

AGRICULTURAL OUTLOOK



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Rice market ... APEC water supplies ... Organophosphate pesticides ... Farmers' Internet use ... Program payments & farmland value

World Rice Glut Keeps Lid on U.S. Prices

With record supplies at home and extremely low prices in the global market, the 2001/02 U.S. season-average farm price for rice is projected to be the lowest in 15 years. Nonetheless, U.S. rice exports are projected to increase just 3 percent in 2001/02, as large exportable supplies in major exporting countries and low international prices limit U.S. export gains. Low prices for alternative crops, plus expectations of marketing loan payments, were behind this year's expanded rice acreage. Long grain, which typically accounts for more than 70 percent of U.S. rice acreage, made up all of this year's area expansion.

Farms, the Internet, & E-Commerce: Adoption & Implications

Internet use by U.S. farmers has grown rapidly, as advances in computer and other communication and information technology make the Internet more accessible. Use of computers on farms has grown from 38 percent of all farms to 55 percent since 1997, while Internet use has grown from 13 percent of all farms to 43 percent. In 2000, 24 percent of farms used the Internet as a management tool in their farming operations, including \$665 million in online buying and selling. Most farms appear to be using the Internet for only a portion of their overall farm business. Internet use by farm businesses seems to be equally attractive to those specializing in crop or in livestock production, and the extent of use by different types and sizes of farms is generally not far from the average for all farm Internet users.

Organophosphate Insecticides Being Scrutinized, Restricted

The U.S. Environmental Protection Agency (EPA) is reviewing the risks of organophosphate (OP) pesticides, which are widely used in agriculture. So far, more of these have been identified with worker safety, ecosystem, and nonoccupational exposure risks than with dietary or drinking water risks. Most regulatory



actions resulting from the initial assessment have affected OP use on fruits and vegetables. Preliminary results of EPA's cumulative assessment, which examines the risks of OPs as a group, are to be released December 1 and may result in additional use restrictions.

Water Supply in the APEC Region: Scarcity or Abundance?

Roughly 70 percent of the earth's surface is covered by water, but less than 1 percent of the earth's water is fresh, and access to fresh water is critical to the food system. In the Asia-Pacific Economic Cooperation (APEC) region, projected population growth in its cities, particularly in China and developing economies, will put huge stress on the region's capacity to provide basic services, including water supply. Unless water control facilities are expanded and/or efficiencies in water use are achieved, there is potential for water shortages in Korea, Chinese Taipei, Japan, China, Mexico, and the U.S. Large investments in water infrastructure, dams, and diversion channels to expand the water supply are becoming increasingly unaffordable, both economically and environmentally. Where water is scarce, creation of market mechanisms

will assure more efficient and sustainable use of water resources.

Higher Cropland Values from Farm Program Payments: Who Gains?

Government commodity program payments are estimated to have added nearly \$62 billion to U.S. farmland values, as farmland value depends largely on expected future earnings, including program payments. From the perspective of many farm operators who own land, farmland value increases are favorable. Farmland value underlies the financial stability of many farm businesses, and farmland is often the principal source of collateral for farm loans. But for operators who pay more to buy land, appreciated values add to the fixed cost of production, largely related to higher financing costs and/or real estate taxes. Additionally, operators who lease farmland may pay higher rents that reflect their receipt of some of the government payments.

The added farmland value is particularly high in the Heartland region, where farm commodity payments have added \$40 billion to the market value of cropland, nearly two-thirds of the effect nationwide. Much of the added value nationally, over 60 percent, accrues to nonoperator landlords who lease out their land.

Taiwan's Trade Barriers to Recede With WTO Accession in Sight

Taiwan, under recently negotiated provisions of its pending membership in the World Trade Organization (WTO), has committed to market access terms with implications for agricultural trade, particularly for the U.S. Taiwan agreed to concessions and commitments equivalent to those made in the WTO Agreement on Agriculture by developed-country members. Taiwan's agricultural tariffs will be reduced; the simple average rate across all tariff lines for agricultural products will fall from the current level of 20.02 percent to 14.01 percent in 2002 and to 12.86 percent in 2004. Taiwan will also lift its ban on imports of rice and a range of other items.

Briefs

Livestock, Dairy, & Poultry**U.S. Poultry Exports Maintain Star Billing**

U.S. poultry producers currently receive the benefits of relatively low-cost feed and are increasingly significant players in global export markets. In 2001, broiler stocks tightened as production slowed and exports rose, whereas large stocks of whole turkeys have accumulated.

Broilers. Slow production growth thus far this year, in tandem with a strong export market, has lowered stocks and increased the prices of most broiler products. Broiler parts that are popular in foreign markets have seen the strongest price growth, while the price of products such as breast meat, which are sold primarily in the domestic market, have remained relatively steady.

This year's combination of slower production growth and a strong export market have had a noticeable effect on the level of broiler stocks in cold storage. Total cold storage supplies at the end of August were down 23 percent from the previous year. Stocks of whole birds declined the most—40 percent lower in August than in

the previous year—while broiler parts were reported down 22 percent.

With prices for many broiler products well above year-earlier levels, stocks of whole birds and parts much lower than a year earlier, and feed costs expected to remain low, broiler integrators have recently begun to increase their weekly chick placements. Over the 5-week period ending September 22, chick placements increased 2.8 percent from the same period a year ago. With this level of chick placement, broiler production in October through the middle of November is expected to average 2 to 3 percent higher than the previous year.

During the first quarter of 2001, a slowdown in production, an increase in export shipments, and a reduction in broiler stocks teamed together in a predictable upward price thrust. In September, the average price for broiler leg quarters was 34 cents a pound, 22 percent higher than a year earlier. This is an increase of 116 percent from its low in April 1999, following the *ruble's* devaluation in the wake

of Russia's economic collapse. Wing prices have also been strongly affected by the robust export market and lower domestic production. Between September 2000 and September 2001, wing prices rose by 58 percent to \$1.10 a pound.

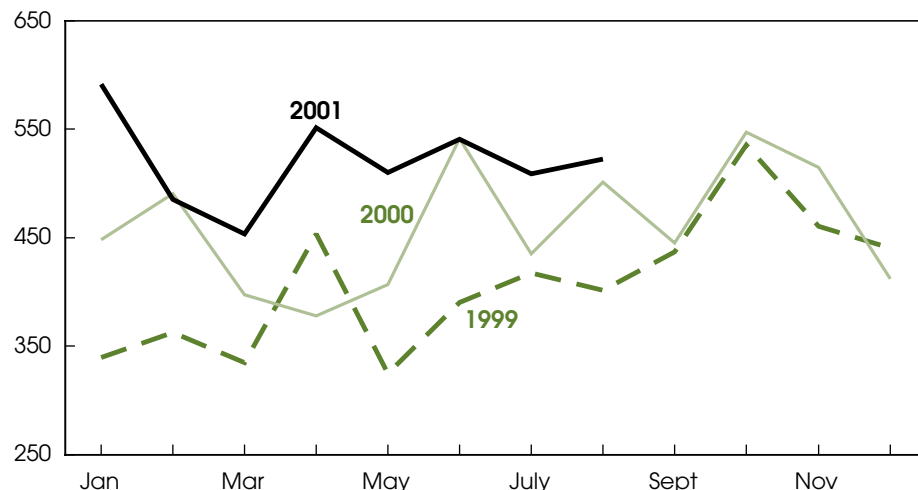
Banking on current prices for broiler parts, combined with lower stock levels and the expectation for continued low feed grain prices, broiler processors are expected to expand production to 31.8 billion pounds in 2002. These developments normally would spur the U.S. broiler industry to increase production more strongly, but concerns for domestic and foreign economic slowdowns will temper producers' optimism.

Turkey. Turkey production over the first 8 months of 2001 has totaled 3.7 billion pounds, 2.4 percent higher than the same period in 2000. The increase, chiefly the result of an increase in the average bird weight at slaughter, is expected to continue at about this rate during the second half of 2001.

Over the first 5 months of 2001, total frozen stocks of turkey were lower than the previous year's, as smaller holdings of turkey parts offset higher holdings of whole turkey. However, at the end of August, cold storage holdings were 3 percent higher than in the previous year with stocks of whole birds up 9 percent.

U.S. Broiler Exports Hit 3-Year Monthly Peaks in 2001

Million lbs.



Economic Research Service, USDA

These higher stocks of whole birds, combined with the higher turkey slaughter over the first 8 months of 2001, exerted downward pressure on whole bird prices. Wholesale whole-bird prices averaged 66 cents a pound in August, down 10 percent from the previous year.

The supply-and-demand scenario for turkey parts was somewhat different. While there is no breakout of the types of turkey parts held in cold storage, prices for a number of turkey parts have risen strongly during the past year. Prices for turkey drumsticks and wings in August were up 13 and 33 percent, respectively, from a year earlier. Turkey breast prices, on the other hand, declined 5 percent from the previous year.

U.S. Poultry Sector Hatching Strong Sales In Russia, Mexico

Enormous strides in broiler exports during the last decade have linked the U.S. domestic industry to the fortunes of its major importing countries. In 2001, exports are expected to total almost 6.2 billion pounds, 20 percent of total domestic production. And, while the domestic turkey industry is not as dependent on exports as the broiler industry—in 2000, only 9 percent of domestic turkey production was exported—a substantial slowdown in exports would be expected to put downward pressure on turkey prices.

With a substantial percentage of total production moving into the export market, the U.S. broiler industry has become very sensitive to changes in export volume. Even though broiler exports go out to a large number of countries, changes in shipments to the two main markets—Russia and China—are especially important. During the first 7 months of 2001, broiler shipments to Russia and China totaled 2.2 billion pounds. The Russian total includes shipments to Latvia and Estonia, and exports to China include shipments to Hong Kong.

The largest factor in the growth of overall broiler exports has been the increase in shipments to Russia. Through July, shipments have totaled over 1.3 billion pounds, up over 100 percent from the previous year. This has more than offset the decline in exports to Latvia and Estonia. Shipments to countries such as Poland and Georgia have also been much higher. Closer to home, Mexico continues to be the third-largest U.S. market. However, exports have not increased to all countries; shipments to China are currently 2.4 percent below the previous year.

For 2002, broiler exports are forecast at 6.35 billion pounds, an increase of around 150 million pounds from the previous

year. Exports to Russia and its surrounding countries are expected to grow, as these countries have been less affected by the economic slowdown that has occurred elsewhere. Demand continues to flourish in Russia, where livestock production is still very low compared with levels achieved before devaluation of the *ruble*. Furthermore, broiler meat is still relatively less expensive and in greater supply than competing beef and pork products.

Turkey exports have also increased this year, in many ways mirroring the growth in broiler exports. Over the first 7 months of 2001, turkey exports totaled 272 million pounds, 14 percent more than in the same period in 2000. Most of the rise is from greater shipments to Russia and surrounding countries. Russia is the second largest market for U.S. turkey exports, with shipments totaling nearly 53 million pounds through July. Partially offsetting these increases, shipments to Mexico, by far the largest market, dropped 2 percent. The pace of turkey exports is expected to slow in the remainder of 2001 due to economic uncertainties throughout the globe.

The current forecast is for essentially no growth in U.S. turkey exports in 2002. The largest uncertainty lies with the Mexican market (54 percent of total U.S. turkey exports in 2000), where the economy is expected to weaken in response to a slowing U.S. economy. However, considerable turkey exports to Mexico are in the form of ground or mechanically deboned turkey meat that is combined with beef or pork products for sausage production. If the Mexican consumer responds to harder times by scaling back purchases of other meat products in favor of less expensive sausages, any negative impact on turkey exports may be tempered.

For 2002, the economic slowdown has cast doubt on production and export increases. While turkey production is forecast to reach 5.7 billion pounds in

2002—a 3.4-percent increase from the previous year. Exports are expected to be just under 500 million pounds in 2002, about even with 2001. **AO**

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The rendering industry: how has it responded to the challenges of mad cow disease and foot-and-mouth disease?

In an upcoming issue of *Agricultural Outlook*

Briefs

Specialty Crops**Smaller 2001 U.S. Pear Crop To Boost Prices**

An overall slump in pear production this year, coinciding with decreased supplies of domestically grown apples, points to higher grower prices for fresh-market pears in 2001/02. Total U.S. pear production for 2001 is forecast down 5 percent from 2000 to 1.8 billion pounds.

For the second consecutive year, the harvest of Bartlett pears is projected to decline, and at 946 million pounds would be 9 percent smaller than a year ago and 19 percent below 1999. Combined production of other U.S. pear varieties is forecast at 885 million pounds, down 1 percent.

Nearly all the Bartlett pears in the U.S. are grown in California, Oregon, and Washington. Production of Bartlett pears, used mostly for processing, is expected to fall 18 percent in California and by 3 percent in Oregon. Frost and hail affected California's production during the early spring, while Oregon's production experienced mild frost damage. In Washington, where production rose 5 percent, growing conditions were generally favorable—although below-average rainfall concerned growers.

U.S. production of other-than-Bartlett pears declined only slightly. Downturns for other-than-Bartlett production are reported in minor pear-producing states—Colorado (down 33 percent), Connecticut (down 68 percent), and New York (down 31 percent). Although production declines are sharp in these three states, other-than-Bartlett crops were unchanged in each of the three major Pacific Coast states that account for over 90 percent of the Nation's other-than-Bartlett production.

The overall decline in production this year, combined with depletion of carry-in stocks, will help boost grower prices during the 2001/02 marketing season. As of June 30, 2001—the end of the 2000/01 marketing season—stocks of both Bartlett and other pear varieties were already exhausted. For the new season thus far

(July-August), grower prices for fresh pears averaged \$552 per ton, compared with \$242 per ton during the same period a year ago.

Although overall production slid last year, more pears were sent to the fresh market, including some processing pears that were diverted into fresh use. Increased fresh-market supplies have put downward pressure on fresh-market grower prices. Fresh pear prices were lower through most of the 2000/01 season. However, seasonal supply decreases and smaller crops of summer fruit such as peaches, strawberries, and most citrus boosted end-of-season prices. The 2000 season-average grower price for fresh pears dipped 19 percent from the previous year, to 15.9 cents per pound, the lowest over the last 6 years.

Meanwhile, diversion of some processing pears to the fresh-market sector aided in strengthening prices of processing pears. The total quantity of processed pears was down 16 percent last year, to 804.1 million pounds. The 2000 season-average grower price for processing pears averaged \$190 per ton, 3 percent higher than the previous year.

Returns to growers in 2000 were lower than in the previous year, but foreign demand for U.S. pears has fluctuated, due to increased fresh-market supplies, lower fresh pear prices, and high quality of the fruit. Exports have become increasingly important to the U.S. pear industry; over the last 5 years, an average 18 percent of the U.S. pear crop was shipped to foreign markets, compared with about 8 percent during the mid- to late 1980s.

In the fresh-market sector alone, export share of production has doubled in recent years compared with the mid- to late 1980s, to over 30 percent. U.S. exports of fresh pears during 2000/01 (July-June) rose 10 percent from the previous season, while imports declined 6 percent. Fresh export shipments to most primary markets rose, especially to Mexico, Brazil, and

Venezuela, although shipments to Canada declined. Exports are also benefiting from improving Asian economies and continued U.S. promotion efforts. Exports to the three largest U.S. fresh pear markets in Asia—Taiwan, Hong Kong, and Singapore—were strong.

In July 2001, exports of fresh pears totaled 11.9 million pounds, down 49 percent from July 2000. While further supplies of high-quality fruit as well as market promotion efforts should continue to boost U.S. pear sales in foreign markets, lower U.S. fresh-market supplies anticipated this year, along with expectations of higher prices, will likely limit U.S. export prospects during 2001/02. **AO**

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Upcoming Reports—USDA's Economic Research Service

The following reports are issued electronically at the times indicated.

November

- 9 *World Agricultural Supply and Demand Estimates* (8:30 a.m.)
- 13 *Oil Crops Outlook* (4 p.m.)**
- 14 *Feed Outlook* (9 a.m.)**
- 14 *Wheat Outlook* (9 a.m.)**
- 15 *Vegetables and Specialties Outlook*[†]
- 19 *Fruit and Tree Nuts Outlook*^{††}
- 20 *Agricultural Outlook**
- 26 *Foreign Agricultural Trade of the United States (FATUS)/U.S. Agricultural Trade Update* (3 p.m.)
- 27 *Cotton and Wool Yearbook* (3 p.m.)*
- 28 *Livestock, Dairy, and Poultry Situation and Outlook* (4 p.m.)**
- 29 *Rice Yearbook* (3 p.m.)*
- 30 *Outlook for U.S. Agricultural Trade* (3 p.m.)

*Release of summary, 3 p.m.

**Available electronically only.

[†]Summary of final issue in the *Situation and Outlook* series covering vegetables, specialties, and melons. In 2002, the every-other-month electronic-only newsletter will replace it.

^{††}Second issue of the every-other-month electronic-only newsletter that will completely replace the *Situation and Outlook* series on fruit and tree nuts in 2002.

Agricultural Trade

Taiwan's Trade Barriers to Recede With WTO Accession in Sight

Taiwan, under the recently negotiated provisions of its pending membership in the World Trade Organization (WTO), has committed to market access terms with implications for agricultural trade with all WTO member nations—particularly the U.S. On September 18, just one day after the WTO approved the terms for China's entry, it concluded negotiations on the terms of membership for Chinese Taipei (the WTO's working name for Taiwan). This paved the way for formal endorsement of the accession package by the 142 member governments of the WTO, which is expected to hold its 4th Ministerial Conference in Qatar, November 9-13, 2001.

The U.S. has for decades been the leading supplier for Taiwan's agricultural imports, with a market share of about one-third. Taiwan, long a top-ten market for overall U.S. farm exports, was the fifth-largest single market for U.S. exports of crop and livestock products in 2000, purchasing \$2 billion.

To enter the WTO, Taiwan agreed to concessions and commitments that are equivalent to those made in the WTO Agreement on Agriculture by developed-country members. Taiwan's agricultural tariffs will be reduced. The simple average of rates across all tariff lines for agricultural products will fall from the current level of 20.02 percent to 14.01 percent in 2002 and to 12.86 percent in 2004. This can be achieved in many ways, with deeper cuts for some tariff lines and smaller (or even zero) cuts on other tariff lines, as long as the average meets the target.

As for the 41 agricultural items currently subject to various forms of nontariff barriers, Taiwan will lift its ban on rice imports, establish tariff-rate quotas (TRQs) for another 22 items, and allow imports of the remaining 18 agricultural items without restriction (except for tariffs).

These 18 products include apples, grapefruit, potatoes, plums, whole ducks, duck parts, turkey parts, peaches, and citrus fruits. Currently, imports of many products in this category are subject to preferential access by country of origin, particularly favoring the U.S. During Taiwan's lengthy WTO membership negotiations, which started in 1992, major points of controversy were market access for rice and for the 22 items with newly assigned TRQs.

Upon WTO accession, Taiwan will allow rice imports through a minimum market access quota set at 144,720 tons (brown rice basis and tariff-free), which is about 8 percent of domestic consumption in the base-year period 1990-92; the final terms of rice imports will depend on the outcome of future WTO negotiations.

The 22 TRQ products include pork bellies, chicken meat, animal offal (pork and poultry), fluid milk, peanuts, red beans, garlic bulbs, and some fruits and vegetables (mostly subtropical and tropical). A schedule of reductions in the in-quota tariffs and the increases in the size of quotas has been stipulated up to 2004. In addition, TRQs will be eliminated by January 1, 2005 for some products, including chicken meat, pork bellies and other pork cuts, and animal offal. The TRQs will be replaced by simple tariffs of 20 percent for chicken meat, 12.5 percent for pork bellies and other pork cuts, 15 percent for pork offal, and 25 percent for poultry offal.

In February 1998, Taiwan signed a market access agreement with the U.S. that included both immediate and phased-in commitments. Immediate commitments included provisions for tariff reduction on many consumer-ready products and the importation of U.S. potatoes, chicken meat, beef offal, pork offal, and pork bellies under so-called down-payment quotas that went into effect in June 1998. In July 1999, Taiwan granted additional quotas of the four meat categories to non-U.S. WTO members.

Then, in 2000, Taiwan merged these U.S. and non-U.S. quotas into a global quota open to all WTO members. The total global quotas, totaling 19,163 tons for chicken meat, 6,160 tons for pork bellies, and 10,000 tons for pork offal, are the level agreed upon for year one of Taiwan's WTO accession. Beef offal imports will be liberalized upon accession.

Imports to Increase for Consumer-Ready Farm Products

These trade commitments will force Taiwan to open its highly protected agriculture sector wider than ever before, providing a new market opportunity for exporters. The effects of Taiwan's WTO accession on global trade, however, will be mainly on consumer-ready agricultural items.

