	122.4	129.4	141.2	183.0
Butter (mil. lb.)	204.3	78.5	0.1	0.0	4.9	5.1	4.6	5.1	5.3	7.1
Am. cheese (mil. lb.)	6.9	6.1	4.6	0.4	2.2	1.6	0.6	0.4	1.1	0.8
Nonfat dry milk (Mil. lb.)	290.0	343.8	58.5	5.0	32.7	23.2	35.1	34.7	24.9	31.9
Milk										
Milk prod. 22 states (mil. lb.)	129,819	131,780	131,422	10,499	11,410	11,443	11,227	10,686	10,986	10,602
Milk per cow (lb.)	16,531	16,762	16,833	1,350	1,475	1,477	1,450	1,381	1,421	1,373
Number of milk cows (1,000)	7,853	7,862	7,807	7,775	7,738	7,747	7,744	7,736	7,731	7,721
U.S. milk production (mil. lb.)	153,664	155,425	154,331	6/ 12,325	6/ 13,357	6/ 13,348	6/ 13,091	6/ 12,456	6/ 12,845	6/ 12,391
Stocks, beginning										
Total (mil. lb.)	9,570	5,760	4,168	4,900	6,705	6,799	6,889	6,393	5,817	5,074
Commercial (mil. lb.)	4,550	4,263	4,099	4,890	6,650	6,779	6,858	6,361	5,799	5,058
Government (mil. lb.)	5,020	1,497	69	10	54	21	31	32	19	16
Imports, total (mil. lb.)	2,880	2,936	2,911	334	205	206	228	228	265	--
Commercial disappearance (mil. lb.)	150,327	154,843	155,057	12,738	13,181	13,225	13,578	13,004	13,592	--
Butter										
Production (mil. lb.)	1,295.9	1,264.5	1,174.5	95.3	81.8	81.9	70.3	79.7	83.1	88.2
Stocks, beginning (mil. lb.)	234.7	79.4	18.6	20.5	63.9	59.5	62.8	48.7	43.9	26.6
Commercial disappearance (mil. lb.)	1,097.3	1,186.3	1,179.8	98.4	79.9	73.7	79.8	79.4	95.0	--
American cheese										
Production (mil. lb.)	2,974.4	3,131.4	3,280.8	262.2	286.1	283.9	258.7	260.6	260.1	249.6
Stocks, beginning (mil. lb.)	358.7	310.4	307.0	379.7	446.1	463.9	470.7	461.0	421.8	399.8
Commercial disappearance (mil. lb.)	3,031.5	3,148.5	3,229.7	275.3	268.5	277.8	270.9	299.8	282.4	--
Other cheese										
Production (mil. lb.)	3,760.3	3,785.5	3,936.7	333.3	341.4	331.4	342.3	345.1	359.5	349.9
Stocks, beginning (mil. lb.)	107.0	126.8	105.3	115.2	138.7	140.4	135.9	122.8	109.6	90.2
Commercial disappearance (mil. lb.)	4,055.1	4,125.6	4,242.9	373.2	361.1	358.9	379.3	383.5	408.5	--
Nonfat dry milk										
Production (mil. lb.)	1,230.9	1,233.0	1,061.8	76.7	120.3	112.0	90.8	77.3	72.5	73.6
Stocks, beginning (mil. lb.)	89.6	131.2	85.0	47.5	151.4	173.4	163.8	161.8	141.9	124.9
Commercial disappearance (mil. lb.)	918.3	923.7	1,008.2	69.8	66.0	101.7	60.5	65.6	71.0	--
Frozen dessert										
Production (mil. gal.) ⁵	1,242.7	1,229.6	1,240.9	77.1	125.7	127.1	112.8	99.8	97.0	78.3
	Annual			1996			1997			
	1994	1995	1996	II	III	IV	I P	II P	III P	IV P
Milk production (mil. lb.)										
Milk per cow (lb.)	153,664	155,425	154,331	39,638	37,674	37,966	38,922	40,648	36,897	38,219
No. of milk cows (1,000)	16,175	16,433	16,505	4,231	4,035	4,083	4,200	4,393	4,208	4,153
Milk-feed price ratio	9,500	9,458	9,351	9,369	9,338	9,300	9,267	9,254	9,245	9,202
Returns over concentrate costs (\$/cwt milk)	1.62	1.63	1.60	1.51	1.64	1.60	1.53	1.48	1.47	1.69
	9.65	9.50	10.98	10.40	11.95	11.55	9.80	9.30	9.00	10.80

P = Preliminary. -- = Not available. 1. Manufacturing grade milk. 2. Prices paid f.o.b. Central States production area. 3. Includes products exported through the Dairy Export Incentive Program (DEIP). 4. Milk equivalent, fat basis. 5. Hard ice cream, ice milk, and hard sherbet. 6. Estimated.
Information contact: Laverne Williams (202) 694-5190.