Except for rice shipments, Taiwan is basically a mature market for most bulk and intermediate imports, with low tariffs and generally minimal nontariff barriers. The current tariffs are zero percent for both cotton and soybeans, 0.5 percent for corn, and 6.5 percent for wheat. In contrast, the tariff rate for wheat flour is 20 percent, while many consumer-ready agricultural products such as fresh fruits and processed products often face import duties of up to 50 percent *ad valorem*.

The full effect of Taiwan's WTO accession will not be felt until at least after 2004, when some products that are under TRQs will be fully liberalized. In the short run, quotas on many products will restrict their import growth potential.

For example, the quota for chicken meat starts at 19,163 tons upon accession, rising to 45,990 tons in 2004 before being fully liberalized on January 1, 2005. The quota accounts for only 5 to 12 percent of domestic consumption in the 1990-92 base-year period. Because Taiwan depends almost totally on imports of feedstuff for its livestock and poultry production, any gains to exporters from increased meats and animal offal trade would be offset to some degree by a drop in exports of corn and soybeans to Taiwan.

Briefs

Taiwan: A Major Market for U.S. Farm Exports

Taiwan, 22 million people on a mountainous island slightly smaller than Maryland and Delaware combined, has been an important market for U.S. agricultural exports since the 1970s. A minor importer before the 1970s, Taiwan broke the \$1 billion mark in imports from the U.S. for the first time in 1979, and the \$2 billion mark in 1993, reaching nearly \$3 billion in 1996 before dropping to an average of \$2.1 billion during 1997-2000.

The lingering effects of the sudden outbreak of foot-and-mouth disease in Taiwan's huge hog industry in early 1997 (*AO* October 2000) substantially reduced Taiwan's import demand for feedstuff such as corn and soybeans. Taiwan, however, was the fifth-largest U.S. overseas farm market in 2000, after Japan, Canada, Mexico, and South Korea, purchasing \$2 billion.

Taiwan's agricultural imports are mainly bulk commodities and processed intermediate products—used mostly as raw materials for the domestic livestock, wheat flour, and export-oriented textile and leather goods industries. Over the years, however, the role of these bulk and intermediate products in Taiwan's agricultural import mix has declined, while the proportion of imports for consumer-ready products has increased.

Consumer-ready products such as apples and meats accounted for less than 3 percent of U.S. farm exports to Taiwan before 1978 but increased their share to 19 percent in 1990-96, and reached 27 percent during 1997-2000.

Taiwan's agricultural imports, despite their increasing diversity, continue to be dominated by bulk and intermediate agricultural products. In 2000, coarse grains, soybeans, feeds and fodders, hides and skins, wheat, and cotton accounted for \$1.3 billion, or more than two-thirds of U.S. farm exports to Taiwan.

U.S. Exports to Gain, But Challenges Ahead

As Taiwan opens its market further for agricultural imports, it has the potential to continue as one of the fastest growing markets for U.S. farm products, and consumer-oriented agricultural items should benefit the most.

With Taiwan's WTO accession, however, new challenges arise for the U.S. Upon WTO accession, Taiwan will end the formal preferential treatment given to several categories of U.S. agricultural exports. For example, Taiwan currently allows fresh fruit from the U.S. to enter without any quantitative restriction, while fresh fruit from most other countries is either banned or subject to quotas. Upon WTO

accession, Taiwan will grant these countries import permission as long as their products meet Taiwan's phytosanitary and other rules. These "new-to-market" competitors will pose a potential major challenge to U.S. dominance in Taiwan.

Among those potential newcomers, one country stands out—China. Thus far, for political reasons, Taiwan permits only a limited number of agricultural products to be imported from China, and then only by first passing through Hong Kong or third-country ports. Generally these products have not competed directly with Taiwan's domestic products or U.S. exports. Without a ban on imports, many Chinese products, particularly fruits and vegetables, would be highly competitive because of China's low production costs, geographic proximity to Taiwan (separated only by a 130 km-wide strait), and similarity in food tastes on both sides. Although the WTO will open up new horizons in cross-strait relations, it will take time to sort out the implications for trade.

Taiwan, already a major food importer with little arable land, will import even more as domestic agriculture declines, trade policies are relaxed, and demand from the island's affluent consumers intensifies. In addition to its importance as a destination for primary bulk and processed intermediate commodities, Taiwan will be an even more dynamic market for a whole range of high-value consumer products. With Taiwan's import demand growing, the short- and long-term prospects for U.S. agricultural exports to Taiwan remain favorable. **AO**

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Related reading

**China's WTO Accession Would Boost
U.S. Ag Exports & Farm Income,**
Agricultural Outlook, March 2000

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Commodity Spotlight



USDA photo

World Rice Glut Keeps Lid On U.S. Prices

With record supplies at home and extremely low prices in the global market, the 2001/02 U.S. season-average farm price for rice is projected to be the lowest in 15 years. Despite a bearish price outlook last spring, U.S. rice producers boosted plantings more than 8 percent. At planting, producers estimated returns to rice production—including benefits under the marketing loan program—to be higher than returns from planting alternatives.

Because the U.S. exports more than 40 percent of its rice crop annually, the global rice market has a major effect on U.S. prices. Although accounting for only 1 to 2 percent of global rice production, the U.S. is a major exporter, accounting for about 12 percent of global rice exports. U.S. rice export volumes are very sensitive to the price difference over major competitors, especially Thailand, the world's largest rice exporter.

Crop Rotations, Loan Payments Influence Planting Decisions

Last spring, U.S. farmers planted an estimated 3.3 million acres of rice, up more than 8 percent from a year earlier. The primary rotation crop in the Mississippi Delta—where the bulk of the U.S. rice

crop is produced—is soybeans, with cotton and feed grains competing on a much smaller scale. Along the Gulf Coast and in northern California—where the bulk of the remainder of the U.S. crop is produced—such economically viable crop rotation is more difficult.

Long grain, which typically accounts for more than 70 percent of U.S. rice acreage, made up all of this year's area expansion. Long grain plantings are estimated at almost 2.7 million acres, a 22-percent increase from a year earlier and fractionally below the 1999 record. A 12-percent drop in long grain supplies in 2000/01 gave prices a slight boost last year. Slightly higher prices, plus expectations of substantial marketing loan payments, were behind this year's expanding acreage. Virtually all long grain rice is produced in the South, with Arkansas, Louisiana, Mississippi, Missouri, and Texas accounting for more than 99 percent of southern rice acreage.

In contrast, combined medium/short grain plantings are estimated at 630,000 acres this year, down 26 percent from 2000/01. Last year, medium/short grain supplies were up 18 percent from 1999/2000, a result of a record crop in California and larger production in the South. Medium/short grain accounts for 95 per-

cent of California's rice area; the state produces about two-thirds of the U.S. medium/short grain crop. Arkansas and Louisiana account for nearly all southern medium/short grain production.

Last winter, when final planting decisions were made for the 2001 crop, payments to rice producers under the government marketing loan program exceeded \$3 per cwt, more than half the reported farm price at that time. Under the marketing loan program, when world prices are below the commodity loan rate, eligible producers are entitled to payments equal to the difference between the announced world rice price (as calculated by USDA) and the national average loan rate for rough rice, which is fixed at \$6.50 per cwt. By August, marketing loan payments exceeded \$3.50 per cwt for all classes of rice. With little price strength expected in the world rice market, marketing loan payments will remain a major component of producer returns in the near future.

The combination of a record crop, higher carry-in, and larger imports is forecast to boost total rice supplies in 2001/02 to a record 247.6 million, up 8 percent from a year earlier. Total U.S. rice production is projected at a record 208.2 million cwt in 2001/02, up 9 percent from a year earlier. The larger crop is the product of both expanded acreage and a higher yield. The average yield, estimated at a record 6,328 pounds per acre, is almost 1 percent above a year earlier.

Long grain accounts for all of the production increase. Long grain production is projected at a record 161 million cwt, up 25 percent from a year earlier. In contrast, combined medium/short grain production is projected at 47 million cwt, down 24 percent from a year earlier.

Beginning stocks of all rice, estimated at 28.4 million cwt, are up almost 4 percent from a year earlier. Imports, projected at a record 11 million cwt, are up more than 1 percent from 2000/01.

Long grain supplies are projected at almost 182 million cwt, a record and up 19 percent from 2000/01. Long grain prices are likely to be under substantial price pressure this year. In contrast, medium/short grain supplies are projected to

Commodity Spotlight

drop almost 14 percent to less than 65 million cwt.

Long-Term General Contraction In U.S. Rice Prices

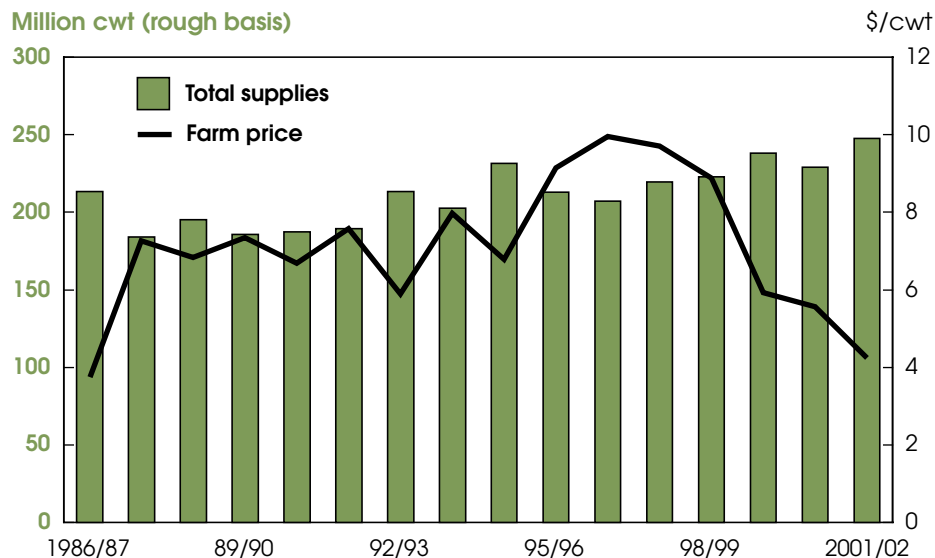
U.S. rice prices, primarily for long grain (the dominant U.S.-grown class), had begun to drop early in the 1997/98 (August-July) market year, a result of both larger supplies at home and tumbling global prices. International rice prices were under severe pressure from the fallout of the Asian financial crisis that began in June 1997. In the U.S., milled prices reported the sharpest drop in the second half of 1997, while rough prices were supported by strong shipments to regular buyers, primarily Mexico and Central America.

In 1998, the collapse of global trading prices was cushioned—and at times even reversed—by record world trade, the result of severe crop damage from *El Niño* in Southeast Asia and South America. While the U.S. accounted for only a small share of Southeast Asia's record imports, it was the primary supplier of South America's record rice imports in 1998. However, for the U.S., the price-cushioning effect was stronger for rough rice, which accounted for the bulk of South America's rice imports from the U.S. that year.

For both the U.S. and global rice markets, the support for prices was brief. In the global market, prices began to drop at a faster pace early in 1999 because trade contracted as production recovered in major importing countries and exporters harvested bumper crops. With the last of the U.S. *El Niño* exports shipped by the start of 1999 and with U.S. producers indicating 1999 plantings at more than 3.5 million acres—second only to the 1981 record of 3.8 million—both rough and milled U.S. rice prices began to drop sharply by spring 1999.

For U.S. medium grain rice—grown mostly in California—the situation in 1998/99 was quite different, as California's production dropped 26 percent from a year earlier. Prices for both rough and milled medium grain rice rose throughout the 1998/99 market year. By July 1999, California medium grain milled rice was quoted at

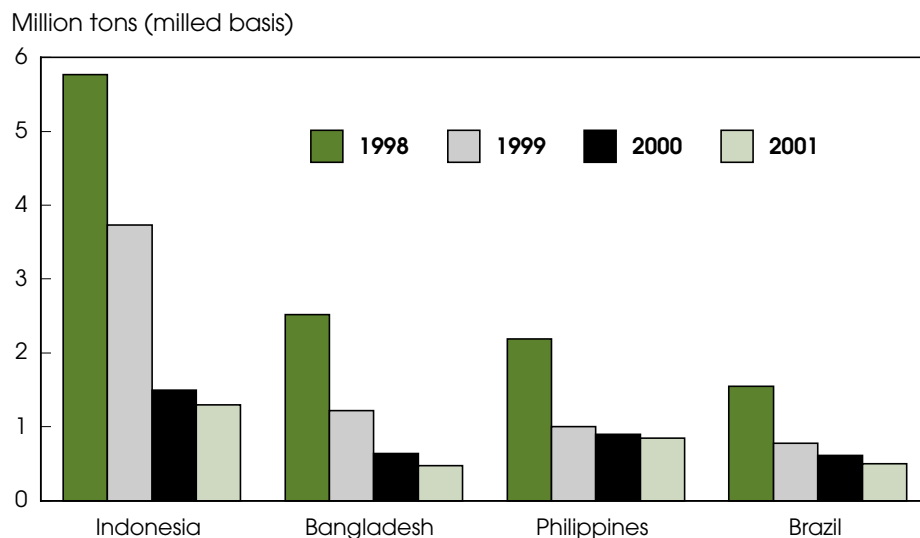
U.S. Season-Average Farm Price for Rice to be Lowest Since 1986/87



2001/02 projected.

Economic Research Service, USDA

Imports by the Major Global Rice Buyers Are Down Substantially from 1998 Records



2001 projected.

Economic Research Service, USDA

\$518 per ton, up more than \$115 from a year earlier and more than \$185 per ton higher than southern long grain. By September 1999, California medium grain prices began to drop in response to a larger crop, weaker global prices, and steady drop in U.S. long grain prices.

In 1999/2000, U.S. rough and milled prices for both long and medium grain rice declined, a result of then-record U.S. supplies and a continued drop in global prices. In fact, the U.S. season-average farm price (rough rice) dropped more than a third in 1999/2000, the largest per-

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Program Payments Critical to U.S. Rice Producers

In market year 2000/01, direct government payments to rice producers totaled almost \$1.5 billion, more than 40 percent larger than the total market value of rice production that year. Under the 1996 Farm Act, the primary government programs affecting rice producers are production flexibility contract payments and marketing loans. Rice farmers also benefit from subsidized crop and revenue insurance as well as from trade promotion programs, food aid, and export credit guarantees.

An important feature of the 1996 Farm Act was planting flexibility, which allows farmers to plant almost any crop on their contract acreage without losing benefits. For the 1996-2002 crops, producers who participate in the production flexibility contract (PFC) program receive specified payments that are not linked to current production or prices of the contract commodity. In 2000/01, PFC payments to rice contract holders totaled \$443 million, yielding a \$2.60-per-cwt payment rate.

The marketing loan program is designed to provide assistance to producers when world prices are low. The program uses the difference between the announced weekly world rice price (as calculated by USDA) and the national average per-unit commodity loan rate for rough rice, which is fixed at \$6.50 per cwt. To achieve this national average rate, separate loan rates are calculated for each grain type, based on historic average milling yields. Government payments are available to producers when the world price falls below the loan rate. These payments are referred to as marketing loan benefits. By the end of the 2000/01 market year, the marketing loan payment rate exceeded \$3.50 per cwt for all classes of rice. This compares with a season-average farm price of \$5.56 per cwt.

As a result of low commodity prices, in 1998 Congress authorized supplemental payments for individuals eligible for PFC payments, which have been termed "market loss assistance" (MLA) payments. For the 1998 crop, PFC contract holders received additional payments equal to approximately 50 percent of that year's PFC payment rate of \$2.92 per cwt. In 1999 and 2000, contract holders received supplemental payments equal to the 1999 PFC payment rate. This year, the payment rate is 85 percent of last year's.

centage decline since 1986/87. Global prices remained under pressure from weaker trade.

In 2000/01, despite a smaller crop and tighter domestic supplies, U.S. prices for all classes of rice continued to drop as global prices collapsed to a 15-year low by the spring of 2001 and California harvested a record crop. Global prices remained under pressure from weakening trade and bumper crops in major exporting countries. Last April, Thai 100-percent grade B averaged \$170 per ton, the lowest monthly price in almost 28 years. From May through October 2001, global prices rose only fractionally—the longest period of sustained prices below \$180 per ton since the early 1970s.

This year, U.S. prices are under even more pressure. In 2001/02, U.S. rice sup-

plies are projected at a record 248 million cwt. And despite rising domestic use and larger exports, U.S. ending stocks are projected to increase 43 percent to nearly 41 million cwt, the largest since 1986/87. Barring a major weather problem somewhere, there is little expectation of any price strength this year or next in the U.S. or global rice markets.

Prices for U.S. milled rice have declined as well in 2001/02. High-quality Texas long grain was quoted at \$243 per ton in mid-October, down \$30 from a year earlier and the lowest in more than 14 years. Medium grain prices have dropped even further. In early September, high-quality California medium grain milled rice was quoted at \$220 per ton, down 50 percent from June 2000 and the lowest in more than 25 years. However, by early October medium grain prices had risen to \$287 per

ton in response to expectation of a smaller California crop.

U.S. Faces Stiff Competition In Global Rice Market

Despite record supplies and lower prices, U.S. rice exports are projected to increase just 3 percent in 2001/02 to 86 million cwt (rough basis). Large exportable supplies in major exporting countries and extremely low international prices will limit the U.S. export gain. Rough rice exports are projected at 23 million cwt, virtually unchanged from 2000/01, and milled rice (including brown rice) at 63 million, up almost 3 million from a year earlier. The U.S. is the only major exporter that ships rough rice. The top Asian exporters do not allow rough rice exports, preferring to capture the added value from milling.

Long grain exports are projected at 70 million cwt, up more than 7 percent from a year earlier. Driving that forecast are much larger supplies and lower prices. The top markets for U.S. long grain rice are Mexico, Central America, the European Union (EU), Canada, South Africa, and Saudi Arabia. The U.S. currently faces little competition from Asian exporters in Mexico and Central America; both take mostly rough rice and bar Asian rice for phytosanitary reasons. However, in the milled and brown rice markets—the EU, South Africa, Saudi Arabia, and Canada—the U.S. faces stiff competition from Asian exporters.

Medium/short grain exports are projected to drop 11 percent to 16 million cwt. Japan, Turkey, and Jordan are the top markets for U.S. medium/short grain rice. While Japan and Jordan take milled and brown rice, Turkey imports mostly rough rice from the U.S. Australia, Egypt, China, and Italy are major competitors in the global medium/short market.

Global rice trade has dropped every year since 1998, a major factor in declining prices, and is projected to be flat in 2002. From its record 27.7 million tons in 1998, global rice trade dropped 10 percent in 1999 to 24.9 million tons. By 2001, global rice trade had declined to 22.4 million tons, 19 percent below 1998. Weaker import demand has accounted for all of

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Boiling Down Rice Terminology

Rice is traded in many forms, according to stage of milling, quality, and type.

Stage of Milling: *Rough rice*—sometimes referred to as *paddy rice*—is harvested rice as it comes from the field with both the outer hull (or shell) and bran layer still attached. The hull accounts for about 20 percent of the weight of rough rice while the bran layer accounts for around 10 percent. Once the hull is removed the rice is referred to as *brown rice*. Brown rice has a nutty flavor and takes longer to cook than fully milled rice. Once the bran layer is removed the rice is referred to as fully milled or *white rice* or *polished rice*.

The bulk of global rice trade is milled or brown rice. The U.S. is the only major exporter of rough rice. None of the major Asian exporters ship significant quantities of rough rice, preferring to profit from the value added by milling. South American exporters often ship small amounts of rough rice, mostly within Latin America.

Quality: Quality refers to many aspects of rice including: percent broken, uniformity of appearance, and degree of milling. When rice is milled, some of the kernels break, and these kernels are referred to as broken. Generally, the higher the percentage broken (or conversely, the smaller the percentage head—or unbroken—rice), the lower the price. For example, Thai 5-percent broken sells at a higher price than Thai 35-percent broken. The more uniform the appearance of rice, the higher the price. In other words, rice is discounted for damaged kernels, chalkiness, and inclusion of foreign matter. Finally, the higher the degree of milling—i.e. the more of the bran layer removed—typically the higher the price.

Type: Four basic types of rice are produced and traded globally.

- *Indica* rice accounts for more than 75 percent of global trade and is grown mostly in tropical and subtropical regions. Indica rice cooks dry and separate.
- *Japonica* rice, typically grown in regions with cooler climates, accounts for about 12 percent of global rice trade. Japonica cooks moist and sticky.
- *Aromatic* rice, primarily jasmine from Thailand and basmati from India and Pakistan, accounts for almost 12 percent of global trade and typically sells at a premium in world markets.
- *Glutinous* rice, grown mostly in Southeast Asia and typically used in desserts and ceremonial dishes, accounts for most of the remainder.

In the U.S., long grain is typically indica rice while the medium and short grains are typically japonica. Long grain rice, grown almost exclusively in the South, accounts for two-thirds to three-fourths of U.S. production. Medium grain, grown both in California and the South, accounts for 20 to 30 percent of total U.S. production. California grows more than two-thirds of the U.S. medium grain crop, while Arkansas and Louisiana account for almost all southern medium grain production. Short grain rice, grown mostly in California, accounts for about 1 percent of total U.S. production.

the decline. Major exporters, except for China, have produced record or near-record crops every year since 1998/99.

In 1998, record imports by several countries whose crops were severely damaged by *El Niño* pushed global trade up 47 percent from a year earlier. Indonesia imported 5.8 million tons (the largest amount of rice imported by one country), the Philippines 2.2 million, Bangladesh 2.5 million, and Brazil almost 1.6 million. These four countries were the largest rice importers in 1998, accounting for almost 44 percent of global imports. Record imports led to substantial stock buildups in each country.

Most major rice exporting countries have harvested record and near-record crops since 1998/99, a major factor behind the steady decline in global rice prices after the 1997/98 *El Niño*. The only exception

is China, where production dropped sharply in 2000/01 and 2001/02, a result of policies aimed at reducing production of lower quality rice. Even with smaller production, China has more than enough rice to remain a significant exporter.

Thailand and Vietnam are the world's two largest rice exporting countries, shipping primarily indica or long grain rice. Thailand accounts for almost 30 percent of global rice trade, Vietnam 18 to 20 percent. Production in both countries has risen sharply since 1998/99, with record crops projected for each in 2001/02. Thailand is considered a major U.S. competitor in the EU, the Middle East, and South Africa. Vietnam exports primarily medium- and low-quality rice to the Middle East, Africa, and Southeast Asia.

India and Pakistan export both low-quality long grain rice and their premium basmati rice—a popular aromatic—to the EU, Middle East, and U.S. India currently accounts for less than 5 percent of global trade, as India's internal pricing policy makes non-basmati rice uncompetitive in most markets. However, since late May, India has provided subsidies on exports of certain grades of rice, making India competitive in these markets, primarily parboiled rice to West Africa. In addition, India has more than ample supplies and could export substantially more if global prices were to rise above its support levels. Except for 2000/01, India has produced back-to-back record crops since 1996/97.

Although drought cut Pakistan's 2000/01 and 2001/02 production, its 2001 exports

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are projected to be a record. Pakistan accounts for 8 to 9 percent of global trade.

China and the U.S. are the only two major exporters, shipping both indica and japonica (medium/short grain) rice. China accounts for about 8 to 9 percent of global rice exports, shipping high-quality medium/short grain to Japan and low-quality long grain to Africa, Southeast Asia, and Cuba. China has more than ample supplies of rice to substantially expand exports, if global prices were higher. However, much of this rice is low quality. The U.S. accounts for about 12 percent of global exports, down from 24 percent two decades ago. Despite record supplies, a substantial price difference over Asian exporters severely limits U.S. export levels. U.S. rice is typically competitive if the price difference over Thai rice is \$50 per ton or less. In September the difference was \$65 per ton.

Except for parts of the Middle East, nearly all major importing countries have harvested record or near-record crops since 1999/2000. This has been especially true for some of the biggest importers: Indonesia, the Philippines, Bangladesh, and Brazil. The combination of large stocks and successive bumper crops has been responsible for a steady decline in imports by these top buyers. While total imports by these four was more than 12 million tons in 1998, their combined imports are

projected at a mere 3.1 million tons this year, just 14 percent of global imports.

The decline in global trade since 1999 has been limited by record imports by Iran and Iraq. Both countries have experienced severe drought since 1999/2000, cutting production more than 40 percent in each country. Imports have averaged more than a million tons a year for each country since 1999, putting Iran and Iraq behind only Indonesia as rice importers since 2000. Nigeria, averaging almost a million tons of rice imports a year, is the next largest import market for rice. Rice production is stagnant in Nigeria, the largest rice consuming country in Sub-Saharan Africa.

Over the long term, with large and growing populations and high per capita rice consumption, Indonesia, the Philippines, and Bangladesh are projected to increase rice imports as stock levels decline. Imports by Iraq, Iran, and Nigeria are expected to continue rising over the next decade as well, as production gains fail to match rising consumption. In Brazil, however, barring a major weather problem, declining per capita rice consumption will limit future import growth. On balance, global rice trade is expected to slowly expand over the next decade, eventually adding price strength to the international market. **AO**

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November Releases—National Agricultural Statistics Service

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

November

- 1 Dairy Products Prices (8:30 a.m.)
Poultry Slaughter
- 4 Dairy Products
Egg Products
Crop Progress (4 p.m.)
- 5 Weather – Crop Summary (noon)
- 6 Broiler Hatchery
- 8 Dairy Products Prices (8:30 a.m.)
Milkfat Prices (8:30 a.m.)
- 12 Cotton Ginnings (8:30 a.m.)
Crop Production (8:30 a.m.)
Crop Progress (4 p.m.)
- 13 Weather – Crop Summary (noon)
Broiler Hatchery
- 14 Turkey Hatchery
- 15 Dairy Products Prices (8:30 a.m.)
Cattle on Feed
Farm Labor
Milk Production
- 18 Crop Progress (4 p.m.)
- 19 Weather – Crop Summary (noon)
- 20 Broiler Hatchery
Cold Storage
- 21 Monthly Agnews
- 22 Dairy Products Prices (8:30 a.m.)
Milkfat Prices (8:30 a.m.)
Catfish Processing
Chickens and Eggs
Livestock Slaughter
- 25 Cotton Ginnings (8:30 a.m.)
Crop Progress (4 p.m.)
- 26 Weather – Crop Summary (noon)
- 27 Agricultural Prices
Broiler Hatchery
Monthly Hogs and Pigs
Peanut Stocks and Processing
- 29 Dairy Products Prices

Rice Yearbook

- * Domestic and international coverage of the rice market
- * A wealth of statistics on supply, demand, prices, and trade

Summary available November 29

In the Economic Research Service outlook series
www.ers.usda.gov/publications/OutlookReports.htm

World Agriculture & Trade



William T. Coyle

Water Supply in the APEC Region: Scarcity or Abundance?

Roughly 70 percent of the earth's surface is covered by water, but less than 1 percent of the earth's water is fresh, and access to fresh water is critical to the food system. In the Asia-Pacific Economic Cooperation (APEC) region, the urban population is projected to grow from 1.1 billion to 2.0 billion by 2025, with most of the increase in China and developing economies of Southeast Asia. Such population growth in its cities will put huge stress on the region's capacity to provide basic services, including water supply. Unless water control facilities are expanded and/or efficiencies in water use are achieved, there is potential for water shortages in Korea, Chinese Taipei, Japan, China, Mexico, and the U.S.

Throughout history, increased water demand in water-deficit areas has been met by expanding available water supplies. Dam construction, groundwater pumping, and interbasin canals have provided the water to meet growing urban and agricultural needs. However, future opportunities for large-scale expansion of supplies in many parts of the region will be more limited. As a result, meeting future water demands will require some reallocation of existing supplies, better management of water resources, more efficient use of water for irrigation,

greater recycling of water, and other measures that will increase efficient use.

Agriculture is the largest user, but a greater share of water withdrawals in the APEC region is allocated to industrial uses than in the rest of the world—25 percent compared with 14 percent. This is due to the region's rapid pace of economic growth and urbanization. Production agriculture in the APEC region accounts for 64 percent of water use. Nevertheless, it is still lower than the average 79 percent for the rest of the world. The share varies across the region, tending to be lower in the U.S., New Zealand, Japan, and Canada. Canadian agriculture uses only 7 percent, due to the dominance of rain-fed agriculture. Withdrawals are higher in Asia, where irrigated rice production is a large water user.

The role of water as an input in agriculture, industry, and the household, as well as its role as aquatic habitat and transportation medium, makes allocation decisions difficult. Applying market principles

that price water use relative to its supply depends on unique local values and circumstances, but will become more common in areas where competition for water is most intense.

Water supply comes from net inflows of water from rivers and underground sources minus outflows; changes in stocks such as reservoirs or aquifers; runoff (precipitation minus evaporation); and desalination. Few major river systems cross into the APEC region. Six of the economies are islands: Australia, New Zealand, the Philippines, Indonesia, Chinese Taipei (Taiwan), and Japan. The Mekong is the largest river system in the APEC region that is shared by several economies (China, Vietnam, Thailand, Laos, and Cambodia).

The single most important source of water in the region is runoff from precipitation, which varies from 700 millimeters per year in Mexico to 3,000 millimeters per year in tropical Papua-New Guinea and Malaysia. Aquifers—underground reservoirs that are fed by infiltrating water from the surface—are also important. For example, the aquifer beneath the Huang-Huai-Hai plain in eastern China supplies drinking water for nearly 160 million people. Some of the largest cities in the APEC region, including Jakarta, Lima, and Mexico City, depend on aquifers for much of their water supply. Aquifers also supply a significant share of water for the irrigated areas in the U.S. and China. The Ogallala aquifer (which is under parts of eight states in the central U.S.) still suffers from water depletion, but use of more efficient irrigation methods has slowed this trend.

A minor water source is desalination—conversion of salt water to fresh water. Desalination capacity in the APEC region represents about one-quarter of the global total, with the U.S., Japan, and Korea leaders in the region. However, this potentially meets the water needs of just a few million people.

This article is based on the *Pacific Food System Outlook, 2001-02*, a report released at the 13th APEC Ministerial Meeting in Shanghai, China, October 17-18, 2001. USDA's Economic Research Service is a sponsor of this annual report, which focuses on the outlook for the Pacific food system.

World Agriculture & Trade

Driven by income growth, a dietary shift away from rice in Asia has been rapid in recent years, except during the 1997-99 financial crisis. As incomes rise and consumers diversify their diets, they consume less rice and more meat and other products. On a per-calorie basis, wheat requires less water than rice to produce, raising meat animals requires much more. Thus, the impact of westernizing diets in East and Southeast Asia has had a mixed impact on water consumption, to the extent that foods are produced locally. The water intensity of diets in East and Southeast Asia will likely increase, despite lower rice production. On the other hand, the diet in North America is likely to become less water-intensive, as meat consumption levels off and consumers substitute chicken, a relatively efficient water user, for beef.

Water Resource Management: Institutional Frameworks

In many APEC economies, leaders and administrators have recognized that water is the most important resource and, in some economies, a scarce resource. Yet in their efforts to make the resource accessible to all, they have priced it as though it were in abundance. Rather than promoting efficiency and establishing

Who Belongs to APEC?

APEC is an informal grouping of market-oriented Asia-Pacific economies sharing goals of managing the growing interdependence in the Pacific region and sustaining its economic growth. Started in 1989, APEC provides a forum for ministerial-level discussions and cooperation on a range of economic issues, including trade promotion and liberalization, investment and technology transfer, human resource development, energy, telecommunications, transportation, and others.

Members:

Australia, Brunei, Canada, Chile, China, Hong Kong/China, Indonesia, Japan, South Korea, Malaysia, Mexico, New Zealand, Peru, Philippines, Russia, Singapore, Taiwan (Chinese Taipei), Thailand, U.S., Vietnam, and Papua-New Guinea.

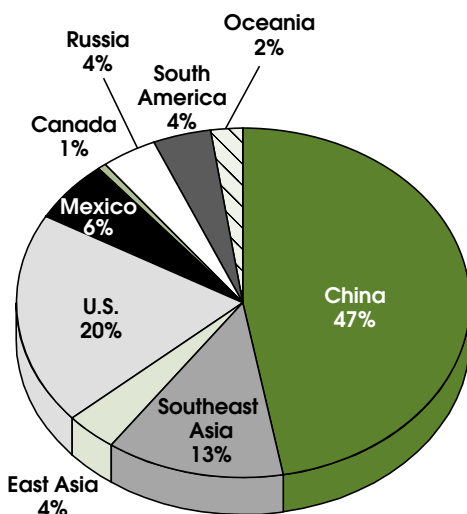
priorities for water use, water policy typically encourages exploitation and exacerbates shortages.

Empirical work suggests that there are environmental payoffs when prices for water use are tied to the volume used, or when prices are applied in incremental tiers. Cost-conscious farmers are then less liable to overuse water, reducing the risk of water erosion, salination, and waterlogging. Underpricing water has led to exploitation of aquifers and overapplication of irrigation water in a number of APEC economies, including Australia, Canada, China, Mexico, and the U.S. As a result, some of the aquifers and water systems in question could soon pass the point of no return, and in other areas,

problems with salination have become extreme. For example, 10 percent of the irrigated land in Mexico is damaged by salinity, as is more than 20 percent in China and the U.S.

Assuming significant improvements in irrigation efficiency, water demand in the APEC region could be met by a 10-percent increase in supply by 2025, according to projections by the International Water Management Institute (IWMI) in Sri Lanka. Without those efficiency gains, the increase in supply needed would be closer to 40 percent. The more efficient scenario in the IWMI study assumes sharp increases in irrigation efficiency by the U.S. and China as well as other heavy irrigators like Mexico, Thailand, Indonesia, and the Philippines.

China and the U.S. Have the Largest Shares of Irrigated Land in APEC Region



Total does not equal 100 percent, due to rounding.

Source: Food and Agriculture Organization of the United Nations.

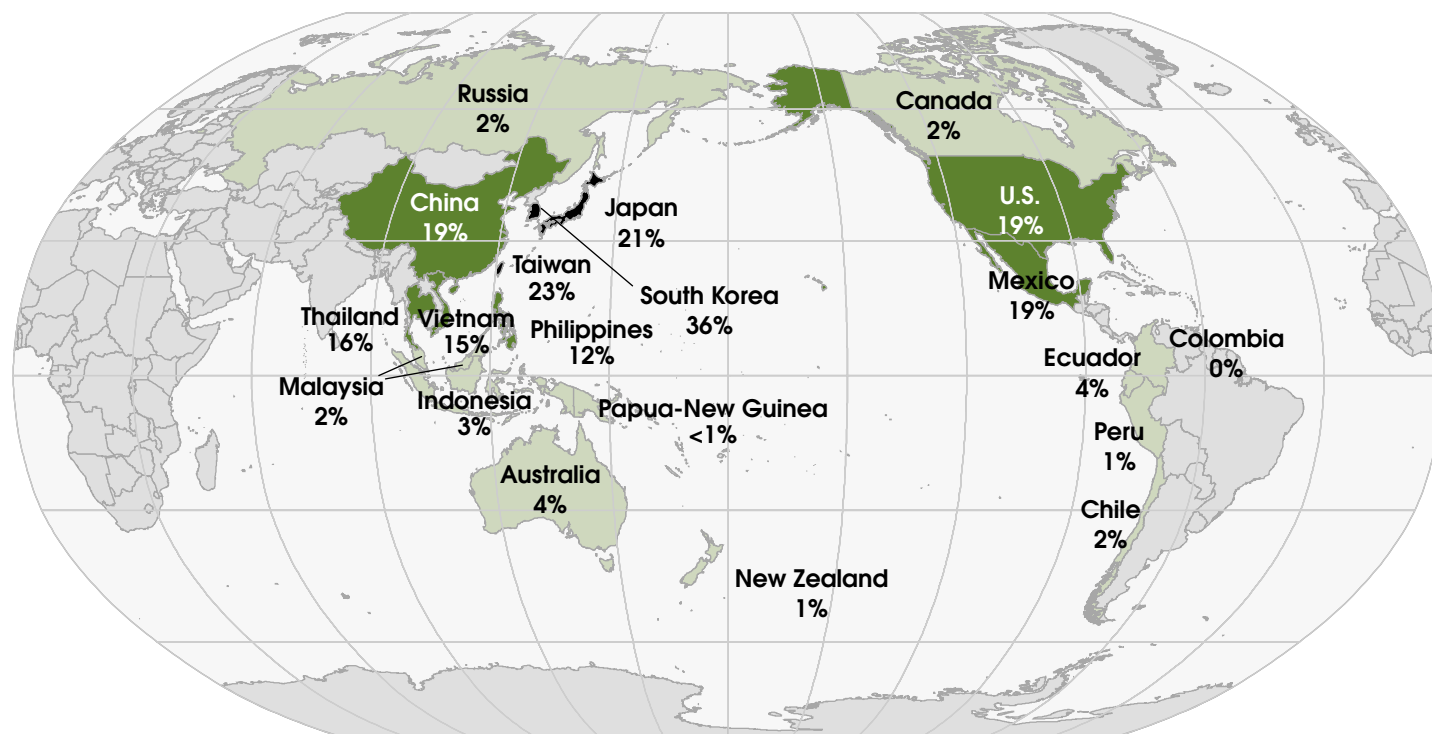
Economic Research Service, USDA

A key factor in raising irrigation efficiency is the development of market institutions (such as a system of water rights, tradable water entitlements, and prices reflecting the marginal cost of supplying water). These market institutions create greater incentives for adoption of efficient storage, delivery, and application systems. In some economies, water resources are being privatized and turned over to local irrigation associations and to other entities that tend to be more efficient in managing water resources.

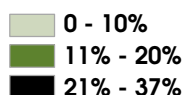
Around the Pacific Rim, the development of water markets has been slow, with a few exceptions. **Chile** enacted legislation 20 years ago to create a market system in which water rights could be traded freely under a regulatory framework, a unique system for a developing economy.

World Agriculture & Trade

Annual Water Use in Six APEC Countries is 19 Percent or More of Available Supplies



Withdrawals as a share of annual water supplies, 2000



Source: Food and Agriculture Organization of the United Nations.

Economic Research Service, USDA

According to the World Resources Institute (WRI), price reforms in Chile have reduced the use of irrigated water by as much as 26 percent and saved \$400 million in new water infrastructure.

In **Mexico**, water resources are in the public domain. Legislation allows transmission of water-use rights, which can be transferred independently of land. Irrigated areas are generally grouped into rural development districts (i.e. *Distritos de Desarrollo Rural*), which are geographic areas surrounding water infrastructure. The beneficiaries are responsible for operating, maintaining, and collecting fees for the irrigation system.

Canada and **New Zealand** have the highest per capita water supplies in the region, and have little incentive to develop water

markets. Both countries have legal systems that define and protect water rights as well as a variety of fee systems. Most Canadians pay water rates that do not promote conservation; only 4 percent of users were charged a progressively higher price with greater volumes. Water metering in New Zealand occurs only in the Auckland Region, where it began in the early 1990s.

In **Australia**, national and state governments have introduced a more market-oriented system of water allocation. The catalyst for reform was a 1994 agreement by the Council of Australian Governments. This reform included commitments to:

- consumption-based pricing and full cost recovery for water delivery services,

- clearly specified water property rights separated from the land,
- formal determination of water allocations to the environment, and
- introduction of water trade to maximize economic returns from water use.

While some water trading is taking place in **California** and **Colorado**, water costs in the U.S. still do not reflect their full economic cost; infrastructure development for delivering off-farm surface water is generally publicly subsidized.

Privatization of **Malaysia's** water supply is expected to increase, along with pressure to improve efficiency. Water tariffs will undoubtedly rise, as current rates do not cover costs of production.

In *Peru*, the agriculture sector rarely pays for water, despite the fact that 42 percent of all cropland is irrigated. As a result, water costs are estimated to make up less than 1 percent of total agricultural production costs, contributing to poor irrigation practices and low water-use efficiency.

Japanese irrigation development and water management are stipulated in the country's Agricultural Land Improvement Law. While controlled locally, both the central and local governments heavily subsidize construction of these systems because of the perceived broader societal benefits associated with paddy rice cultivation.

Increasing Water Supplies

Measures to augment area water supplies in various economies to meet projected demand are proceeding in some parts of the region. The demand for water resources by *Chile's* hydroelectric sector in the next 40 years is expected to increase six times, prompting a need to build some 100 new hydroelectric plants. The demand for industrial and mining uses of water will likely more than double.

These large increases in demand for water will be met by a combination of public and private resources. *Chile* has announced plans to invest US\$320 million in the coming years, with financial support from the World Bank and cost recovery from beneficiaries. Public funding generally focuses on smaller projects. In 2001, for the first time, a water project will be offered for investment by the private sector, following the policy of concessions to private entities already in use for highways and ports.

In the central region of *Chinese Taipei*, the government has approved construction of the Hushan Reservoir, having a total budget of US\$700 million and scheduled for completion in 2008. This reservoir will satisfy the water needs of the industrial sector in that region until 2021.