Table 15—Wool

	Annual			1996			1997			
	1994	1995	1996	II	III	IV	I	II	III	IV
U.S. wool price (cents/lb.) ¹	212	258	193	192	192	191	196	244	255	258
Imported wool price (cents/lb.) ²	216	249	196	197	192	191	196	210	213	204
U.S. mill consumption, scoured										
Apparel wool (1,000 lb.)	138,563	129,299	110,986	30,816	23,472	23,092	27,461	28,158	25,546	--
Carpet wool (1,000 lb.)	14,739	12,667	12,311	2,660	3,393	3,111	3,417	3,324	3,367	--

-- = Not available. 1. Wool price delivered at U.S. mills, clean basis. Graded Territory 64's (20.60-22.04 microns) staple 2-3/4" and up. 2. Wool price, Charleston, SC warehouse, clean basis, Australian 60/62's, type 64A (24 micron). Duty since 1982 has been 10.0 cents.

Information contact: Bob Skinner (202) 694-5313

Table 16—Meat Animals

	Annual			1996			1997			
	1994	1995	1996	Nov	Jun	Jul	Aug	Sep	Oct	Nov
Cattle on feed (7 states, 1000+ head capacity)										
Number on feed (1,000 head) ¹	8,256.0	8,031.0	8,667.0	8,534.0	8,231.0	7,679.0	8,770.0	7,850.0	8,558.0	9,390.0
Placed on feed (1,000 head)	18,399.0	20,034.0	19,624.0	1,953.0	1,224.0	1,751.0	2,429.0	2,278.0	2,454.0	1,826.0
Marketings (1,000 head)	17,892.0	18,753.0	18,696.0	1,418.0	1,732.0	1,852.0	2,033.0	1,528.0	1,545.0	1,429.0
Other disappearance (1,000 head)	732.0	674.0	652.0	66.0	44.0	42.0	45.0	42.0	77.0	69.0
Market prices (\$/cwt)										
Slaughter cattle										
Choice steers, 1,100-1,300 lb.										
Texas	73.8	66.7	65.1	70.7	63.5	63.8	65.2	66.0	66.9	67.7
Neb. direct	68.8	66.3	65.1	72.6	64.1	64.8	66.0	66.2	67.1	67.2
Boning utility cows, Sioux Falls	42.5	35.6	30.3	25.2	35.4	37.8	35.4	32.4	31.7	32.2
Feeder steers										
Medium no. 1, Oklahoma City										
600-650 lb.	83.2	70.5	61.3	64.4	84.9	89.4	85.0	88.0	79.6	80.6
750-800 lb.	77.7	68.0	61.1	67.2	78.8	82.2	80.5	78.6	76.8	79.1
Slaughter hogs										
Barrows and gilts, 230-250 lb.										
Iowa, S. Minn.	40.0	42.4	53.4	54.3	57.6	58.8	54.9	50.0	46.6	44.5
6 markets	39.6	42.0	53.4	54.8	57.4	58.8	54.1	49.4	46.2	44.4
Slaughter sheep and lambs										
Lambs, Choice, San Angelo										
Ewes, Good, San Angelo	65.6	75.9	85.3	80.0	83.3	79.7	89.5	85.5	82.8	80.3
Ewes, Good, San Angelo	40.5	33.9	39.1	42.1	31.9	36.3	51.4	44.2	45.4	49.7
Feeder lambs										
Choice, San Angelo										
Choice, San Angelo	69.7	81.1	94.9	92.3	101.0	98.0	100.9	98.1	96.3	94.0
Wholesale meat prices, Midwest										
Boxed beef cut-out value										
Choice, 700-800 lb.										
Choice, 700-800 lb.	106.7	106.1	102.0	115.6	101.6	102.4	104.5	102.6	102.9	103.7
Select, 700-800 lb.	102.1	98.5	95.3	97.2	95.7	96.4	96.4	94.6	93.3	94.7
Canner and cutter cow beef										
Canner and cutter cow beef	84.4	68.7	58.2	53.9	66.8	70.1	68.5	63.9	59.8	59.7
Pork cutout, No. 2										