The *Philippines* expects to increase irrigated area from 1.55 million to 1.64 million hectares by 2004. In *Malaysia*, inter-basin and interstate transfers of water like the Pahang-Selangor Raw Water Transfer scheme will become more common in the future. For some time, there has been dis-

Putting Water Scarcity in Perspective

Analyses of global and regional water resources are hampered by inadequate data and methodological issues. Measuring stocks and flows of water is difficult. For example, data for water use seldom include direct agricultural use of rainwater—an essential water source for farming in many economies of the APEC region, even in heavily irrigated areas. Globally, about 60 percent of food is produced using rainwater, 40 percent using irrigation. The rain-fed crop area in the region varies from 37 percent in Japan to 98 percent in Canada. The APEC region accounts for 40 percent of global irrigated acreage.

An economy's aggregate data tend to mask many concerns about water resources. The common use of national and annual data disguises significant regional and inter-annual variations. The most reliable data and information are at the basin level, since that is the level at which water scarcity or abundance can truly be measured and efforts to save water can be evaluated. It may also be the level at which water resources are best managed. It may even be that water is scarce within a particular city or locality in a basin. Also, water can be scarce for certain groups within a relatively water-rich area, even if it is in abundance for others within the same area.

Using the ratio of water withdrawal (a measure of demand) to annual water resources (a measure of supply) as a relative measure of scarcity, the APEC region uses 9 percent of its annual water resources, compared with 6 percent in the rest of the world, according to the International Water Management Institute in Sri Lanka. In six of the APEC economies, water use is nearly 20 percent or more of available supplies: Korea (36 percent), Chinese Taipei (23 percent), Japan (21 percent), China (19 percent), Mexico (19 percent), and the U.S. (19 percent).

cussion regarding the export of Canadian water to the western U.S.

China faces massive economic challenges, with more than 20 percent of the world's population, limited land area, and rapid economic growth. Its annual water supply ranks fifth—behind Brazil, Russia, Canada, and Indonesia—but per capita supplies are among the lowest in the region and world. In the APEC region, only Korea has a lower per capita water level.

China, which is plagued with flooding in the south and drought in the north, hopes to optimize the allocation of its water resources by developing water control facilities, like The Three Gorges (Yangtze River) and Xiaolangdi (Yellow River) Dams. China is also planning to undertake the largest water diversion project in its history—channeling water from the Yangtze River to the north. The dams are multipurpose projects for flood control, industrial and municipal water supply, and hydroelectric power.

Taking Steps to Increase Efficiency

Different countries use a variety of approaches to increase efficiency of water use.

In 2000, *China* undertook some major water-saving measures, including more intensive management of water use, water rationing, and charges for excess consumption. Some cities installed newly developed water-saving taps, both in homes and in public places.

New Zealand has concentrated on raising water quality over the past 20 years and has achieved considerable success by treating wastewater at specific pollution points. Over the next 20 years, attention will shift to methods of reducing non-point pollution. Governmental and private efforts in the water industry will focus on continuing to improve water quality and reducing per capita consumption, rather than on expanding the amount of water available.

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In **Mexico**, leakage in the water distribution system (e.g., evaporation) accounts for a loss of 30 to 50 percent, mostly from agricultural activities. Some 1.2 million hectares is cultivated with modern, efficient technology, but it is only a small proportion of the total.

Another way of using water more efficiently is to apply it to the production of higher value commodities. In Java, **Indonesia**, brackish water ponds for shrimp are being developed in formerly irrigated coastal lands or in new locations in the outer islands. Aquaculture in Java is still modest in its use of water, about 2 percent of total agricultural withdrawals.

In the coastal areas of **Chinese Taipei**, freshwater and brackish-water fishponds use large amounts of groundwater, about 10 times the amount used by paddy fields, to regulate salinity, oxygen, and temperature. Nevertheless, aquacultural farming has proved to be more profitable than crops. The government has begun to impose restrictions on expansion of aquaculture, however, since land settling is a growing problem in some coastal areas because of falling water tables.

Conservation of water, reducing pollution, and recycling increase water basin efficiency and thus overall water availability. The **U.S.** has increased the efficiency of

water use in the economy's principal irrigated areas: the Central Valley of California, the Snake River Valley in Idaho, the High Plains from Texas to Nebraska, the Mississippi Delta in Arkansas and adjoining states, and south central Florida.

Although irrigated agriculture remains the dominant user of fresh water in the **U.S.**, its share of freshwater consumption has declined since 1970. While irrigated cropland area has expanded by about 30 percent since 1969, field water application rates per acre have declined about 15 percent. Increased use of sprinkler systems and other more efficient means of irrigation have resulted in only a 12 percent increase in total irrigation water applications.

The 1972 **U.S.** Clean Water Act defines quality standards for drinking water, for recreational uses, and for support of aquatic life. Since passage of the legislation, surface water quality has improved, largely through reductions in toxic and organic chemical loadings from point sources. Discharges of toxic pollutants have been reduced by an estimated billion pounds per year. Rivers affected by sewage treatment plants show a consistent reduction in ammonia between 1970 and 1992.

Opportunities & Challenges

Making more efficient use of water requires complex and multifaceted strategies that must take the communal nature of water into account. This includes the interdependence of users within a water basin, as well as the competing roles of water as an input in agriculture, industry, and households; as a habitat and medium for aquatic life; and as a medium for transportation, including waste disposal.

Where water is scarce, creation of market mechanisms will assure more efficient and sustainable use of water resources in the region. The alternative is to raise the supply of water with costly investments in water infrastructure, dams, and diversion channels, which are becoming increasingly unaffordable, from both economic and environmental perspectives. **AO**

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This article is based on contributions by economists from 17 Pacific Rim economies. Views expressed are those of the authors and do not necessarily reflect those of USDA's Economic Research Service or Agriculture and Agri-Food Canada.

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Research & Technology



Larry Lefever, Grant Heilman Photography

Farms, the Internet, & E-Commerce: Adoption & Implications

Internet use by U.S. farmers has grown rapidly, as advances in computer and other communication and information technology (CIT) make the Internet more accessible. USDA recently reported that the use of computers on farms has grown from 38 to 55 percent since 1997, while Internet use has grown from 13 to 43 percent. In 2000 (the most recent year available), 24 percent of farms used the Internet as a management tool in their farming operation according to USDA's annual Agricultural Resource Management Study (ARMS) survey.

CIT is a tool that makes information more accessible and therefore improves the quality of decisions by managers. Some farmers are long-time users of many variants of CIT, including cell phones and other hand-held electronic devices, computers, and most recently, global positioning system technology.

As a technology, the Internet has the additional benefit of minimizing some constraints on a farmer's ability to receive and manage information, regardless of where the farm is located or when the information is used. Moreover, because the costs of Internet-provided communica-

tion and information gathering services can be substantially lower, the commercial opportunities of the Internet may afford farmers new ways to build business partnerships, including opportunities to purchase inputs and sell products.

Which Internet Services For Agriculture?

At the time when publicity about the potential of business-to-business electronic commerce was greatest, many firms sprang up to compete for farm-sector transactions. To assess the success of these efforts, the ARMS survey asked farmers to report all types of financial,

communication, and information-gathering activities as well as their online buying and selling. In 2000, farmers were particularly interested in information-gathering activities, online financial activities, online purchases, and crop and livestock sales.

During 2000, producers reported \$665 million in online buying and selling, equal to 0.33 percent of all purchases and sales by U.S. farms. Online purchases totaled \$378 million, covering machinery and equipment, farm supplies, crop inputs, livestock inputs, and office and computer equipment. Purchases of crop and livestock input together were 35 percent of total online purchases, and each was smaller than machinery and equipment purchases and general farm supply purchases. Online sales by farmers totaled \$287 million—\$191 million in livestock sales and \$96 million in crop sales.

Farms using the Internet reported implementing the technology for a number of different reasons:

- price tracking, 82 percent of Internet users
- agricultural information services, 56 percent
- accessing information from USDA, 33 percent
- communication with:
 - other farmers, 31 percent of Internet users
 - crop advisors, 28 percent of Internet users
- online record keeping and data transmission to clients and service providers, 31 percent.

Information Gathering Was the Dominant Activity Among U.S. Farmers Reporting Internet Use in 2000

Activity	Number of farms	Share of all farms ¹	Share of farm Internet users ²
	1,000	Percent	Percent
Purchases	60	3	11
Sales	19	1	4
Information	517	24	98
Financial	66	3	13
Any use	528	24	100

1. Total number of farms: 2,163,865 2. Total number of farms using Internet: 528,000.

Data are from a sample of farms.

Source: 2000 Agricultural Resource Management Study, USDA.

Economic Research Service, USDA

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ERS Farm Typology Groups

Small Family Farms (sales less than \$250,000)

Limited-resource. Any small farm with gross sales less than \$100,000, total farm assets less than \$150,000, and total operator household income less than \$20,000. Limited-resource farmers may report farming, a nonfarm occupation, or retirement as their major occupation.

Retirement. Small farms whose operators report they are retired (excludes limited-resource farms operated by retired farmers).

Residential/lifestyle. Small farms whose operators report a major occupation other than farming (excludes limited-resource farms with operators reporting a nonfarm major occupation).

Farming-occupation, low-sales. Small farms with sales less than \$100,000 whose operators report farming as their major occupation (excludes limited-resource farms whose operators report farming as their major occupation).

Farming-occupation, high-sales. Small farms with sales between \$100,000 and \$249,999 whose operators report farming as their major occupation.

Other Farms

Large family. Farms with sales between \$250,000 and \$499,999.

Very large family. Farms with sales of \$500,000 or more.

Nonfamily. Farms organized as nonfamily corporations or cooperatives, as well as farms operated by hired managers.

Demand for financial services in agriculture is usually quite strong, as 40 percent of all farm households maintain some amount of business debt, and many more use financial institutions extensively. Three percent of all farms used the Internet to help manage some facet of their business finances.

- online banking, 10 percent of Internet users
- paying bills, 7 percent
- obtaining loans, 2 percent.

Although only 1 percent of farm operators report that security in general keeps them from using the Internet in their business, security concerns likely contribute to low use of the Internet for financial transactions.

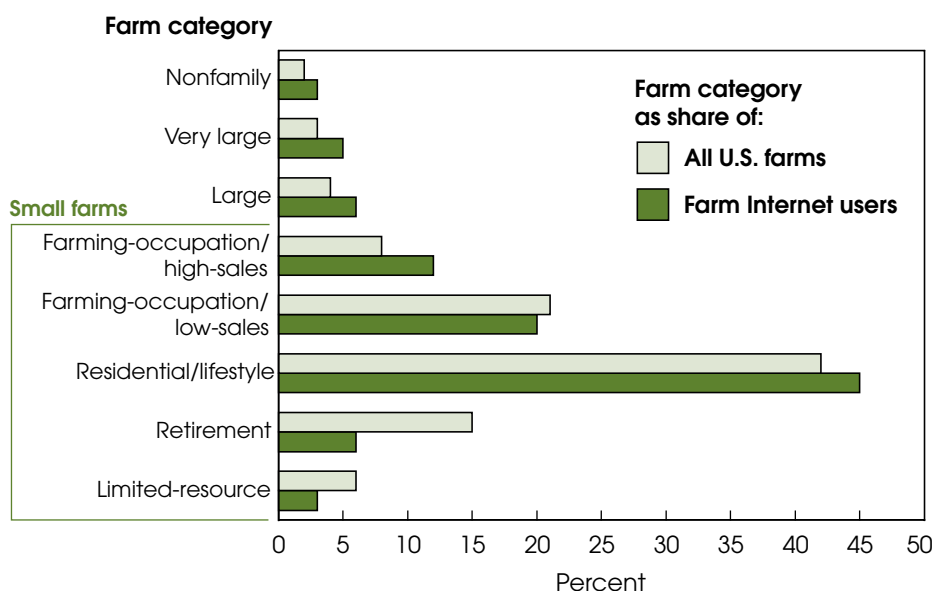
Which Farms Are Likely To Use the Internet?

Technological change has long been a staple of the agricultural economy. In general, adopters have characteristics that distinguish them from nonadopters. In the past, farms with younger, more educated managers and with larger sized operations were quickest to adopt any new technologies. Adoption of the Internet is apparently following the same pattern, as more educated operators and larger sized farms had higher rates of use than did others. Adoption was more uniform for all farmers under 55, declining for upper age groups. Groups reporting higher adoption are those that share both the abilities and the need to find strategies to improve management decisionmaking, including increasingly complicated purchasing, production, and marketing decisions.

Farm typology. To examine Internet use by various types of farms, the ARMS data were analyzed using the farm typology constructed by USDA's Economic Research Service (ERS). The ERS farm typology classifies farm households by principal occupation of the farm manager, amount of sales generated by the farm, and economic resources available to the household.

Comparing the population of Internet users and all farms, differences in population share for each category of the farm

Internet Use Is Above Average for Most Farm Typology Categories



If a category's share in the "farm Internet users" population exceeds the share in the "all U.S. farms" population, then Internet adoption in that category is higher than average.

Economic Research Service, USDA

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typology were examined. If the share in the “all farms” population exceeds the share in the “Internet users” population, then farms making up the category have lower-than-average Internet adoption. If the share in the “Internet users” population exceeds the share in the “all farm” population, farms in that category have higher-than-average adoption.

In 2000, farms with more than \$100,000 in sales had higher-than-average Internet adoption. The farming-occupation, low-sales small farm category (those farms with less than \$100,000 in sales for 2000), had lower-than-average Internet adoption, while residential/lifestyle farms had slightly higher-than-average Internet adoption. Retirement and limited-resource farm households had slightly lower-than-average Internet adoption.

Overall, Internet adoption by the various types of farms is not far from average, indicating that Internet use among farms is not disproportionately weighted toward any particular type of farm. Internet adopters are distributed roughly proportionally to their representation within the agricultural sector. This may also reflect that while adopters are younger, have more formal education, and generally higher sales, farmers with some of these characteristics can come from a rather broad cross-section of the agricultural sector.

Commodity type. Technologies introduced in the past, such as new planting technology, precision agriculture, and selective breeding to improve livestock herds, were designed for an obvious and singular purpose, with “spinoff” technologies the primary source of benefits for other farms. Most often, the new technology was tied to an individual enterprise, so that farms that did not engage in that enterprise were only affected indirectly, if at all.

This does not appear to be the case with Internet use. Internet use by farm businesses seems to be equally attractive to those specializing in crop or livestock production. Internet users appear to follow the same 59-41 percent split between livestock and crop specialization that is representative of the farming sector as a whole.

Farm Businesses: Digital Leaders or Followers?

How does Internet use by farmers compare with other parts of the economy? In general, farm household use is comparable to that of nonfarm households. Use of the Internet within the farm business is similar to use by small manufacturing firms, but is less than use by larger manufacturing firms. The share of total electronic business transactions in agriculture is less than the overall rate of electronic transactions at both the retail and nonagricultural firm levels.

	Rate of Internet use	E-commerce	
		Purchases and sales	Share of sector's purchases and sales
	Percent	\$ million	Percent
Farm businesses ¹	43	665	0.33
General population ²	41	27,000	0.89
All manufacturers ³	84	592,000	16
Small manufacturers ³	47	65	4

1. 2001 June Agricultural Survey, 2000 Agricultural Resource Management Study, USDA. 2. 2000 Current Population Survey Computer Use Supplement and Monthly Retail Trade Survey, U.S. Census Bureau. 3. 1999 Annual Survey of Manufacturers, U.S. Census Bureau. Small manufacturers have less than five employees.

Economic Research Service, USDA

The Rural-Urban Digital Divide

In general, adoption of information technologies follows a pattern similar to adoption of other production technologies. But, adoption may be more an issue of “willingness to adopt” than of whether the technology is somehow inappropriate for particular kinds of farms. Concerns have been raised that lack of adoption has more to do with inadequate infrastructure and other barriers to access than with farmer interest in using CIT.

The “digital divide” relates to the relative economic disadvantage of lack of access to the Internet. It is the term normally used to discuss a variety of concerns that spring from a gap between Internet users and nonusers that threatens the current or future economic power of a group. Rural households as a group have traditionally had low rates of Internet use. Among the reasons cited are their older, more isolated populations, generally low rates of employment in high-tech sectors, and lack of Internet service providers in some rural areas.

The most recent empirical assessment of the digital divide was contained in the 2000 Current Population Survey, indicating that rural households had demonstrated rapid gains in Internet use, thereby

reducing the rural-urban digital divide. ARMS data indicate that 43 percent of farms reported that they did not use the Internet because they did not own a computer while only 4 percent report inadequate Internet service as the reason they did not use the Internet in their business.

To address changes in Internet use along a rural-urban continuum, ARMS data were analyzed using an index developed at ERS that classifies all U.S. counties by their degree of urbanization and proximity to a metropolitan area. A digital divide, where it exists, can be detected by spotting large differences between the group's share among all farms and the group's share among Internet users. The results show that as the degree of urbanization and proximity to a metropolitan area declines, Internet use also tends to decrease slightly. This supports the idea that a farm's likelihood of using the Internet decreases with distance from an urban area.

About 85 percent of all farms are located in counties that contain a metropolitan area or have an urban population of at least 2,500 people. The digital divide lessens at the rural extreme, where the remaining 15 percent of farms are located. Farms located in totally rural counties have the same representation in the “all farm” population as in the “Internet user” population, indicating that their Internet adoption is the same as the national aver-

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age. While Internet use for totally rural counties may be more costly, because toll calls are sometimes required, the benefits may be higher. For example, for a relatively remote farm, time and location constraints are potentially the greatest, while a less remote farm may have other options nearby that lessen the advantage of using the Internet.

Future of Farm CIT

In 2000, business use of the Internet was reported on almost a quarter of all farms. Use was similar across many different types of farms, which indicates that CIT potentially has general appeal, and is not necessarily the domain of only a portion of the farm population. Because most types of farms seem to be adopting the Internet at similar rates, CIT does not appear to be associated more with any particular type of farm. Continued cost reductions for CIT use will likely increase the number of farms using the Internet, while farms that used the Internet in 2000 will likely further integrate CIT into their

business. Nearly all farms using the Internet in 2000 to purchase inputs indicated that they are likely to maintain or increase purchases in the future.

The analysis of adoption of Internet technology for management decision-making demonstrates that diffusion has been rapid and relatively widespread across the agricultural sector. There was no attempt to quantify the net economic benefits enjoyed by adopters of CIT relative to nonadopters, although these are the subject of continued study. Most farms appear to be using the Internet for only a portion of their overall farm business, suggesting that they are still discovering for themselves how to best take advantage of the technology.

We draw three implications of Internet adoption for farmers and those who do business with them. First, nonadopting farms may want to periodically reexamine the technology's applicability to their operations. Although some analysts expected the Internet to fundamentally

change the structure of agriculture, it appears that those farmers who are using the Internet are currently simply substituting one technology for another. While much of what is done on the Internet can be done by telephone, fax, mail, or in person, there is little evidence that any one of these technologies is superior to another.

Second, because experimentation may lead to different uses of the technology that go beyond substitution for older technologies, tracking further developments on the impacts of the Internet on farm performance is warranted.

Third, ignoring the capabilities of the Internet for information dissemination and maintaining contact with farmer clients could be a costly mistake for those who serve farmers, as adopters in general appear willing to use the Internet in a variety of ways. **AO**

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USDA photo: W. Carnahan

Organophosphate Insecticides Being Scrutinized, Restricted

The U.S. Environmental Protection Agency (EPA) is reviewing all pesticides that had residue tolerances (legally defined upper limits) for food in 1996, comparing assessment results with new safety standards, and taking regulatory actions when necessary to meet the standards. So far, preliminary results for 38 organophosphate (OP) pesticides have been announced, and numerous regulatory actions proposed or taken. A more comprehensive cumulative assessment is nearing completion, with preliminary results to be published December 1, 2001 and a revision by August 2002. This assessment may result in further regulatory actions.

OP pesticides were among the first reviewed, due to concerns about human health risks. OPs have been widely used in agriculture, making up over half the total acre-treatments of insecticides during the late 1990s to several major field crops and many fruits and vegetables. So far, most actions resulting from the review have affected OP use on fruit and vegetables, with such crops as apples and pears affected by more than one regulatory action.

The EPA review of pesticides, called for in the Food Quality Protection Act of 1996 (FQPA), is twofold. First, an aggregate assessment considers the risks from

dietary, drinking water (which contributes to dietary), and nonoccupational exposure across all uses of specific pesticide ingredients. Second, a cumulative assessment considers these same risks across all pesticides in a group, such as OPs, that have a common mechanism of toxicity. In addition under the ongoing reregistration process, EPA is simultaneously examining the same pesticides for ecosystem and worker safety risks.