Pork cutout, No. 2	57.3	60.0	72.4	75.9	75.9	78.2	76.5	70.8	66.1	65.5
Pork loins, 14-18 lb.										
Pork loins, 14-18 lb.	101.5	107.7	118.5	115.4	116.3	112.5	119.3	112.1	99.7	86.0
Pork bellies, 12-14 lb.										
Pork bellies, 12-14 lb.	40.0	43.0	70.0	65.3	80.7	86.7	85.4	72.3	58.0	54.5
Hams, skinned, 20-26 lb.										
Hams, skinned, 20-26 lb.	55.6	55.9	68.5	74.8	66.4	68.5	64.3	62.7	59.9	65.6
All fresh beef retail price	265.0	259.4	252.4	251.2	251.7	251.1	254.6	254.3	254.0	253.5
Commercial slaughter (1,000 head) ²										
Cattle										
Cattle	34,196.4	35,639.4	36,577.0	2,872.0	3,063.0	3,183.0	3,131.0	2,971.0	3,228.0	2,770.0
Steers	18,027.0	18,274.0	17,819.0	1,300.0	1,545.0	1,593.0	1,581.0	1,438.0	1,456.0	1,263.0
Heifers	9,589.0	10,399.0	10,756.0	830.0	999.0	1,012.0	966.0	962.0	1,090.0	869.0
Cows	5,941.0	6,281.0	7,274.0	683.0	458.0	515.0	520.0	524.0	630.0	585.0
Bull and stags	641.0	686.0	728.0	59.0	61.0	63.0	65.0	61.0	64.0	53.0
Calves	1,268.1	1,430.3	1,767.0	145.0	119.0	134.0	127.0	136.0	141.0	122.0
Sheep and lambs										
Sheep and lambs	4,938.4	4,559.8	4,185.0	336.0	303.0	306.0	300.0	323.0	335.0	314.0
Hogs										
Hogs	95,696.5	96,325.5	92,397.0	7,620.0	7,001.0	7,309.0	7,337.0	8,020.0	8,780.0	7,748.0
Barrows and gilts	90,758.0	91,683.0	88,224.0	7,321.0	6,695.0	6,989.0	7,030.0	7,715.0	8,115.0	7,433.0
Commercial production (mil. lb.)										
Beef										
Beef	24,278.0	25,117.0	25,417.0	1,955.0	2,133.0	2,257.0	2,233.0	2,127.0	2,302.0	1,934.0
Veal										
Veal	283.0	307.0	368.0	30.0	26.0	27.0	26.0	28.0	28.0	23.0
Lamb and mutton										
Lamb and mutton	304.0	284.0	265.0	21.0	21.0	20.0	19.0	21.0	22.0	20.0
Pork										
Pork	17,658.0	17,810.0	17,082.0	1,429.0	1,312.0	1,353.0	1,351.0	1,489.0	1,653.0	1,475.0
Hoags and pigs (U.S.) ³										
Inventory (1,000 head) ¹										
Inventory (1,000 head) ¹	57,904	59,990	58,264	56,340	57,200	58,200	56,171	55,900	58,150	60,250
Breeding (1,000 head) ¹										
Breeding (1,000 head) ¹	7,165	7,060	6,839	6,765	6,870	6,770	6,655	6,800	6,950	6,951
Market (1,000 head) ¹										
Market (1,000 head) ¹	50,739	52,930	51,425	49,575	50,330	51,430	49,516	49,100	51,200	53,299
Farrowings (1,000 head)										
Farrowings (1,000 head)	12,378	11,847	11,287	2,964	2,761	2,717	2,677	2,952	2,898	2,894
Pig crop (1,000 head)										
Pig crop (1,000 head)	101,416	98,516	94,972	25,092	23,667	23,159	23,069	25,548	25,209	--
Cattle on Feed, 7 states (1,000 head) ⁴										
Steers and Steer Calves										
Steers and Steer Calves	--	5,218	5,588	5,375	4,177	4,656	5,410	5,417	4,615	5,147
Heifers and Heifer Calves										
Heifers and Heifer Calves	--	2,785	3,005	2,877	2,364	2,798	3,455	3,431	3,026	3,383
Cows and Bulls										
Cows and Bulls	--	30	74	34	37	32	78	56	38	28

-- = Not available. 1. Beginning of period. 2. Classes estimated. 3. Quarters are Dec. of preceding year to Feb. (I), Mar.-May (II), June-Aug. (III), and Sept.-Nov. (IV). 4. Beginning of period. The 7 states include AZ, CA, CO, IA, KS, NE, and TX. *Intentions

Information contact: Leland Southard (202) 501-8553

Crops & Products

Table 17—Supply & Utilization^{1,2}

	Area			Yield	Production	Total Supply ⁴	Feed & residual	Other domestic use	Exports	Total Use	Ending stocks	Farm price ⁷
	Set aside ³	Planted	Harvested									
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Wheat												
1992/93	7.3	72.2	62.8	39.3	2467	3012	194	934	1354	2481	531	3.24
1993/94	5.7	72.2	62.7	38.2	2396	3036	272	968	1228	2467	568	3.26
1994/95	5.2	70.3	61.8	37.6	2321	2981	344	942	1188	2475	507	3.45
1995/96*	6.1	69.1	60.9	35.8	2183	2757	153	987	1241	2381	376	4.55
1996/97*	--	75.6	62.9	36.3	2285	2753	314	995	1001	2310	444	4.30
1997/98*	--	71.0	63.6	39.7	2527	3060	300	1006	1075	2381	679	3.40-3.50
	<i>Mil. acres</i>		<i>lb./acre</i>					<i>Mil. cwt (rough equiv)</i>				<i>\$/cwt</i>
Rice⁶												
1992/93	0.4	3.2	3.1	5,736.2	180	213	--	6/ 96.7	77	174	39	5.9
1993/94	0.7	2.9	2.8	5,510.4	156	202	--	6/ 101.4	75	177	26	8.0
1994/95	0.3	3.4	3.3	5,964.4	198	231	--	6/ 100.7	99	200	31	6.8
1995/96*	0.5	3.1	3.1	5,621.4	174	213	--	6/ 104.6	83	188	25	9.2
1996/97*	--	2.8	2.8	6,120.8	171	206	--	6/ 102.8	76	179	27	9.9
1997/98*	--	3.1	3.0	5,896.4	179	215	--	6/ 107.9	79	187	28	9.25-10.25
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Corn												
1992/93	5.3	79.3	72.1	131.5	9477	10584	5252	1556	1663	8471	2113	2.1
1993/94	10.9	73.2	62.9	100.7	6336	8470	4683	1609	1328	7620	850	2.5
1994/95	2.4	79.2	72.9	138.6	10103	10962	5523	1704	2177	9405	1558	2.3
1995/96*	7.7	71.2	65.0	113.5	7374	8948	4682	1612	2228	8522	426	3.2
1996/97*	--	79.5	73.1	127.1	9293	9733	5362	1692	1795	8849	883	2.7
1997/98*	--	80.2	73.7	127.0	9366	10259	5850	1815	1750	9415	844	2.45-2.75
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Sorghum												
1992/93	2.0	13.2	12.1	72.6	875	928	471	5	277	753	175	1.9
1993/94	2.3	9.9	8.9	59.9	534	709	456	4	202	662	48	2.3
1994/95	1.6	9.8	8.9	72.8	649	697	400	3	223	625	72	2.1
1995/96*	1.7	9.5	8.3	55.6	460	532	305	11	198	514	18	3.2
1996/97*	--	13.2	11.9	67.5	803	821	529	40	205	774	47	2.3
1997/98*	--	10.1	9.4	69.5	653	701	425	35	195	655	46	2.10-2.40
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Barley												
1992/93	2.3	7.8	7.3	62.5	455	595	191	173	80	444	151	2.0
1993/94	2.5	7.8	6.8	58.9	398	621	244	172	66	482	139	2.0
1994/95	2.7	7.2	6.7	56.2	375	580	228	173	66	467	113	2.0
1995/96*	2.9	6.7	6.3	57.3	360	513	179	172	62	413	100	2.9
1996/97*	--	7.1	6.8	58.5	396	532	220	172	31	423	109	2.7
1997/98*	--	6.9	6.4	58.3	374	519	160	172	90	422	97	2.35-2.45
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Oats												
1992/93	0.7	7.9	4.5	65.4	294	477	263	95	6	364	113	1.3
1993/94	0.8	7.9	3.8	54.4	207	427	225	93	3	321	106	1.4
1994/95	0.6	6.6	4.0	57.1	229	428	234	92	1	327	101	1.2
1995/96*	0.8	6.3	3.0	54.7	162	343	183	92	2	277	66	1.7
1996/97*	--	4.7	2.7	57.8	155	319	155	95	3	252	67	2.0
1997/98*	--	5.2	2.9	60.5	176	343	175	95	2	272	71	1.55-1.65
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. bu.</i>				<i>\$/bu.</i>
Soybeans⁷												
1992/93	--	59.2	58.2	37.6	2190	2471	7/ 130	1279	770	2179	292	5.6
1993/94	--	60.1	57.3	32.6	1871	2170	7/ 96	1276	589	1961	209	6.4
1994/95	--	61.7	60.9	41.4	2517	2731	7/ 153	1405	838	2396	335	5.5
1995/96*	--	62.6	61.6	35.3	2177	2516	7/ 112	1370	851	2333	183	6.7
1996/97*	--	64.2	63.4	37.6	2382	2575	7/ 126	1436	882	2443	131	7.4
1997/98*	--	70.9	69.9	39.0	2727	2863	7/ 138	1500	975	2613	250	6.10-6.90
	<i>Mil. acres</i>		<i>Bu./acre</i>					<i>Mil. lbs.</i>				<i>Cents/lb.</i>
Soybean Oil												
1992/93	--	--	--	--	13778	16028	--	13054	1419	14473	1555	21.4
1993/94	--	--	--	--	13951	15574	--	12941	1529	14471	1103	27.1
1994/95	--	--	--	--	15613	16733	--	12916	2680	15597	1137	27.6
1995/96*	--	--	--	--	15240	16472	--	13465	992	14457	2015	24.8
1996/97*	--	--	--	--	15743	17811	--	14247	2045	16291	1520	22.5
1997/98*	--	--	--	--	16725	18305	--	14350	2400	16750	1555	24.00-27.00
					<i>1,000 tons</i>							<i>\$/ton⁸</i>
Soybean meal												
1992/93	--	--	--	--	30364	30687	--	24251	6232	30483	204	193.8
1993/94	--	--	--	--	30514	30788	--	25283	5356	30639	150	192.9
1994/95	--	--	--	--	33270	33483	--	26542	6717	33260	223	162.6
1995/96*	--	--	--	--	32527	32826	--	26611	6002	32613	212	236.0
1996/97*	--	--	--	--	34209	34523	--	27322	6994	34316	207	270.9
1997/98*	--	--	--	--	35443	35775	--	28250	7300	35550	225	195-220

See footnotes at end of table.