Pesticides contribute to increased productivity in agriculture, but their use is associated with potential risks to human health, wildlife, and the environment. Of the 38 OPs reviewed so far, EPA has preliminarily identified more concerns with worker safety, ecosystem, and nonoccupational exposure risks than with dietary or drinking water risks.

Regulatory actions can include:

- cancellation of use registration, which would prohibit further use, and
- use restrictions, such as application rate reductions; limitations on where, when, or how pesticides can be used; worker protection requirements; and production caps that limit the quantity of the pesticide that can be produced or sold.

Some actions can severely restrict the use of pesticides and cause increases in pest control costs or yield losses, while others have little effect. Although EPA makes all regulatory decisions, the registrants, in response to risk assessments, often propose voluntary mitigating actions to avoid the time and legal costs of administrative hearings and procedures.

Restrictions on OPs Are Increasing

So far, regulatory actions on agricultural uses of OPs to meet new standards for individual materials have been limited primarily to fruit and vegetable crops. Use on many extensively treated crops continues, but some major actions have affected residential and other nonagricultural uses rather than agricultural uses. However, some cancellations of agricultural uses have been proposed, and the cumulative assessment could result in further cancellations or use restrictions. Actions on food crops have primarily affected fruit and vegetables, in some cases to reduce dietary risks to children. Many fruits and vegetables are more extensively treated with OPs than are large acreage crops, such as corn, soybeans, cotton, and wheat.

In 1999 EPA's aggregate assessment identified three widely used OPs—azinphos methyl, chlorpyrifos, and methyl parathion—as having dietary, drinking water, or nonoccupational exposure risks in excess of standards. In some cases, ecosystem or occupational (worker) safety risks were noted. With EPA approval, registrants of these three insecticides took voluntary actions to reduce the risks identified by the review. Another widely used OP, diazinon, was identified with nonoccupational exposure, occupational, and ecosystem risks; regulatory actions have been proposed.

Azinphos methyl

Actions taken on this insecticide include rate restrictions on pome fruits (apples, pears, crabapples, and quinces) to reduce dietary risk, cancellation of use on cotton east of the Mississippi River and on sugarcane nationally to reduce drinking water exposure and risks to aquatic organisms, and an overall cap on the amount produced. Prior to the actions, apples and pears ranked first and third among major

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fruit and vegetable crops in proportion of acres treated, with 81 and 72 percent, respectively, and ranked second and fourth in percentage of insecticide treatments, with 27 and 20 percent (all data are multiyear averages during 1994-99). However, the use restrictions (maximum annual application rates of 4.5 pounds active ingredient per acre) reduced the affected acreage and treatments of apples and pears. Before the action, about 8 percent of apple and pear acres were treated at rates that exceeded the restriction, accounting for 5 percent of insecticide treatments on each crop.

About 5 percent of cotton acres were treated with azinphos methyl but the cancellation affected only the 1 percent treated east of the Mississippi River. Actions on other extensively-treated fruit crops were not needed to meet the aggregate risk standard. However, the production cap on the insecticide could limit the amount available for use. Also, although not an FQPA issue, actions may be needed to reduce worker exposure to the insecticide, which may further restrict use on apples, pears, and other crops.

Chlorpyrifos

To reduce dietary risk, use of chlorpyrifos on tomatoes was cancelled, use on apples restricted to prebloom applications, and residue tolerances reduced on grapes. Of these crops, chlorpyrifos was used most extensively on apples, with 70 percent of apple acres treated and 12 percent of total insecticide treatments. Since USDA surveys do not record application timing for fruit and vegetable crops, the proportion of acres and treatments affected by the prebloom restriction is unknown.

Chlorpyrifos was used on 4 percent of grape-bearing acreage and 16 percent of fresh-market tomatoes. Use on tomatoes was concentrated in the Southeast (represented by Florida, Georgia, North Carolina), with 30 percent of the acreage treated, accounting for 5 percent of treatments, but less than 1 percent treated elsewhere. USDA surveys reported no acreage of processing tomatoes treated. Use of the insecticide on many extensively treated fruit and vegetable crops was not affected by the actions, such as use on 46 percent of acres planted to cauliflower.

Provisions of the Food Quality Protection Act of 1996

The Food Quality Protection Act (FQPA) amended the Federal Insecticide, Fungicide, and Rodenticide Act and the Federal Food Drug and Cosmetic Act. It defined a uniform safety standard for pesticide-related risks in raw and processed foods as "a reasonable certainty of no harm from aggregate exposure to the pesticide chemical residue."

EPA must consider the aggregate risks from dietary, drinking water (which contributes to dietary), and nonoccupational exposure (such as homeowner use of a pesticide for lawn care) for all uses of a pesticide when establishing residue limits (tolerances) in foods. FQPA requires EPA to consider increased susceptibility of infants, children, or other sensitive subpopulations and directs the use of an additional margin of safety of up to tenfold in setting residue tolerances. EPA must also consider the cumulative effects from other substances with a "common mechanism of toxicity," which occurs if two or more pesticides cause a common toxic effect to human health by the same, or essentially the same, sequence of major biochemical events.

The law required an assessment against the new standard to be completed by 2006 of all pesticide residue tolerances (legally defined upper limits) existing in 1996. If aggregate risk of a pesticide exceeds the standard, EPA will reduce or revoke residue tolerances or modify or cancel use registrations to meet the standard.

Understanding Pesticide Use Estimates

The estimates of percent of acres treated, treatments per acre, and percent of total insecticide treatments are 1994-99 averages of USDA pesticide data for 60 crops. Almonds, walnuts, hazelnuts, pistachios, peanuts, and sunflowers were excluded because they were surveyed in only 1 year. Also excluded was use on livestock. "Acres treated" measures the area receiving a pesticide, while a "treatment" is a single application of one pesticide on one acre. Some acres treated receive multiple treatments. Total treatments are acres treated times the average number of treatments per acre.

Multiyear averages were computed to reduce the effects of variable crop and pest conditions. Field crops were averaged from 1994-99; vegetable crops for 1994, 1996, and 1998; and fruit crops for 1995, 1997, and 1999. Acres treated, treatments, and surveyed acres were averaged for each state in each surveyed year before summation of the reported estimates. A state surveyed for fruit or vegetable crop was excluded if surveyed in only one year. A state surveyed for a field crop was excluded if surveyed in only 1 or 2 years.

Chlorpyrifos was one of the two most widely used insecticides for treating nonagricultural and residential pests. Use was cancelled in buildings, homes, and gardens in order to reduce nonoccupational exposure risks, including those to children.

Methyl parathion

To reduce dietary risk, use was cancelled on more than 20 fruits and vegetables. The most affected included peaches (44 percent of acres treated), plums, apples, processing snap beans, nectarines, pears,

and tart cherries (13 percent of acres treated). Use was also cancelled on succulent peas and beans, tomatoes, and some nonfood crops to reduce ecosystem and worker safety risks. Use on cotton, with 15 percent of acreage treated, was not affected. Other treated crops not affected were fresh sweet corn, onions, and processing sweet corn.

Diazinon

The proposed diazinon use cancellations to reduce worker and ecosystem risks will affect over 20 crops. Among these crops

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Risk Concerns Identified During Organophosphate Assessment

EPA's review to date of 38 organophosphate pesticides identified the following with risks of concern:

- 29 with worker safety risks
- 25 with ecosystem risks
- 12 with nonoccupational exposure risks of which 7 involved risk to children (in italics): *acephate*, *bensulide*, *chlorpyrifos*, *diazinon*, *ethoprop*, *fenthion*, *malathion*, *naled*, *phosmet*, *propramphos*, *tetrachlorvinphos*, and *trichlorfon*
- 11 with drinking water risks, of which 3 involved risk to children (in italics): *acephate*, *azinphos methyl*, *chlorpyrifos*, *diazinon*, *coumaphos*, *dicrotophos*, *ethoprop*, *fenamiphos*, *methamidophos*, *methyl parathion*, and *terbufos*
- 5 with dietary risks, all of which involved risk to children: *azinphos methyl*, *chlorpyrifos*, *fenthion*, *methamidophos*, *methyl parathion*. (the dietary risk from *methamidophos* also considers *acephate*, which degrades into *methamidophos*)
- 3 with aggregate risk (even though no individual dietary, drinking water, and nonoccupational risk trigger was exceeded): *disulfoton*, *ethion*, *phorate*.

the most extensively treated with the insecticide have been 24 percent of fresh market spinach; 15 percent of bell pepper; and 10 percent or less of strawberry, celery, processing tomato, processing spinach, fresh market cucumber, and processing cucumber acres. However, use of the insecticide continues on some fruit and vegetable crops, ranging from over half the acres in raspberries to lesser proportions of nectarines, apricots, head lettuce, other lettuce, prunes, plums, blackberries, peaches, sweet cherries, carrots, onions, fresh market cabbage, and blueberries. EPA cancelled the material's use in buildings, homes, and gardens and by residents to reduce nonoccupational exposure risks, including those to children.

Some crops were affected by two or three of the actions on major OP insecticides: apples (*azinphos*, *chlorpyrifos*, *methyl parathion*), pears (*azinphos*, *methyl parathion*), tomatoes (*chlorpyrifos*, *methyl parathion*, *diazinon*), and cotton (*azinphos*, *diazinon*). About 10 percent of apple acres and 3 percent of pear acres were in orchards using two or three materials subject to actions on some acreage. The acreage affected by multiple actions has declined over time. Adoption of new pesticides, such as mating disrupters for codling moth management, may reduce OP use. Growers treated about 12 percent of Washington apple and pear acres with the new pesticides in 1999.

Besides the above four widely used OPs, EPA issued interim decisions for many other OPs to reduce nonoccupational exposure, worker, and ecosystem risks. These actions would affect relatively small crop acreages.

Cumulative Review May Bring More Restrictions

While the results of the cumulative assessment have not been announced, additional risk reduction measures may be required to meet the standard for OPs. There could be major modifications in insect control practices for crops relying heavily on OPs. Use of OPs on fruits and vegetables that comprise a high proportion of infants' and children's diets, which have a stricter safety standard, could be an important concern.

Some fruits and vegetables rank high both in extent (percent of acres treated) and intensity (average number of treatments per planted acre) of OP use across all planted acres. Extent and intensity are indicators of the crop area and insecticide treatments potentially affected if all food crop uses of OPs were to be cancelled. However, less disruptive actions might meet the cumulative standard.

Of major fruits and vegetables, apples rank highest by both indicators: 95 per-

cent of acres treated and an average of five treatments per planted acre. OPs were applied to more than 50 percent of acres and averaged more than 1 treatment per planted acre for 22 other major fruit or vegetable crops. In comparison, OPs are used on smaller proportions of acres for the two largest markets for these materials: cotton, with 50 percent treated and 2.2 treatments per planted acre, and field corn, with 18 percent treated. Some fruit and vegetable crops are particularly reliant on OPs; these materials account for more than 50 percent of insecticide treatments for apples, tart cherries, blueberries, sweet cherries, broccoli, snap beans for processing, and lima beans for processing.

The actions on OPs affected a substantial portion of treatments on some intensively treated fruit and vegetable crops. The actions on *azinphos methyl*, *chlorpyrifos*, and *methyl parathion* affected between 15 and 50 percent of OP treatments on apples, nectarines, peaches, processing snap beans, plums, pears, and fresh tomatoes. In addition, the proposed *diazinon* action would affect 10 to 12 percent of OP treatments on bell peppers, plums, and strawberries.

The resulting risk reductions could influence further actions needed to meet the cumulative standard, and the crops and pesticides affected. EPA could cancel or restrict any remaining crop uses of OPs, including the previously restricted use of *chlorpyrifos* on apples and *azinphos methyl* on pome fruits, which would be more severe and affect larger proportions of acres and treatments than did the earlier restrictions.

The FQPA review process, and especially the cumulative review, is complicated when pesticides are alternatives to each other. The economic and risk effects of a regulation depend upon which alternatives farmers use and how those alternatives were previously regulated. Conceivably, a regulation could increase health or environmental risks if an alternative has higher risks than the regulated pesticide. For example, the purpose of the production cap on *azinphos methyl* was to prevent unacceptable risks if growers used it instead of other regulated materials, such as *methyl parathion*.

Resources & Environment

Extent of Organophosphate (OP) Use Varies Among Crops

Crop	Average surveyed crop acreage 1994-99	OP use			Share of total insecticide treatments	OP treatments potentially affected by EPA actions on:	
		Share of crop acreage treated	Average treatments per <i>treated</i> acre	Average treatments per <i>planted</i> acre		Azinphos methyl, chlorpyrifos, and methyl parathion	Diazinon (proposed)
	1,000 acres	Percent	Number	Number	Percent	Percent of acre-treatments	
Apples	356	95	5.3	5.0	54	19-42	*
Cherries, tart	34	94	3.3	3.1	76	9	*
Pears	67	88	3.2	2.8	33	23	*
Blueberries	34	80	3.8	3.0	70	*	*
Cherries, sweet	45	79	3.3	2.6	60	1	*
Limes	2	79	2.5	2.0	26	*	*
Peaches	134	78	4.0	3.1	46	47	*
Cauliflower	47	78	3.2	2.5	48	<1	*
Nectarines	37	73	1.8	1.3	26	18	*
Broccoli	120	72	2.6	1.9	51	<1	*
Lettuce, head	193	72	2.5	1.8	24	<1	*
Plums	44	66	1.5	1.0	42	26	*
Celery	28	66	2.6	1.7	17	1	10
Raspberries	13	65	1.9	1.3	40	*	*
Cabbage, processing	6	59	2.3	1.4	32	*	*
Potatoes	1,096	59	1.9	1.1	46	*	1
Beans, snap, processing	155	58	2.0	1.2	83	30	*
Peppers, bell	61	57	3.4	1.9	17	*	12
Cabbage, fresh	69	56	3.1	1.7	20	*	*
Tomatoes, fresh	96	56	4.5	2.5	19	21	4
Strawberries	45	55	3.0	1.6	25	*	12
Lettuce, other	75	54	1.9	1.0	17	1	*
Beans, lima, processing	30	53	1.8	1.0	77	--	*
Cotton	13,163	50	4.3	2.2	51	1	1
Lemons	49	49	1.2	0.6	25	*	<1
Tomatoes, processing	309	46	1.4	0.6	35	--	17
Grapefruit	141	37	1.5	0.6	16	*	1
Beans, snap, fresh	70	32	2.8	0.9	19	3	*
Oranges	806	31	1.6	0.5	16	*	<1
Tangelos	12	31	1.3	0.4	10	*	--
Spinach, fresh	14	31	1.8	0.6	17	2	67
Tangerines	35	27	1.5	0.4	11	*	1
Peas, processing	247	26	1.3	0.3	56	15	*
Temple	7	23	1.2	0.3	8	*	--
Corn	68,950	18	1.1	0.2	54	*	*
Carrots	114	15	1.7	0.2	27	5	*
Grapes	883	14	1.4	0.2	7	35	*
Cucumbers, fresh	51	13	2.1	0.3	7	*	26
Beans, lima, fresh	5	13	3.1	0.4	35	--	*
Spinach, processing	7	10	1.2	0.1	4	*	78
Cucumbers, processing	73	8	1.1	0.1	9	*	32
Winter wheat	34,874	7	1.1	0.1	96	*	*
Soybeans	62,883	1	1.2	<0.1	42	*	*

-- = No survey observations. * = Not affected by action.

Source: USDA Chemical Use and Cropping Practices Surveys: Fruit crops 1995, 1997, 1999; vegetable crops 1994, 1996, 1998; field crops 1994-99.

Economic Research Service, USDA

Resources & Environment

The FQPA review works toward an overall reduction in risk since pesticides with the greatest risks to public health are reviewed first. Society may gain if relatively high risks are mitigated earlier in the process.

Most actions resulting from the OP assessment so far have affected fruits and vegetables; the effects of the cumulative

assessment remain to be seen. Ultimately, the economic effects will depend on the actions taken on specific pesticides and crops, how restrictive they are, the potential for pest damage, and the availability and cost effectiveness of alternatives.

While EPA may have options to reduce the disruption of pest management practices and economic effects, the process

could have the greatest implications for fruit and vegetable crops. **AO**

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Special Article

Higher Cropland Value from Farm Program Payments: Who Gains?

Real estate accounts for more than three-quarters of total U.S. farm assets. Portions of that value are increasingly attributable to two factors: direct government payments and urban influence. While some regions and farmland owners benefit more than others from higher farmland values, renters and new purchasers of land pay higher land costs.

Direct government payments went to about 43 percent of the nation's farms in 2000. Urban influence affects the value of an estimated 17 percent of U.S. farmland. Through appreciated land values, both factors may increase the fixed cost of agricultural production without any corresponding increase in productivity and, in many cases, without directly increasing the wealth of currently active farmers. Persons or entities that do not operate the land (i.e., nonoperator owners) own substantial proportions of farm real estate and gain if the value increases. On the other hand, operators who lease farmland may end up having to pay higher rental costs which largely reflect their receiving some government payments.

Direct Payments Augment Farm Income & Cropland Values

The value of agricultural land depends largely on expected future earnings. Like the value of any income-earning asset, land value increases as expected long-term earnings increase. In land markets, farmland buyers pay a higher price to acquire land that is expected to yield a larger stream of income, regardless of whether the source of that income is market-based agricultural production, nonagricultural use, or government payments. Although the principal goal of agricultural commodity programs is to augment the income of farm operators, economists have widely recognized an important side effect—that direct government payments increase farmland values.

The effect on farmland values is particularly strong when the eligibility to receive farm commodity program payments is attached to specific land, with the eligibility to receive payments transferring with ownership of that land. To the extent that expectations of receiving farm commodity program payments are bid into the price of land, current owners of land on which payments are made capture a portion of all future program benefits through land value appreciation. These benefits accrue both to farm operators who own all or part of the cropland they operate (owner-operators) and to nonoperators who own cropland (nonoperator owners). To realize the full benefits of higher land values, however, landowners must sell the land.

Direct government payments to agriculture totaled \$22.9 billion in 2000, rising to nearly 40 percent of net cash farm income from less than 4 percent in 1980. About 8 percent of these pay-



USDA photo: Ken Hammond

ments occurred under conservation and miscellaneous programs, while 92 percent related to commodity programs and disaster relief. Most current farm commodity related payments are tied to cropland that has a history of previous enrollment in annual commodity programs.

Government commodity program payments to farmland owners and operators during 2000 came primarily through four sources:

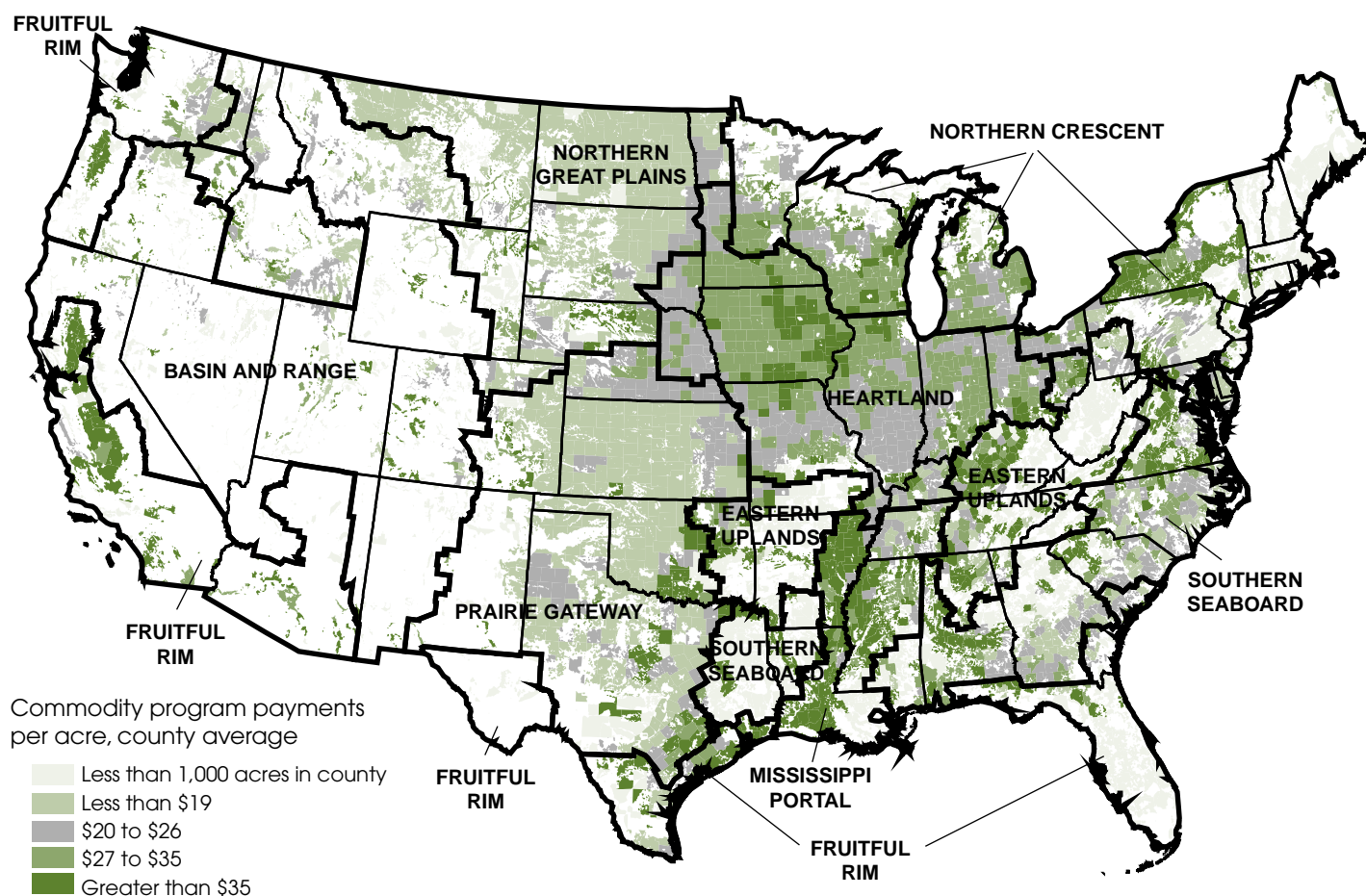
- 1) production flexibility contracts (PFCs) authorized under the 1996 Farm Act;
- 2) market loss assistance (MLA);
- 3) disaster or emergency payments; and
- 4) marketing loan benefits in the form of loan deficiency payments (LDPs) and marketing loan gains from commodities placed under Market Assistance Loan programs.