Table 17—Supply & Utilization (continued)

	Area			Yield	Production	Total Supply ⁴	Feed & residual	Other domestic use	Exports	Total Use	Ending stocks	Farm price ⁵
	Set aside ³	Planted	Harvested									
	Mil. acres		Lb./acre									
Cotton ⁹												
1992/93	1.7	13.2	11.1	700.0	16.2	19.9	--	10.3	5.2	15.5	4.7	53.7
1993/94	1.4	13.4	12.8	606.0	16.1	20.8	--	10.4	6.9	17.3	3.5	58.1
1994/95	1.7	13.7	13.3	708.0	19.7	23.2	--	11.2	9.4	20.6	2.7	72.0
1995/96*	0.3	16.9	16.0	536.0	17.9	21.0	--	10.7	7.7	18.3	2.6	10/ 75.40
1996/97*	--	14.6	12.9	707.0	18.9	22.0	--	11.1	6.9	18.1	4.0	11/ 69.30
1997/98*	--	13.8	13.3	686.0	19.0	23.0	--	11.4	7.3	18.7	4.3	--

-- = Not available or not applicable. *January 13, 1998 Supply and Demand Estimates. 1. Marketing year beginning June 1 for wheat, barley, and oats, August 1 for cotton and rice, September 1 for soybeans, corn, and sorghum, October 1 for soybean meal and soybean oil. 2. Conversion factors: Hectare (ha.) = 2.471 acres, 1 metric ton = 2,204.622 pounds, 36.7437 bushels of wheat or soybeans, 39.3679 bushels of corn or sorghum, 45.9296 bushels of barley, 68.8944 bushels of oats, 22.046 cwt of rice, and 4.59 480-pound bales of cotton. 3. Includes diversion, acreage reduction, 50-92, & 0-92 programs. 0/92 & 50/92 set-aside includes idled acreage and acreage planted to minor oilseeds, sesame, and crambe. 4. Includes imports. 5. Marketing-year weighted average price received by farmers. Does not include an allowance for loans outstanding and Government purchases. 6. Residual included in domestic use. 7. Includes seed. 8. Simple average of 48 percent, Decatur. 9. Upland and extra-long staple. Stocks estimates based on Census Bureau data, resulting in an unaccounted difference between supply and use estimates and changes in ending stocks. 10. Weighted average for August through July. 11. Weighted average for August through March.

Information contacts: Wheat, rice and feed grains, Jenny Gonzales (202) 694-5296; soybeans, soybean products and cotton, Mae Dean Johnson (202) 594-5299.

Table 18—Cash Prices, Selected U.S. Commodities

	Marketing year ¹			1996			1997			
	1993/94	1994/95	1995/96	Oct	May	Jun	Jul	Aug	Sep	Oct
Wheat, no. 1 HRW, Kansas City (\$/bu.) ²	3.60	3.97	5.49	4.76	4.61	4.08	3.57	3.84	3.86	3.88
Wheat, DNS, Minneapolis (\$/bu.) ³	5.02	4.26	5.72	4.69	4.58	4.44	4.36	4.49	4.36	4.35
Rice, S.W. La. (\$/cwt) ⁴	20.20	14.55	18.90	20.13	20.5	20.70	20.50	20.06	19.40	18.94
Corn, no. 2 yellow, 30 day, Chicago (\$/bu.)	2.68	2.43	3.97	2.88	2.86	2.72	2.57	2.69	2.66	2.76
Sorghum, no. 2 yellow, Kansas City (\$/cwt)	4.37	4.10	6.66	4.64	4.63	4.48	4.18	4.28	4.13	4.36
Barley, feed, Duluth (\$/bu.)	2.05	2.02	2.67	2.10	2.45	2.31	2.04	2.10	2.29	2.05
Barley, malting Minneapolis (\$/bu.)	2.48	2.75	3.69	NQ	--	2.62	1.74	2.66	2.74	2.74
U.S. cotton price, SLM, 1-1/16 in. (cents/lb.) ⁵	66.10	88.10	83.00	72.20	69.3	71.00	71.80	71.60	70.80	69.50
Northern Europe prices cotton index (cents/lb.) ⁶	70.70	92.70	85.60	75.60	79.4	80.80	81.50	81.10	79.50	77.60
U.S. M 1-3/32 in. (cents/lb.) ⁷	73.10	99.70	94.70	84.50	80.8	82.50	83.70	83.90	82.50	80.50
Soybeans, no. 1 yellow, 30 day Chicago (\$/bu)	6.59	5.73	7.26	7.07	8.72	8.37	7.62	7.45	6.49	6.75
Soybean oil, crude, Decatur (cents/lb.)	27.10	27.60	24.75	21.95	23.68	22.97	21.89	22.06	22.88	24.31
Soybean meal, 48% protein, Decatur (\$/ton)	192.86	162.55	236.00	248.50	306.40	287.90	273.60	273.30	278.30	229.30

NQ = no quotes. 1. Beginning June 1 for wheat and barley; Aug. 1 for rice and cotton; Sept. 1 for corn, sorghum, and soybeans; Oct. 1 for soybean meal and oil. 2. Ordinary protein. 3. 14% protein. 4. Long grain, milled basis. 5. Average spot market. 6. Liverpool Cotlook "A" Index; average of five lowest prices of 13 selected growths. 7. Cotton, Memphis territory growths.

Information contact: Wheat, rice, and feed, Jenny Gonzales (202) 694-5296; soybeans, soybean products, and cotton, Mae Dean Johnson (202) 694-5299

Table 19—Farm Programs, Price Supports, Participation, & Payment Rates

	Target price	Basic loan rate	Payment rates		Effective base acres ²	Program ³	Flexibility contract payment rate	Acres under contract	Contract payment yields	Participation rate ⁴
			Findley or loan rate ¹	Total deficiency						
					Mil. acres	Percent of base	\$/bu.	Mil. acre	Bu/cwt	percent
Wheat										
1992/93	4.00	2.58	2.21	0.81	78.90	5/0/0	--	--	--	83
1993/94	4.00	2.86	2.45	1.03	78.50	0/0/0	--	--	--	88
1994/95	4.00	2.72	2.58	0.61	78.10	0/0/0	--	--	--	87
1995/96	4.00	2.69	2.58	0.00	77.70	0/0/0	--	--	--	85
1996/97	--	--	2.58	--	--	--	0.87	76.40	34.70	99
1997/98 ⁵	--	--	2.58	--	--	--	0.61	76.10	34.60	99
Rice										
1992/93	10.71	6.50	5/ 4.70	4.21	4.10	0/0/0	--	--	--	96
1993/94	10.71	6.50	5/ 5.53	3.98	4.10	5/0/0	--	--	--	97
1994/95	10.71	6.50	5/ 5.88	3.79	4.20	0/0/0	--	--	--	95
1995/96	10.71	6.50	5/ 6.50	*3.22	4.20	5/0/0	--	--	--	95
1996/97	--	6.50	--	--	--	--	2.77	4.10	48.15	99
1997/98 ⁵	--	6.50	--	--	--	--	2.74	4.10	48.09	99
Corn										
1992/93	2.75	2.01	1.72	0.73	82.10	5/0/0	--	--	--	77
1993/94	2.75	1.99	1.72	0.28	81.80	10/0/0	--	--	--	76
1994/95	2.75	1.99	1.89	0.57	81.50	0/0/0	--	--	--	81
1995/96	2.75	1.94	1.89	0.00	81.80	7.5/0/0	--	--	--	82
1996/97	--	--	1.89	--	--	--	0.25	80.50	102.90	98
1997/98 ⁵	--	--	1.89	--	--	--	0.46	80.40	102.80	98
Sorghum										
1992/93	2.61	1.91	1.63	0.72	13.60	5/0/0	--	--	--	79
1993/94	2.61	1.89	1.63	0.25	13.50	5/0/0	--	--	--	82
1994/95	2.61	1.89	1.80	0.59	13.50	0/0/0	--	--	--	81
1995/96	2.61	1.84	1.80	0.00	13.30	0/0/0	--	--	--	77
1996/97	--	--	1.81	--	--	--	0.32	13.00	57.30	99
1997/98 ⁵	--	--	1.76	--	--	--	0.50	13.00	57.30	99
Barley										
1992/93	2.36	1.64	1.40	0.56	11.10	5/0/0	--	--	--	75
1993/94	2.36	1.62	1.40	0.67	10.80	0/0/0	--	--	--	83
1994/95	2.36	1.62	1.54	0.52	10.70	0/0/0	--	--	--	84
1995/96	2.36	1.58	1.54	0.00	10.70	0/0/0	--	--	--	82
1996/97	--	--	1.55	--	--	--	0.33	10.50	47.30	99
1997/98 ⁵	--	--	1.57	--	--	--	0.25	10.50	47.20	99
Oats										
1992/93	1.45	1.03	0.88	0.17	7.20	0/0/0	--	--	--	40
1993/94	1.45	1.02	0.88	0.11	7.10	0/0/0	--	--	--	46
1994/95	1.45	1.02	0.97	0.19	6.80	0/0/0	--	--	--	40
1995/96	1.45	1.00	0.97	0.00	6.50	0/0/0	--	--	--	44
1996/97	--	--	1.03	--	--	--	0.03	6.20	50.80	97
1997/98 ⁵	--	--	1.11	--	--	--	0.03	6.20	50.80	97
Soybeans⁶										
1992/93	--	--	5.02	--	--	--	--	--	--	--
1993/94	--	--	5.02	--	--	--	--	--	--	--
1994/95	--	--	4.92	--	--	--	--	--	--	--
1995/96	--	--	4.92	--	--	--	--	--	--	--
1996/97	--	--	4.97	--	--	--	--	--	--	--
1997/98	--	--	5.26	--	--	--	--	--	--	--
Upland cotton										
1992/93	72.90	52.35	7/ 43.80	20.30	14.90	10/0/0	--	--	--	89
1993/94	72.90	52.35	7/ 47.50	18.60	15.10	7.5/0/0	--	--	--	91
1994/95	72.90	50.00	7/ 50.00	4.60	15.30	11/0/0	--	--	--	89
1995/96	72.90	51.92	7/ 51.92	*0.0	15.50	0/0/0	--	--	--	79
1996/97	--	51.92	--	--	--	--	8.88	16.00	606.00	99
1997/98 ⁵	--	51.92	--	--	--	--	7.40	16.20	609.00	99