In 2000, only about one-third of all farms (730,000 out of 2,136,865) received government payments through these four commodity related sources.

Historically, these commodity-related payments go primarily to owners and operators of land that produce or produced one or more of eight crops: wheat, corn, soybeans, sorghum, cotton, rice, barley, and oats. Most increases in land value due to direct program payments are associated with cropland previously or currently planted to these eight major program crops.

The degree to which farm commodity program payments affect cropland values depends partly on the form in which the pay-

Farm Commodity Program Payments Vary Regionally



Based on acres in program crops from 1997 Census of Agriculture. Excludes conservation program payments.

Economic Research Service, USDA

ments are made. For instance, production flexibility contract payments (PFCPs) are tied to ownership of cropland with a history of enrollment in commodity programs. Consequently, landowners may be able to capture relatively larger proportions of PFCP benefits. But LDPs depend on current production and commodity market prices. Because LDPs are paid on each unit produced, farm operators have an incentive to increase production through greater use of fertilizer, herbicides, and other inputs. As a result, input suppliers capture a share of LDP benefits, and consequently, LDPs may have a lesser effect on cropland values than PFCPs and other decoupled, lump-sum payments.

Government payments made under environmental programs such as the Conservation Reserve Program and Wetlands Reserve Program also affect farmland values, but through a fundamentally different process, and are not included in this discussion.

Considering All the Factors In Program Payments' Impact

Various factors determine the ultimate effect of farm commodity payments on cropland values. First, farm commodity program payments per acre vary geographically, depending on program differences among dominant crops and relative productivity of the land (historic base program yield and/or current yield). A number of counties do not produce any eligible crops, and thus do not receive any farm commodity payments. Regions receiving the largest amount of such payments in 2000 were the Heartland, Prairie Gateway, Northern Crescent, Northern Great Plains, and Mississippi Portal. These five regions together received approximately 85 percent of farm commodity related payments.

Second, a dollar of farm commodity program payments does not increase cropland values by the same amount as a dollar of market-based earnings. Landowners' and buyers' expectations about certainty and stability of an income source will directly affect the degree to which that income is translated into cropland value

Special Article

through the capitalization process. If uncertainty exists as to whether farm commodity program payments will endure, the current value of expected future payments (the basis of farmland value attributable to commodity program payments) will be significantly discounted. This means associated cropland values will be lower than if there were complete assurance that programs would continue indefinitely. The long-term existence of farm commodity programs (over 50 years) has created expectations among landowners that programs will persist in some form and level.

The effect of farm commodity program payments on the capitalized values of associated cropland also depends on the agronomic flexibility of producers in specific regions to grow alternative crops (the ability of producers to adjust output in response to changes in government programs), and on the region's relative economic advantages in production of program commodities.

Another factor that affects the impact of commodity program payments on cropland value is that only the portion of payments that landowners "capture" will be capitalized. Many government program payments are distributed among landlords and tenants in accordance with the terms of the rental arrangement. For instance, surveys conducted in South Dakota and Nebraska for USDA's Economic Research Service during the mid-1980s indicated that the bulk of share rental arrangements was 33-66 or 25-75, meaning that landlords received just one-third or one-quarter of gross receipts.

The split between landlords and tenants varies by crop grown and region of the country. However, these relative shares are

often traditional, having been worked out and established over long periods of time. Though relative shares change over time, they do so infrequently, and most likely do not move substantially up and down with the vagaries of farm commodity program payments. Nonetheless, in some cases a landlord may adjust his net return by changing his relative contribution to inputs while leaving revenue shares unchanged. Also, anecdotal evidence indicates that some landowners have increased the share of farm commodity payments they "capture" by converting share rental arrangements to cash rent leases in which they can more easily adjust the rental rate. In some cases, landowners have discontinued share rental arrangements, themselves becoming the operator, in order to directly receive the program payments. These "farm operators" then hire their previous share rental tenants to plant, cultivate, and harvest the crops as custom operators.

Cash rental arrangements exceed share rentals in many areas. Under cash rental arrangements, farm commodity program payments are distributed directly to the farm operator. Landlords can capture a share of those payments by raising the annual cash rent. However, even cash rents are considered "sticky upward," as well as "sticky downward," meaning that cash rental rates often change proportionately less than do net returns from sales and from commodity program payments. The implication, again, is that landowners are unlikely to capture all the value of future commodity program payments through appreciation in the value of cropland.

Farm commodity program payments in 2000 included an unusually large share of LDPs (34 percent). As a consequence, the year 2000 set of farm commodity-related payments may have less effect on cropland values than previous payment sets. As mentioned earlier, LDPs would be expected to have relatively less effect on cropland values than other payments, particularly in the near term.

Gainers from Cropland Appreciation

Farm commodity program payments have the highest proportional effect in the Heartland, accounting for 24 percent of the market value of farmland. The effect is similar in the Prairie Gateway region (23 percent) and the Northern Great Plains (22 percent). Farm commodity program payments accounted for 16 percent of market value for the Mississippi Portal region, and 8 percent for the Northern Crescent.

An estimated \$62 billion of the market value of cropland in program crops is attributable to the effect of farm commodity payments enhancing land prices. The Heartland accounts for \$40 billion, or nearly two-thirds of the enhanced market value, due to the large acreage of program crops, the relatively high agricultural value of Heartland cropland, and the relatively high proportional effect of farm commodity payments on farmland values in the region. For comparison, the estimated total market value of U.S. cropland (from which one of the eight principal program crops was harvested) was \$312 billion as of January 1, 2001. The Heartland accounted for \$167 billion, followed by the Prairie Gateway at \$42 billion.

Procedures Used to Derive Cropland Values

The value of farmland attributable to farm commodity program payments was derived from statistical analysis of farmland value data (excluding the value of buildings) obtained from the 2000 Agricultural Resource Management Study. The farmland values used were average value per acre of farms that received government payments from the principal farm commodity programs. County average farmland values were combined with county-level information on factors influencing farmland values.

Hedonic land price regressions permitted the calculation of the average amount that county farmland values increased for each additional dollar of farm commodity program payment received by farm operators in that county, while simultaneously accounting for differences in soil quality, urban influence, availability of irrigation, and other factors. The analysis was conducted separately for the five production regions receiving the largest total amounts of commodity program payments. The resulting coefficients were applied to commodity program payments received in each county to estimate the percentage of the total farmland value in each region attributable to the payments. To get a ballpark estimate for the U.S., lesser effects of 10 percent of the market value of farmland were assumed for the remaining regions, based on research indicating that commodity program payments in these regions were not a principal determinant of cropland value.

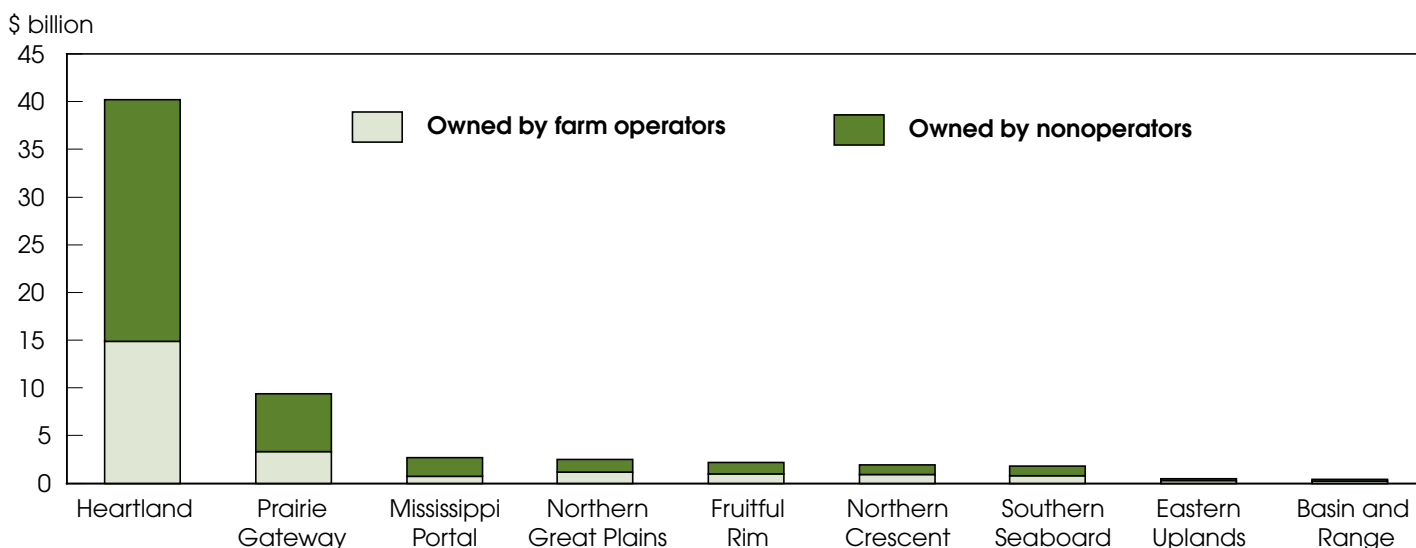
Heartland and Prairie Gateway Account for Much of the Cropland Value Attributable to Commodity Program Payments

Region	Total value of land harvested in eight program crops ¹	Cropland value attributable to commodity program payments					
		Percent of region value in the previous column	Estimated value attributable to payments	Owned by farm operators	Owned by nonoperator landlords		
	\$ billion	Percent ²	\$ billion	Percent ³	\$ billion	Percent	\$ billion
Heartland	167.3	24.0	40.2	37	14.9	63	25.3
Prairie Gateway	41.7	23.0	9.4	35	3.3	65	6.1
Mississippi Portal	17.3	16.0	2.7	25	0.7	75	2.0
Northern Great Plains	11.3	22.0	2.5	47	1.2	53	1.3
Fruitful Rim	21.6	10.0	2.2	47	1.0	53	1.2
Northern Crescent	26.0	7.5	1.9	47	0.9	53	1.0
Southern Seaboard	18.2	10.0	1.8	47	0.8	53	1.0
Eastern Uplands	4.6	10.0	0.5	61	0.3	39	0.2
Basin and Range	4.2	10.0	0.4	39	0.2	61	0.2
U.S.	312.3	19.7	61.6	38	23.3	62	38.3

1. Eight program crops are wheat, corn, soybeans, sorghum, cotton, rice, barley, and oats. 2. Based on 2000 Agricultural Resource Management Study data, except 10 percent assumed for Fruitful Rim, Southern Seaboard, Eastern Uplands, and Basin and Range regions. 3. Based on 2000 Agricultural Resource Management Study data for farms receiving commodity program payments.

Economic Research Service, USDA

Nonoperators Own Much of the Cropland Value Attributable to Commodity Program Payments



Includes only cropland in commodity program crops. Based on analysis of data from the 2000 Agricultural Resource Management Study.

Economic Research Service, USDA

Regardless of whether cropland value increases are due to increased farm commodity program payments, urban influence, or some other factor, not all farm operators benefit from the increased wealth associated with higher cropland values. Since potential capital gains, whether from commodity program payments or urban influence, would accrue to farmland owners, farm operators will not benefit from increased cropland values unless they own all or part of the land they operate.

In 1999, only about 58 percent of farmers owned all of the land they operated (full owners). For the other 42 percent, renting cropland was a key means of gaining access to a necessary input into the agricultural production process. On average for these latter farmers, rented farmland accounted for about 45 percent of

total land operated per farm. About 18 percent of operators rented more than three-fourths of the land they farmed. Seven percent of operators were full tenants, meaning they owned none of the land they operated. Full tenants do not benefit at all from the capital gains generated by increased farmland values, and part-owners benefit only in proportion to the land they own.

Who are the nonoperator owners that benefit from farmland value appreciation? While the characteristics of farm operators are well documented, much less is known about the characteristics of nonoperator landlords. Landowner responses to USDA's 1999 Agricultural Economics and Land Ownership Survey provide some clues. As a group, nonoperator-owners are older than owner operators. More than 55 percent of nonoperator-owners

Special Article

Among Nonoperator Owners, Those Age 65 and Older Own More than 60 Percent of the Group's Farmland

Age of owner	Owners		Acres	
	Nonoperator owners	Owner-operators	Nonoperator owners	Owner-operators
	Percent		Percent	
Under 50 years	16	33	10	32
50 to 64 years	29	38	27	37
65 years and over	55	29	63	30
U.S.	100	100	100	100

Source: *Agricultural Economics and Land Ownership Survey (1999)*, USDA.

Economic Research Service, USDA

are age 65 or older, compared with 29 percent of owner-operators. From the other end of the age spectrum, 16 percent of nonoperator-owners are under age 50, while 33 percent of owner-operators are under age 50.

Though it is not possible to determine definitively, it also appears that many nonoperator owners are retired farmers, their survivors, or others formerly directly associated with agricultural production. In 1999, 29 percent of all nonoperator owners lived on the farm they rented out or on another farm, and another 28 percent lived within 5 miles. Only 10 percent lived 150 or more miles away. The vast majority (85 percent) lived within 50 miles of the land they rented out.

The strong association with active agriculture is even more pronounced for nonoperator owners 65 years or older. In 1999, 31 percent of these still lived on a farm. Forty-four percent lived within 5 miles of the land they rented out, while only 15 percent lived 150 or more miles away. Nearly 38 percent described themselves as retired from farming. About 36 percent were female, compared with 24 percent male and 40 percent couples with joint ownership.

Among owner operators, those who gain the most from cropland value appreciation are likely the same as those that receive the largest commodity-related government payments. The General Accounting Office (GAO), in a June 2001 report drawing on USDA data, concluded that "large wheat and corn farms run by older operators tend to receive larger farm payments." Over 85 percent of farm payments in recent years have gone to farms with gross agricultural sales of over \$50,000. More than half of that amount went to the largest farms—those with sales of \$250,000 or more. The emphasis of major farm program payments on historic or current levels of production and the abundance of acres planted to corn and wheat mean that operators planting these crops generally have received larger payments.

Similarly, older farm operators have generally received larger payments than younger ones. Younger operators tend to have smaller farms and produce less of the crops for which payments are generally made. Farmers age 55 and older, who operate more of the larger farms and who are the largest demographic group, received 38 percent of the payments, compared with 6 percent going to operators under age 35.

Policy Considerations

Appreciated farmland values are a double-edged sword for American farmers. From the perspective of many farm operators, farmland value increases are favorable. Farm real estate value contributes to financial stability. In addition, farm real estate is often the principal source of collateral for farm loans, enabling many farm operators to finance the purchase of additional farmland and equipment or to finance current operating expenses. Some 53 percent of the total farm-sector debt of \$183.6 billion at the end of 2000 was farm real estate debt—either mortgages for purchase of farmland or short- or intermediate-term debt secured by farmland. Many farm operators consider farmland as a retirement instrument, funded by the capital gains that may accrue upon sale.

But from another perspective, those same increases in cropland value reduce the ability of beginning farmers to buy cropland. If cropland is purchased after expectations of a stream of commodity program payments are already bid into its price, the purchaser, whether a beginning farmer or an expansion buyer, will not (economically speaking) receive the benefits of future commodity program payments (even though they will directly receive payments). The new purchasers will have "paid" for the right to receive those future government payments through the elevated market price of the cropland. Or, from the other perspective, the seller will have captured the present value of future expected commodity program payments through the appreciated market price received for the cropland. In addition, the new buyer will incur additional financing costs because of the higher price of the cropland. Such increases in the costs of acquiring land, which are unrelated to the inherent productivity of cropland, may increase the fixed cost of agricultural production and offset some of the benefits of higher government payments.

Program payments and their impact are part of the current debate on the next farm bill. Part of this debate focuses on the implications of recent increases in cropland values and what might happen to these values if direct payments are reduced or dropped. The current set of farm commodity program payments has added nearly \$62 billion to U.S. farmland values. This added value is unrelated to inherent agricultural productivity, yet adds to the fixed cost of agricultural production for some producers. The effect is particularly strong in the Heartland, where farm commodity payments add \$40 billion to the market value of cropland, nearly two-thirds of the effect nationwide. However, owner-operators own only about 40 percent of farmland. Nonoperator landlords own more than \$38 billion in land value attributable to commodity program payments nationwide, with over \$25 billion, or nearly two-thirds, concentrated in the Heartland. **AO**

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For more information:

www.ers.usda.gov/publications/AgOutlook/june2001/AO282h.pdf
www.ers.usda.gov/Briefing/LandUse/Questions/Rvalqa5.htm
www.ers.usda.gov/publications/ah712/AH7121-4.PDF

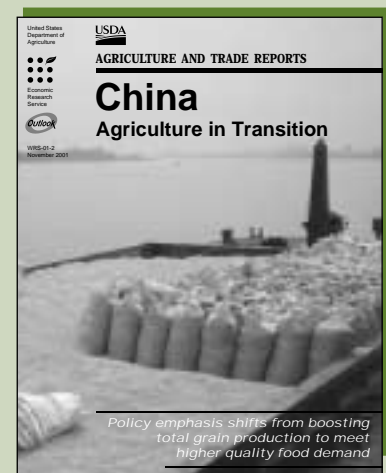
Emerging changes in international agriculture: the role of China, Brazil, and Argentina

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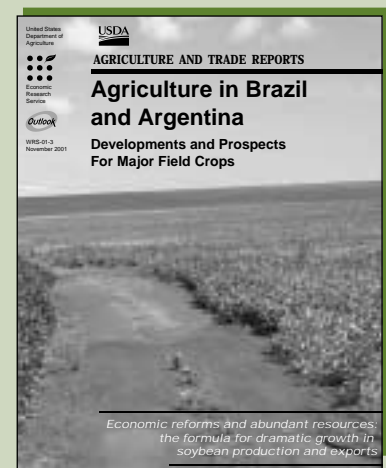
Agriculture in Transition

External competition and domestic changes in consumer preferences are reshaping China's agricultural production and policy. This report's up-to-date market analysis and policy information on major agricultural commodities will be valuable in addressing some key questions. Why, for example, were grain imports low in 2000 despite relatively low production? How will changes in China's livestock sector affect agricultural trade? Accession to the World Trade Organization is expected to accelerate the changes in China's agricultural production, policy, and trade.



Agriculture in Brazil and Argentina: Developments and Prospects for Major Field Crops

Policy reforms in the 1990s, combined with abundant resources and new developments in agricultural research, spurred dramatic growth in Argentina's and Brazil's crop output and exports. Their increasing competitiveness in world oilseed and grain markets may foreshadow continued gains, as their economies become more integrated into global markets. In each country, the development of infrastructure, the dynamics of the livestock sector, and the stability of the economy will determine the pace of further growth in production and exports.