-- = not available. 1. There are no Findley loan rates for rice or cotton. See footnotes 5 and 7. 2. Prior to 1996, national effective crop acreage base as determined by FSA. Net of CRP. 3. Program requirements for participating producers (mandatory acreage reduction program/mandatory paid land diversion/optional paid land diversion). Acres idled must be devoted to a conserving use to receive program benefits. 4. Percentage of effective base enrolled in acreage reduction programs. Starting in 1996, participation rate is the percent of eligible acres that entered production flexibility contracts. 5. A marketing loan has been in effect for rice since 1985/86. Loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly). Loans cannot be repaid at less than a specified fraction of the loan rate. Data refer to marketing-year average loan repayment rates Beginning with the 1996 crop, loans are repaid at the lower of the loan rate plus accumulated interest or the adjusted world price. 6. There are no target prices, base acres, acreage reduction programs or deficiency payment rates for soybeans. 7. A marketing loan has been in effect for cotton since 1986/87. In 1987/88 and after, loans may be repaid at the lower of: a) the loan rate or b) the adjusted world market price (announced weekly; Plan B). Starting in 1991/92, loans cannot be repaid at less than 70 percent of the loan rate. Data refer to annual average loan repayment rates. Beginning with the 1996 crop, loans are repaid at the lower of the loan rate plus accumulated interest or the adjusted world price. 8. Estimated payment rates and acres under contract.

** Guaranteed payment rates for producers in the 50/85/92 program were \$0.034/lb. for upland cotton and \$4.21/cwt. for rice.

Note: The 1996 Act replaced target prices and deficiency payments with fixed annual payments to producers.

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 Crop insurance: "Federal Crop Insurance Reform: How Does It Work?" 3/24
 Greenhouse-nursery industry: "U.S. Greenhouse and Nursery Industry Flourishes," 9/26
 Russia:
 "Market Reforms Transform Russia's Ag Import Picture," 8/24
 "Russia As WTO Candidate—The Issues for Agriculture," 12/26
 South Africa: "South Africa: Ag Reforms in the Face of Drought," 7/26

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● Articles by department

Agricultural Economy: 3/2 (farm organization), 4/2, 6/2 (ag and rural employment), 9/2 (grain markets)
 Farm and Rural Communities: 3/22, 6/26, 11/18
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● Commodity spotlights

Corn: 10/9
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● Special reports

Biodiversity: "Agriculture's Links to Biodiversity," 12/32
 Conservation: "Conservation and the 1996 Farm Act," 11/22

Farm Act: "Provisions of the 1996 Farm Bill," April Supplement
 Industrial uses: "Industry Expands Use of Agricultural Commodities," 1-2/22
 Japan: "Japan: New Growth in the #1 U.S. Ag Market," 3/26
 Livestock: "Livestock Manure: Foe or Fertilizer?" 6/30
 Research: "Ag Research: Public and Private Sector Roles," 7/30
 Risk management:
 "Strategies for a New Risk Management Environment," 10/24
 "HTA Contracts: Risks and Lessons," 10/31
 Tillage: "Conservation Tillage Gaining Ground," 8/26
 Trade blocs: "Asia-Pacific Economic Cooperation (APEC) Region: Absorbing U.S. Ag Exports," 9/24

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● Articles by department

Agricultural Economy: 4/2,7,15, 5/2
 Farm and Rural Communities: 5/23, 11/22
 Farm Finance: 4/27, 10/12
 Food and Marketing: 1-2/32, 4/24, 7/14, 8/15, 10/22, 12/11
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● Commodity spotlights

Asparagus: 4/20
 Beef and cattle: 12/6
 Carrots: 11/11
 Corn: 10/5
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 Meat: 1-2/8
 Rice: 9/10
 Soybeans: 9/6
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● Special reports

China: "China: Is Current Ag Policy a Retreat from Reform?" 3/26
 European Union: "Ag Trade Environment with an Enlarged European Union," 6/24
 Farm legislation: "Farm Act '96: Managing Farm Resources in a New Policy Environment," 8/18
 Food industry: "Globalization of the Processed Foods Market," 1-2/34
 Food security: "Market Stability and World Food Security," 4/32
 NAFTA: "NAFTA's Impact on U.S. Agriculture: The First 3 Years," 9/20
 Pork: "The U.S. Pork Industry: As It Changes, Consumers Stand to Gain," 12/20
 State Trading Enterprises: "State Trading Enterprises: Their Role as Importers," 11/31
 Trade, global: "WTO Accession for China and Taiwan: Potential Trade Impacts," 7/18
 Water quality: "USDA's Water Quality Program: The Lessons Learned," 5/28
 World Trade Organization:
 "U.S. Ag Policy—Well Below WTO Ceilings on Domestic Support," 10/26
 "NIS and Baltic Countries Look to Join the WTO," 11/26

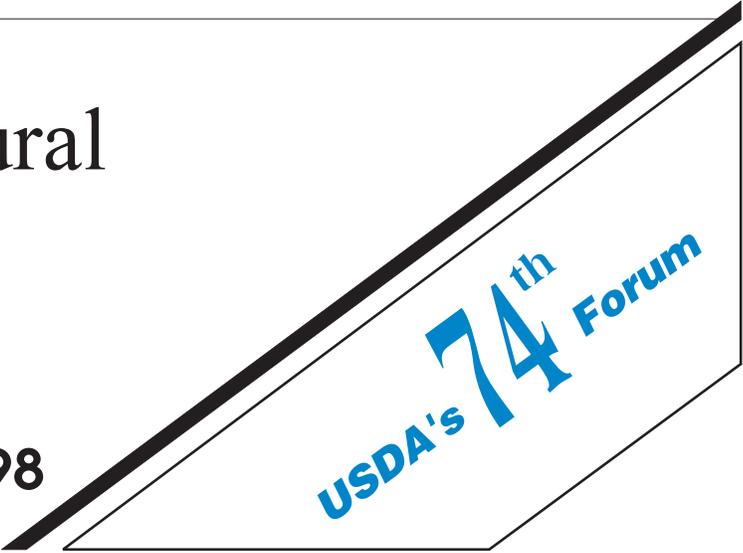
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Outlook Forum program on following page

Monday, February 23

Morning—General Sessions

Opening Address

Dan Glickman, Secretary of Agriculture

Keynote Speaker (to be announced)

U.S. Agricultural Outlook

Keith Collins, USDA Chief Economist

Global Agricultural Trade Prospects

*Gus Schumacher, USDA Under Secretary for
Farm and Foreign Agricultural Services*

Panel: Agriculture's New Frontiers

Moderator: Scott Kilman, The Wall Street Journal

Risk management, global markets, food safety, environmental issues, biotechnology, and new marketing approaches

Afternoon—Breakout Sessions

2:00-3:30 pm—concurrent

New Frontiers for Agricultural Exports

Opportunities and developments in Latin America, Africa, and Eastern Europe

Food Safety Issues

Update on HACCP for meat inspection; delivering safe food to consumers; industry and farmer perspectives

Economic Opportunities for Small Farms

Providing credit and economic opportunities; findings of USDA's Commission on Small Farms

Economic and Scientific Responses to Risk Management

Emerging private-sector risk management instruments; promoting farmers' understanding of risk; a farmer's perspective

3:45-5:15 pm—concurrent

Coping with Sanitary and Phytosanitary Trade Barriers

How food exporters are coping; the role of international standards; policy issues under negotiation

Biotechnology Innovations and Issues

Emerging and future bio-engineered commodities; issues for crop producers; the future of insect-resistant crops

Marketing Organic Food Products

Production and marketing trends; industry developments

Conservation Issues for the New Millennium

Conservation programs after 2000; nutrient management; global climate change and soil conservation

6:00 pm—Forum Dinner

With featured speaker

Tuesday, February 24

Morning—Outlook Sessions

Year-ahead outlook by USDA analysts; discussion by private and public sector specialists

8:00 am—concurrent

Grains and Oilseeds Forum

Livestock, Dairy and Poultry Forum, Part 1

Fruit and Vegetables Forum

Tobacco Forum

10:00 am—concurrent

Livestock, Dairy and Poultry Forum, Part 2

Sweeteners Forum

Farm Finance Forum—Farm Business Challenges

Noon Luncheons (with speakers)

Grains and Oilseeds; Cotton; Livestock; Sweeteners

Afternoon—Breakout Sessions

1:45-3:15 pm—concurrent

International Marketing Challenges in the Coming Decade

Trends in exporting processed products; new marketing approaches; new potential for dairy exports

Market Information Needs of the 21st Century

Role of the Federal government in a changing marketplace; perspectives of producers, industry, and private-sector and government information providers

Infrastructure Changes Facing Agricultural Transportation

Rail system capacity; short rail lines for agriculture; the Upper Mississippi River Transportation System

Food Marketing and Consumer Issues

Retail food prices, the Consumer Price Index, and other topics