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Statistical Indicators

Summary Data

Table 1—Key Statistical Indicators of the Food & Fiber Sector

	Annual			2000	2001				2002	
	2000	2001	2002	IV	I	II	III	IV	I	II
Prices received by farmers (1990-92=100)	96	103	--	97	99	--	--	--	--	--
Livestock & products	97	107	--	99	103	--	--	--	--	--
Crops	96	100	--	95	96	--	--	--	--	--
Prices paid by farmers (1990-92=100)										
Production items	116	120	--	118	121	--	--	--	--	--
Commodities and services, interest, taxes, and wage rates (PPITW)	120	124	--	122	124	--	--	--	--	--
Cash receipts (\$ bil.)	194	206	--	57	49	46	52	60	--	--
Livestock	99	109	--	25	27	27	28	27	--	--
Crops	94	97	--	32	22	19	24	32	--	--
Market basket (1982-84=100)										
Retail cost	171	--	--	173	175	177	--	--	--	--
Farm value	97	--	--	100	102	106	--	--	--	--
Spread	210	--	--	212	215	215	--	--	--	--
Farm value/retail cost (%)	20	--	--	20	20	21	--	--	--	--
Retail prices (1982-84=100)										
All food	168	174	178	170	172	173	174	175	177	177
At home	168	174	178	170	172	173	174	175	177	177
Away from home	169	174	179	171	172	173	175	176	177	178
Agricultural exports (\$ bil.) ¹	50.9	53.5	57.0	14.4	13.8	12.5	12.8	14.2	14.2	--
Agricultural imports (\$ bil.) ¹	38.9	38.5	39.0	9.7	9.9	10.0	8.9	9.3	9.5	--
Commercial production										
Red meat (mil. lb.)	46,150	45,268	44,833	11,634	11,096	11,145	11,344	11,683	11,226	11,143
Poultry (mil. lb.)	36,427	37,018	38,000	9,050	9,007	9,436	9,280	9,295	9,225	9,680
Eggs (mil. doz.)	7,035	7,151	7,270	1,786	1,756	1,775	1,785	1,835	1,800	1,790
Milk (bil. lb.)	167.7	165.5	169.9	40.7	41.3	42.7	40.6	40.9	42.3	43.9
Consumption, per capita										
Red meat and poultry (lb.)	219.5	261.1	215.5	55.5	53.1	53.3	53.9	55.7	53.0	53.8
Corn beginning stocks (mil. bu.) ²	1,717.5	1,898.7	--	3,585.9	1,717.5	8,522.2	6,043.0	3,924.0	1,898.7	--
Corn use (mil. bu.) ²	9,794.2	9,880.0	--	1,870.7	3,165.0	2,480.1	2,122.2	2,026.9	--	--
Prices ³										
Choice steers--Neb. Direct (\$/cwt)	69.65	73.37	75-81	72.26	79.11	75.13	70.24	68-70	69-73	76-82
Barrows and gilts--IA, So. MN (\$/cwt)	44.70	47.23	43-46	40.78	42.83	52.05	51.05	42-44	42-46	46-50
Broilers--12-city (cents/lb.)	56.20	59.00	58-63	57.60	57.80	59.20	61.10	57-59	56-60	58-62
Eggs--NY gr. A large (cents/doz.)	68.90	68.90	63-69	83.10	75.80	63.30	61.40	74-77	66-70	56-60
Milk--all at plant (\$/cwt)	12.33	15.35- 15.45	12.95- 13.85	12.70	13.37	15.30	16.47	16.30- 16.70	13.45- 14.15	11.90- 12.90
Wheat--KC HRW ordinary (\$/bu.)	3.08	--	--	3.44	3.45	3.41	3.18	--	--	--
Corn--Chicago (\$/bu.)	1.97	--	--	2.01	2.03	1.96	2.10	--	--	--
Soybeans--Chicago (\$/bu.)	4.86	--	--	4.70	4.48	4.48	4.89	--	--	--
Cotton--avg. spot 41-34 (cents/lb)	57.47	--	--	61.24	52.66	39.86	35.58	--	--	--
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Farm real estate values ⁴										
Nominal (\$ per acre)	713	740	798	844	887	926	974	1,020	1,080	1,130
Real (1996 \$)	795	806	848	879	904	926	955	988	1,031	1,057
U.S. civilian employment (mil.) ⁵	128.1	129.2	131.1	132.3	133.9	136.3	137.7	139.4	140.9	--
Food and fiber (mil.)	23.1	23.5	24.1	24.5	24.2	24.1	24.2	24.4	24.1	--
Farm sector (mil.)	1.9	1.8	1.9	2.0	2.0	1.9	1.8	1.8	1.7	--
U.S. gross domestic product (\$ bil.)	6,318.9	6,642.3	7,054.3	7,400.5	7,813.2	8,318.4	8,781.5	9,268.6	9,872.9	--
Food and fiber--net value added (\$ bil.)	924.8	957.6	1,026.6	1,048.2	1,078.9	1,101.9	1,132.7	1,180.6	1,264.5	--
Farm sector--net value added (\$ bil.) ⁶	75.5	70.2	77.8	73.5	85.7	82.6	74.0	66.9	82.0	--

-- = Not available. Annual and quarterly data for the most recent year contain forecasts. 1. Annual data based on Oct.-Sept. fiscal years ending with year indicated. 2. Sept.-Nov. first quarter; Dec.-Feb. second quarter; Mar.-May third quarter; Jun.-Aug. fourth quarter; Sept.-Aug. annual. Use includes exports and domestic disappearance. 3. Simple averages, Jan.-Dec. 4. As of January 1. 5. Civilian labor force taken from "Monthly Labor Review," Table 18--Annual Data: Employment Status of the Population, Bureau of Labor Statistics, U.S. Department of Labor. 6. The value-added data presented here are consistent with accounting conventions of the National Income and Product Accounts, U.S. Department of Commerce.

U.S. & Foreign Economic Data

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

	Annual			1999	2000				2001	
	1998	1999	2000	IV	I	II	III	IV	I	II
Billions of current dollars (quarterly data seasonally adjusted at annual rates)										
Gross Domestic Product	8,781.5	9,268.6	9,872.9	9,522.5	9,668.7	9,857.6	9,937.5	10,027.9	10,141.7	10,202.6
Gross National Product	8,778.1	9,261.8	9,860.8	9,517.0	9,650.7	9,841.0	9,919.4	10,032.1	10,131.3	10,190.9
Personal consumption expenditures	5,856.0	6,250.2	6,728.4	6,424.7	6,581.9	6,674.9	6,785.5	6,871.4	6,977.6	7,044.6
Durable goods	693.2	760.9	819.6	789.4	820.7	813.8	825.4	818.7	838.1	844.7
Nondurable goods	1,708.5	1,831.3	1,989.6	1,892.9	1,942.5	1,978.3	2,012.4	2,025.1	2,047.1	2,062.3
Food	852.6	899.8	957.5	925.7	937.8	953.5	967.2	971.4	982.0	987.0
Clothing and shoes	284.8	300.9	319.1	304.1	314.4	317.0	321.6	323.5	325.7	322.4
Services	3,454.3	3,658.0	3,919.2	3,742.4	3,818.7	3,882.8	3,947.7	4,027.5	4,092.4	4,137.6
Gross private domestic investment	1,538.7	1,636.7	1,767.5	1,698.1	1,709.0	1,792.4	1,788.4	1,780.3	1,722.8	1,669.9
Fixed investment	1,465.6	1,578.2	1,718.1	1,613.2	1,678.1	1,717.0	1,735.9	1,741.6	1,748.3	1,706.5
Change in private inventories	73.1	58.6	49.4	84.9	30.9	75.4	85.5	38.7	-25.5	-36.6
Net exports of goods and services	-151.7	-250.9	-364.0	-288.7	-333.9	-350.8	-380.6	-390.6	-363.8	-347.4
Government consumption expenditures and gross investment	1,538.5	1,632.5	1,741.0	1,688.3	1,711.8	1,741.1	1,744.2	1,766.8	1,805.2	1,835.4
Billions of 1996 dollars (quarterly data seasonally adjusted at annual rates) ¹										
Gross Domestic Product	8,508.9	8,856.5	9,224.0	9,049.9	9,102.5	9,229.4	9,260.1	9,303.9	9,334.5	9,341.7
Gross National Product	8,508.4	8,853.0	9,216.4	9,047.9	9,089.1	9,217.7	9,247.2	9,311.7	9,329.1	9,335.5
Personal consumption expenditures	5,683.7	5,968.4	6,257.8	6,083.6	6,171.7	6,226.3	6,292.1	6,341.1	6,388.5	6,428.4
Durable goods	726.7	817.8	895.5	854.2	892.1	886.5	904.1	899.4	922.4	938.1
Nondurable goods	1,686.4	1,766.4	1,849.9	1,801.1	1,823.8	1,844.9	1,864.1	1,866.8	1,878.0	1,879.4
Food	819.4	847.8	881.3	865.9	871.2	881.5	886.2	886.4	887.3	886.1
Clothing and shoes	290.4	312.1	335.3	314.6	328.2	333.3	339.8	339.9	342.7	344.1
Services	3,273.4	3,393.2	3,527.7	3,440.5	3,472.2	3,509.6	3,540.2	3,588.8	3,605.1	3,629.8
Gross private domestic investment	1,558.0	1,660.1	1,772.9	1,725.4	1,722.9	1,801.6	1,788.8	1,778.3	1,721.0	1,666.2
Fixed investment	1,480.0	1,595.4	1,716.2	1,629.7	1,683.4	1,719.2	1,730.1	1,732.1	1,740.3	1,696.4
Change in private inventories	76.7	62.1	50.6	92.7	28.9	78.9	51.7	42.8	-27.1	-38.3
Net exports of goods and services	-221.1	-316.9	-399.1	-337.8	-371.1	-392.8	-411.2	-421.1	-404.5	-406.7
Government consumption expenditures and gross investment	1,483.3	1,531.8	1,572.6	1,564.8	1,560.4	1,577.2	1,570.0	1,582.8	1,603.4	1,623.0
GDP implicit price deflator (% change)	1.2	1.4	2.3	1.6	3.9	2.2	1.9	1.8	3.3	2.1
Disposable personal income (\$ bil.)	6,355.6	6,618.0	7,031.0	6,736.8	6,859.1	6,993.7	7,081.3	7,189.8	7,295.0	7,363.2
Disposable pers. income (1996 \$ bil.)	6,168.6	6,320.0	6,539.2	6,379.2	6,431.6	6,523.7	6,566.5	6,634.9	6,679.0	6,719.2
Per capita disposable pers. income (\$)	23,491	24,242	25,528	24,589	24,987	25,426	25,682	26,013	26,335	26,520
Per capita disp. pers. income (1996 \$)	22,800	23,150	23,742	23,283	23,430	23,717	23,814	24,006	24,111	24,200
U.S. resident population plus Armed Forces overseas (mil.) ²	270.5	272.9	275.4	273.9	274.4	275.0	275.6	276.3	--	--
Civilian population (mil.) ²	269.0	271.5	273.9	272.4	273.0	273.5	274.2	274.9	--	--
	Annual			2000		2001				
	1998	1999	2000	Aug	Mar	Apr	May	Jun	Jul	Aug
Monthly data seasonally adjusted										
Total industrial production (1992=100)	138.2	144.8	153.6	154.6	150.0	149.6	149.2	147.4	147.5	146.1
Leading economic indicators (1996=100)	105.4	108.8	109.9	109.7	108.7	108.7	109.3	109.5	109.8	109.7
Civilian employment (mil. persons)	131.5	133.5	135.2	134.9	135.8	135.4	135.1	134.9	135.4	134.4
Civilian unemployment rate (%)	4.5	4.2	4.0	4.1	4.3	4.5	4.4	4.5	4.5	4.9
Personal income (\$ bil. annual rate)	7,426.0	7,777.3	8,319.2	8,377.4	8,676.2	8,697.0	8,709.3	8,737.6	8,781.7	8,783.5
Money stock-M2 (daily avg.) (\$ bil.) ³	4,385.9	4,653.3	4,945.1	4,807.9	5,100.7	5,146.3	5,170.7	5,214.2	5,252.6	5,284.9
Three-month Treasury bill rate (%)	4.81	4.66	5.85	6.11	4.50	3.92	3.67	3.48	3.54	3.39
AAA corporate bond yield (Moody's) (%)	6.53	7.04	7.62	7.55	6.98	7.20	7.29	7.18	7.13	7.02
Total housing starts (1,000) ⁴	1,616.9	1,640.9	1,568.7	1,531	1,592	1,626	1,610	1,634	1,641	1,527
Business inventory/sales ratio ^{5, 6}	1.44	1.41	1.40	1.41	1.43	1.44	1.42	1.43	1.42	--
Retail & food services sales (\$ bil.) ^{6, 7}	2,906.7	3,149.2	3,388.82	282.9	287.1	291.1	291.7	291.7	292.2	293.4
Food and beverage stores (\$bil.)	421.6	441.4	465.29	38.9	39.7	39.7	40.0	39.9	40.0	40.2
Clothing & accessory stores (\$ bil.)	149.4	159.7	168.48	14.1	14.3	14.3	14.2	14.1	14.3	14.2
Food services & drinking places (\$ bil.)	272.6	286.3	306.07	25.4	26.4	26.4	26.7	26.9	26.9	27.2

-- = Not available. 1. In October 1999, 1996 dollars replaced 1992 dollars. 2. Population estimates based on 1990 census. 3. Annual data as of December of year listed. 4. Private, including farm. 5. Manufacturing and trade. 6. In July 2001, all numbers were revised due to a changeover from the Standard Industrial Classification System to the North American Industry Classification System. 7. Annual total. *Information contact: David Johnson (202) 694-5324*

Table 3—World Economic Growth

	Calendar year									
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
<i>Real GDP, annual percent change</i>										
World	1.5	3.1	2.8	3.5	3.4	1.9	2.7	3.7	1.3	1.8
less U.S.	1.1	2.7	2.8	3.4	3.0	1.0	2.3	3.8	1.4	2.0
Developed economies	0.9	2.8	2.3	3.1	3.0	2.1	2.5	3.1	1.0	1.3
less U.S.	0.1	2.1	2.1	2.8	2.3	1.0	1.9	3.1	0.9	1.3
United States	2.7	4.0	2.7	3.6	4.4	4.4	3.6	3.3	1.0	1.3
Canada	2.3	4.7	2.7	1.5	4.4	3.3	4.6	4.3	1.6	2.0
Japan	0.3	0.6	1.5	5.1	1.6	-2.5	0.2	2.4	-0.7	-0.1
Australia	4.1	4.5	4.5	3.8	4.7	4.5	4.4	2.3	2.5	4.2
European Union	-0.4	2.8	2.4	1.6	2.5	2.8	2.6	3.5	1.7	1.8
Transition economies	-6.3	-8.1	-1.3	-0.8	1.4	-1.4	3.5	6.2	4.4	3.9
Eastern Europe	1.2	3.9	5.6	4.0	2.7	2.6	2.5	3.6	2.8	3.4
Poland	3.8	5.2	7.0	6.0	6.8	4.8	4.1	4.2	1.5	2.5
Former Soviet Union	-9.6	-14.1	-5.4	-4.0	0.5	-4.4	4.2	8.2	5.6	4.3
Russia	-8.7	-12.6	-4.1	-3.4	0.9	-4.9	5.0	8.3	4.9	4.1
Developing economies	5.8	6.3	5.3	5.8	5.3	1.2	3.4	5.6	2.4	3.7
Asia	8.0	8.8	8.3	7.4	5.8	0.4	6.3	7.2	3.6	4.6
East Asia	9.1	9.7	8.7	7.7	7.0	1.9	7.4	8.1	4.0	5.1
China	13.5	12.8	10.5	9.6	8.8	7.8	7.1	8.0	7.7	7.9
Taiwan	7.0	7.1	6.4	6.1	6.7	4.6	5.4	5.9	-2.4	2.0
Korea	5.5	8.2	8.9	6.8	5.0	-6.7	10.7	9.0	2.5	3.1
Southeast Asia	7.9	8.3	8.3	7.3	4.0	-7.5	3.5	5.9	1.7	3.1
Indonesia	7.3	7.5	8.2	7.8	4.7	-13.2	0.7	4.8	2.9	3.7
Malaysia	9.9	9.2	9.8	10.0	7.3	-7.4	5.8	8.4	0.8	2.7
Philippines	2.1	4.4	4.7	5.8	5.2	-0.8	3.2	4.0	3.0	2.4
Thailand	8.4	9.0	8.9	5.9	-1.7	-10.2	4.2	4.4	1.3	2.9
South Asia	4.5	6.6	7.1	6.3	4.2	6.1	6.1	5.5	4.2	4.6
India	5.0	7.3	7.7	7.0	4.6	6.8	6.5	6.1	4.5	4.8
Pakistan	1.9	3.9	5.1	3.9	1.0	2.5	4.0	3.4	2.6	3.2
Latin America	4.3	5.3	1.4	3.7	5.2	1.8	0.0	3.2	1.0	2.0
Mexico	2.0	4.4	-6.2	5.2	6.8	4.9	3.5	3.4	0.3	2.3
Caribbean/Central	4.8	4.1	3.8	3.6	6.4	6.8	6.9	4.9	1.7	3.0
South America	4.8	5.6	3.1	3.3	4.8	1.0	-1.1	3.1	1.1	1.9
Argentina	5.9	5.8	-2.8	5.5	8.1	3.9	-3.2	-0.3	-2.0	-0.2
Brazil	4.9	5.9	4.2	2.8	3.2	-0.1	0.8	4.1	1.6	2.3
Colombia	5.4	5.8	5.2	2.1	3.4	0.5	-4.3	2.2	1.8	2.5
Venezuela	0.3	-2.3	3.7	-0.5	6.5	-0.7	-6.1	3.2	4.9	2.7
Middle East	4.0	-0.3	4.4	4.7	4.4	2.7	-0.8	5.0	-1.1	3.2
Israel	5.6	6.9	7.0	5.1	3.2	2.6	2.2	5.9	0.7	2.3
Saudi Arabia	-0.6	0.5	0.5	1.4	1.9	2.3	-1.1	3.5	3.0	2.5
Turkey	8.0	-5.5	7.2	7.0	7.5	3.1	-4.7	7.2	-8.3	4.6
Africa	1.0	3.2	2.9	5.2	2.8	3.1	2.6	3.6	3.6	3.4
North Africa	0.5	3.9	1.5	6.5	2.6	5.6	3.9	4.0	4.4	4.1
Egypt	2.9	3.9	4.7	5.0	5.5	5.6	6.0	5.2	3.3	4.2
Sub-Sahara	1.4	2.6	3.9	4.3	3.0	1.3	1.7	3.3	3.0	2.8
South Africa	1.2	3.2	3.1	4.2	2.5	0.6	1.2	3.1	2.6	2.4
<i>Consumer prices, annual percent change</i>										
Developed economies	3.1	2.6	2.6	2.4	2.1	1.5	1.4	2.3	2.4	1.7
Transition economies	635.8	274.2	133.8	42.5	27.3	21.8	43.9	20.0	16.4	10.7
Developing economies	49.2	55.3	23.2	15.4	9.9	10.5	6.8	6.0	5.9	5.1
Asia	10.8	16.0	13.2	8.3	4.8	7.7	2.5	1.9	2.8	3.3
Latin America	194.6	200.3	36.0	21.2	12.9	9.9	8.8	8.1	6.2	4.9
Middle East	29.4	37.3	39.1	29.6	27.7	27.6	23.2	19.2	18.9	14.5
Africa	39.0	54.7	35.3	30.2	14.2	10.8	11.5	13.6	12.6	8.0

-- = Not available. The last 3 years are either estimates or forecasts. Sources: Oxford Economic Forecasting; International Financial Statistics, IMF.

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Farm Prices

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

	Annual			2000			2001			
	1999	2000	2001	Sep	Apr	May	Jun	Jul	Aug	Sep
	1990-92=100									
Prices received										
All farm products	96	96	103	97	106	108	107	107	109	106
All crops	96	96	100	97	102	105	101	102	107	103
Food grains	90	86	92	82	92	95	91	88	90	91
Feed grains and hay	86	86	91	78	89	91	91	95	96	93
Cotton	85	82	73	83	72	70	67	66	59	57
Tobacco	102	107	103	106	82	--	--	107	104	108
Oil-bearing crops	83	85	80	84	75	77	80	86	87	84
Fruit and nuts, all	112	99	100	115	105	96	117	121	126	121
Commercial vegetables	110	123	132	143	142	146	119	119	142	146
Potatoes and dry beans	100	93	97	78	96	105	107	125	114	110
Livestock and products	95	97	107	98	108	110	112	112	111	111
Meat animals	83	94	101	90	104	103	104	102	100	97
Dairy products	110	94	112	99	110	118	123	124	126	129
Poultry and eggs	110	107	115	114	116	115	117	119	120	122
Prices paid										
Commodities and services, interest, taxes, and wage rates (PPITW)	115	120	124	120	123	123	124	123	123	124
Production items	111	116	120	116	120	120	120	120	120	120
Feed	100	102	108	99	105	106	107	108	111	113
Livestock and poultry	95	110	111	105	112	110	113	114	113	112
Seeds	121	124	130	125	134	134	134	134	134	134
Fertilizer	105	110	133	113	135	131	125	120	116	112
Agricultural chemicals	121	120	121	120	121	121	120	118	118	118
Fuels	93	134	131	152	127	133	133	117	117	126
Supplies and repairs	121	124	126	124	126	127	127	127	127	127
Autos and trucks	119	119	119	118	119	118	118	117	117	116
Farm machinery	135	140	143	141	143	143	143	143	143	143
Building material	120	121	121	121	121	122	122	121	121	121
Farm services	116	119	120	120	119	119	121	122	122	122
Rent	113	110	116	110	114	114	116	116	116	116
Interest payable per acre on farm real estate debt	106	112	116	112	116	116	116	116	116	116
Taxes payable per acre on farm real estate	120	123	123	123	123	123	123	123	123	123
Wage rates (seasonally adjusted)	135	140	147	137	144	144	144	143	143	143
Prod. items, interest, taxes & wage rates (PITW)	113	118	122	118	122	122	122	122	122	122
Ratio, prices received to prices paid (%)*	83	80	83	81	86	88	86	87	89	85
Prices received (1910-14=100)	606	611	658	618	671	684	677	678	693	676
Prices paid, etc. (1910-14=100)	1,531	1,595	1,650	1,597	1,643	1,644	1,650	1,643	1,642	1,645
Parity ratio (1910-14=100) (%)*	40	38	40	39	41	42	41	41	42	41

-- = Not available. Values for the two most recent months are revised or preliminary. *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. Data for this table are taken from the publication *Agricultural Prices*, which is produced monthly by USDA's National Agricultural Statistics Service (NASS) and is available at <http://usda.mannlib.cornell.edu/reports/nassr/price/pap-bb/>. For historical data or for categories not listed here, call the NASS Information Hotline at 1-800-727-9540, or access the NASS Home Page at <http://www.usda.gov/nass>.

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

	Annual ¹			2000			2001			
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
Crops										
All wheat (\$/bu.)	2.65	2.48	2.65	2.43	2.86	2.99	2.74	2.63	2.73	2.80
Rice, rough (\$/cwt)	8.89	5.93	5.75	5.72	5.59	5.15	5.01	5.25	5.10	5.06
Corn (\$/bu.)	1.94	1.82	1.85	1.61	1.89	1.82	1.77	1.88	1.90	1.92
Sorghum (\$/cwt)	2.97	2.80	3.15	2.77	3.06	3.21	3.63	3.72	3.50	3.45
All hay, baled (\$/ton)	84.60	76.90	83.00	83.00	94.80	106.00	95.80	96.30	97.70	98.60
Soybeans (\$/bu.)	4.93	4.63	4.75	4.57	4.22	4.32	4.46	4.79	4.83	4.59
Cotton, upland (¢/lb.)	60.20	45.00	56.00	50.60	43.50	42.20	40.40	40.00	36.00	34.30
Potatoes (\$/cwt)	5.56	5.77	4.95	4.65	5.71	6.31	6.47	7.83	6.84	6.72
Lettuce (\$/cwt) ²	16.10	13.30	17.50	29.40	21.60	18.50	12.00	16.40	26.90	33.30
Tomatoes, fresh (\$/cwt) ²	35.20	25.80	31.40	29.60	22.90	37.50	27.00	24.90	28.20	21.80
Onions (\$/cwt)	13.80	9.78	11.40	10.70	21.00	19.00	17.60	16.80	14.80	13.70
Beans, dry edible (\$/cwt)	19.00	16.40	15.30	15.60	16.20	16.60	16.30	16.80	17.50	18.00
Apples for fresh use (¢/lb.)	17.30	21.30	17.90	23.30	15.80	15.40	15.30	14.40	16.90	18.70
Pears for fresh use (\$/ton)	291.00	294.00	264.00	332.00	304.00	364.00	399.00	570.00	533.00	463.00
Oranges, all uses (\$/box) ³	4.29	5.54	--	0.32	5.02	4.80	4.30	6.23	5.57	6.53
Grapefruit, all uses (\$/box) ³	2.00	3.27	--	6.14	1.36	1.94	5.27	8.81	3.69	6.89
Livestock										
Cattle, all beef (\$/cwt)	59.60	63.40	68.60	65.30	75.60	73.60	73.50	71.90	70.70	70.00
Calves (\$/cwt)	78.80	87.70	104.00	103.00	111.00	111.00	109.00	107.00	106.00	106.00
Hogs, all (\$/cwt)	34.40	30.30	42.30	41.60	47.80	50.40	52.20	51.70	50.60	45.80
Lambs (\$/cwt)	72.30	74.50	79.40	80.80	85.20	79.00	71.60	65.00	55.40	--
All milk, sold to plants (\$/cwt)	15.46	14.38	12.40	12.90	14.40	15.40	16.10	16.20	16.40	16.80
Milk, manuf. grade (\$/cwt)	14.24	12.84	10.54	11.40	12.90	14.30	15.10	15.00	15.40	15.70
Broilers, live (¢/lb.)	39.30	37.10	33.60	38.00	39.00	40.00	41.00	42.00	42.00	43.00
Eggs, all (¢/doz.) ⁴	66.80	62.20	61.80	59.20	66.50	55.30	55.80	55.10	57.60	56.70
Turkeys (¢/lb.)	38.00	40.80	40.70	44.80	37.80	38.30	38.50	38.60	38.80	40.40

-- = Not available. Values for the two most recent months are revised or preliminary. 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. Data for this table are taken from the publication *Agricultural Prices*, which is produced monthly by USDA's National Agricultural Statistics Service (NASS) and is available at <http://usda.mannlib.cornell.edu/reports/nassr/price/pap-bb/>. For historical data or for categories not listed here, call the NASS Information Hotline at 1-800-727-9540, or 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			2000			2001			
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
	<i>1982-84=100</i>									
Consumer Price Index, all items	163.0	166.6	172.1	173.7	176.9	177.7	178.0	177.5	177.5	178.3
CPI, all items less food	163.6	167.0	172.9	174.6	177.8	178.6	179.0	178.2	178.2	179.0
All food	160.7	164.1	167.8	168.9	171.9	172.5	173.0	173.5	173.9	174.1
Food away from home	161.1	165.1	169.0	170.0	172.7	173.1	173.6	174.1	174.7	175.1
Food at home	161.1	164.2	167.9	169.0	172.2	172.8	173.3	173.9	174.2	174.3
Meats ¹	141.6	142.3	150.7	153.8	158.0	158.9	160.2	160.8	160.7	161.5
Beef and veal	136.5	139.2	148.1	150.2	161.5	161.7	162.5	162.1	161.0	161.1
Pork	148.5	145.9	156.5	161.4	157.9	160.4	162.6	164.8	166.3	167.8
Poultry	157.1	157.9	159.8	160.9	163.1	162.3	164.5	166.6	167.5	165.4
Fish and seafood	181.7	185.3	190.4	191.9	192.4	194.6	191.5	191.0	189.7	189.1
Eggs	135.4	128.1	131.9	132.0	144.7	131.1	130.8	129.6	133.0	131.4
Dairy and related products ²	150.8	159.6	160.7	161.6	163.4	164.7	166.9	168.3	168.9	169.4
Fats and oils ³	146.9	148.3	147.4	148.7	151.5	154.7	156.7	157.8	158.5	158.5
Fresh fruits	246.5	266.3	258.3	258.2	269.4	274.0	268.3	263.8	258.9	266.0
Fresh vegetables	215.8	209.3	219.4	218.9	232.6	226.2	226.4	226.3	224.9	228.2
Potatoes	185.2	193.1	196.3	195.4	187.0	192.2	205.0	213.4	224.5	218.3
Cereals and bakery products	181.1	185.0	188.3	188.6	192.5	193.2	194.2	194.9	195.9	195.1
Sugar and sweets	150.2	152.3	154.0	154.6	154.0	155.8	155.7	156.1	156.1	156.6
Nonalcoholic beverages ⁴	133.0	134.3	137.8	138.0	138.9	138.1	138.6	138.9	140.0	139.2
Apparel										
Footwear	128.0	125.7	123.8	124.9	124.9	124.4	122.1	121.3	121.9	122.9
Tobacco and smoking products	274.8	355.8	394.9	408.0	424.2	418.7	421.0	441.2	424.6	444.0
Alcoholic beverages	165.7	169.7	174.7	175.5	178.1	178.5	179.1	179.7	180.0	180.4

1. Beef, veal, lamb, pork, and processed meat. 2. Included butter through December 1997. 3. Includes butter as of January 1998. 4. Includes fruit juices as of January 1998. This table is compiled with data provided by the Bureau of Labor Statistics (BLS). BLS operates a website at <http://stats.bls.gov/blshome.html> and a Consumer Prices Information Hotline at (202) 606-7828.

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

	Annual			2000		2001				
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
	<i>1982=100</i>									
All commodities	124.4	125.5	132.7	134.7	136.4	136.8	135.7	133.9	133.5	133.4
Finished goods ¹	130.6	133.0	138.0	139.4	141.8	142.7	142.1	140.7	141.1	141.7
All foods ²	132.4	132.2	133.0	133.0	137.7	138.3	137.9	137.4	138.9	139.2
Consumer foods	134.3	135.1	137.2	137.4	141.8	142.3	141.9	141.2	142.6	142.9
Fresh fruits and melons	90.0	103.6	91.4	92.3	96.0	101.7	98.3	84.9	86.2	94.9
Fresh and dry vegetables	139.5	118.0	126.7	138.0	129.0	129.9	120.5	105.4	122.2	125.1
Dried and dehydrated fruits	124.4	121.2	122.9	122.5	118.3	118.3	115.1	119.4	118.4	118.5
Canned fruits and juices	134.4	137.8	140.0	140.1	143.6	144.4	143.6	144.5	144.0	144.2
Frozen fruits, juices and ades	116.1	123.0	120.9	118.1	115.4	115.3	115.1	113.9	114.4	112.2
Fresh vegetables except potatoes	137.9	117.7	135.0	155.9	145.6	144.9	129.4	109.7	127.2	132.3
Canned vegetables and juices	121.5	120.9	121.2	121.1	121.3	121.4	121.9	122.6	124.1	125.4
Frozen vegetables	125.4	126.1	126.0	126.2	128.7	128.4	128.0	128.7	128.6	128.1
Potatoes	122.5	126.9	100.5	98.7	100.5	131.8	147.6	140.0	171.7	151.3
Eggs for fresh use (1991=100)	90.1	77.9	84.9	77.7	104.2	72.1	71.8	69.9	75.9	71.7
Bakery products	175.8	178.0	182.3	183.2	187.5	188.1	188.2	188.7	188.7	188.7
Meats	101.4	104.6	114.3	111.7	123.7	124.8	123.5	123.2	123.6	120.8
Beef and veal	99.5	106.3	113.7	110.0	127.5	125.1	123.4	119.0	119.4	117.6
Pork	96.6	96.0	113.4	110.1	120.3	126.3	124.1	130.7	131.6	125.7
Processed poultry	120.7	114.0	112.9	116.6	115.8	116.7	116.7	116.3	118.7	121.6
Unprocessed and packaged fish	183.0	190.9	198.1	190.3	205.2	192.7	183.1	185.8	185.1	191.9
Dairy products	138.1	139.2	133.7	135.6	141.7	146.9	150.1	150.9	152.0	153.5
Processed fruits and vegetables	125.8	128.1	128.6	128.1	128.6	129.1	128.2	128.8	129.2	129.7
Shortening and cooking oil	143.4	140.4	132.4	131.8	131.0	130.6	131.0	132.5	143.3	136.7
Soft drinks	134.8	137.9	144.1	144.2	147.8	147.7	147.9	147.2	149.7	149.3
Finished consumer goods less foods	126.4	130.5	138.4	141.1	143.2	144.8	143.7	141.4	141.6	142.7
Alcoholic beverages	135.2	136.7	140.6	142.1	145.0	145.2	145.4	145.3	145.6	145.3
Apparel	126.6	127.1	127.4	127.6	127.0	126.9	126.2	126.4	126.6	126.4
Footwear	144.7	144.5	144.9	145.1	146.7	146.0	146.7	146.6	146.6	145.6
Tobacco products	283.4	374.0	397.2	402.9	426.6	447.3	447.8	447.4	447.4	447.6
Intermediate materials ³	123.0	123.2	129.2	131.1	130.7	131.3	131.4	130.3	129.8	130.1
Materials for food manufacturing	123.1	120.8	119.2	119.0	123.5	125.0	125.7	126.1	128.1	127.5
Flour	109.2	104.3	103.8	103.6	108.3	109.5	110.7	110.3	108.9	109.6
Refined sugar ⁴	119.8	121.0	110.6	108.7	108.2	109.1	109.6	108.6	109.9	111.5
Crude vegetable oils	131.1	90.2	73.6	70.0	66.5	68.6	70.9	73.0	83.8	78.4
Crude materials ⁵	96.7	98.2	120.6	126.0	133.1	131.3	122.8	116.1	113.4	108.0
Foodstuffs and feedstuffs	103.8	98.7	100.2	97.6	109.2	110.3	109.7	109.6	108.9	108.5
Fruits and vegetables and nuts ⁶	117.2	117.4	111.1	115.9	115.3	119.0	113.3	99.4	106.9	113.1
Grains	93.4	80.1	78.3	70.1	80.4	79.7	77.6	81.0	83.1	81.7
Slaughter livestock	82.3	86.4	96.5	91.1	108.4	107.2	106.0	102.9	100.1	97.6
Slaughter poultry, live	141.4	129.9	124.7	133.6	128.0	132.0	131.9	133.8	132.6	139.5
Plant and animal fibers	110.4	86.5	93.9	99.3	69.6	69.6	63.4	62.7	59.4	56.6
Fluid milk	112.6	106.3	92.0	96.1	108.2	115.2	121.1	122.0	122.7	125.7
Oilseeds	114.4	90.8	93.8	92.5	84.2	88.2	91.1	97.3	98.6	90.6
Leaf tobacco	104.6	101.6	--	107.0	81.1	--	--	--	105.2	110.2
Raw cane sugar	117.2	113.7	101.8	99.9	112.9	111.8	109.7	110.9	110.9	110.6

-- = Not available. 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.

This table is compiled with data provided by the Bureau of Labor Statistics (BLS). BLS operates a website at <http://stats.bls.gov/blshome.html> and a Producer Prices Information Hotline at (202) 606-7705.

Farm-Retail Price Spreads

Table 8—Farm-Retail Price Spreads

	Annual			2000		2001				
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
Market basket ¹										
Retail cost (1982-84=100)	163.1	167.3	170.6	171.9	176.0	176.5	177.2	177.7	177.9	178.3
Farm value (1982-84=100)	103.3	98.3	96.9	98.6	103.6	107.0	107.5	107.9	110.3	110.7
Farm-retail spread (1982-84=100)	195.4	204.5	210.3	211.4	215.0	214.0	214.8	215.3	214.3	214.8
Farm value-retail cost (%)	22.2	20.6	19.9	20.1	20.6	21.2	21.2	21.3	21.7	21.7
Meat products										
Retail cost (1982-84=100)	141.6	142.3	150.4	153.8	158.0	158.9	160.2	160.8	160.7	161.5
Farm value (1982-84=100)	84.8	81.6	88.4	89.8	93.4	98.2	98.8	99.4	99.5	100.2
Farm-retail spread (1982-84=100)	200.0	204.7	214.0	219.4	224.3	221.2	223.2	223.8	223.5	224.4
Farm value-retail cost (%)	30.3	29.0	29.8	29.6	29.9	31.3	31.2	31.3	31.4	31.4
Dairy products										
Retail cost (1982-84=100)	150.8	159.6	160.7	161.6	163.4	164.7	166.9	168.3	168.9	169.4
Farm value (1982-84=100)	113.0	107.9	98.8	102.9	115.7	121.4	127.4	126.4	129.1	131.3
Farm-retail spread (1982-84=100)	185.6	207.2	217.7	215.8	207.4	204.6	203.3	206.9	205.6	204.5
Farm value-retail cost (%)	36.0	32.4	29.5	30.5	34.0	35.4	36.6	36.0	36.7	37.2
Poultry										
Retail cost (1982-84=100)	157.1	157.9	159.8	160.9	163.1	162.3	164.5	166.6	167.5	165.4
Farm value (1982-84=100)	126.1	119.0	117.4	127.2	124.0	127.0	129.8	132.5	132.6	136.1
Farm-retail spread (1982-84=100)	192.9	202.7	208.7	199.7	208.1	203.0	204.5	205.8	207.6	199.1
Farm value-retail cost (%)	42.9	40.3	39.3	42.3	40.7	41.9	42.2	42.6	42.4	44.0
Eggs										
Retail cost (1982-84=100)	137.1	128.1	131.9	132.0	144.7	131.1	130.8	129.6	133.0	131.4
Farm value (1982-84=100)	89.6	74.9	80.6	71.8	84.6	61.5	61.5	60.2	66.0	64.6
Farm-retail spread (1982-84=100)	222.5	223.7	223.9	240.1	252.7	256.1	255.2	254.4	253.4	251.4
Farm value-retail cost (%)	42.0	37.6	39.3	35.0	37.5	30.2	30.2	29.8	31.9	31.6
Cereal and bakery products										
Retail cost (1982-84=100)	181.1	185.0	188.3	188.8	192.5	193.2	194.2	194.9	195.9	195.1
Farm value (1982-84=100)	94.4	82.5	75.2	72.3	80.0	81.5	77.7	78.1	79.1	79.1
Farm-retail spread (1982-84=100)	193.2	199.2	204.0	204.8	208.2	208.8	210.5	211.2	212.2	211.3
Farm value-retail cost (%)	6.4	5.5	4.9	4.7	5.1	5.2	4.9	4.9	4.9	5.0
Fresh fruit										
Retail cost (1982-84=100)	258.2	294.3	284.3	285.1	297.7	302.2	295.4	289.2	283.7	293.0
Farm value (1982-84=100)	141.3	153.7	141.3	140.4	141.6	134.6	128.7	127.2	142.5	136.3
Farm-retail spread (1982-84=100)	312.2	359.3	350.3	351.9	369.7	379.6	372.4	364.0	348.9	365.3
Farm value-retail cost (%)	17.3	16.5	15.7	15.6	15.0	14.1	13.8	13.9	15.9	14.7
Fresh vegetables										
Retail cost (1982-84=100)	215.8	209.3	219.4	218.9	232.6	226.4	226.4	226.3	224.9	228.2
Farm value (1982-84=100)	124.5	118.1	121.4	125.2	129.2	152.0	135.7	133.1	144.0	140.6
Farm-retail spread (1982-84=100)	262.7	256.2	269.8	267.1	285.7	264.3	273.0	274.2	266.5	273.3
Farm value-retail cost (%)	19.6	19.2	18.8	19.4	18.9	22.8	20.4	20.0	21.7	20.9
Processed fruits and vegetables										
Retail cost (1982-84=100)	150.6	154.8	153.6	154.2	156.3	158.2	159.5	160.6	161.1	160.8
Farm value (1982-84=100)	115.1	113.5	106.4	106.5	105.6	106.2	106.6	107.0	107.7	108.1
Farm-retail spread (1982-84=100)	161.7	167.7	168.3	169.1	172.1	174.4	176.0	177.3	177.8	177.2
Farm value-retail cost (%)	18.2	17.4	16.5	16.4	16.1	16.0	15.9	15.8	15.9	16.0
Fats and oils										
Retail cost (1982-84=100)	146.9	148.3	147.4	148.7	151.5	154.7	156.7	157.8	158.5	158.5
Farm value (1982-84=100)	118.9	89.0	80.9	78.6	72.1	73.1	74.4	86.7	88.9	78.3
Farm-retail spread (1982-84=100)	157.2	170.0	171.9	174.5	180.7	184.7	187.0	184.0	184.1	188.0
Farm value-retail cost (%)	21.8	16.2	14.8	14.2	12.8	12.7	12.8	14.8	15.1	13.3

See footnotes at end of table, next page.

Table 8—Farm-Retail Price Spreads (continued)

	Annual			2000			2001			
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
Beef, all fresh retail value (cents/lb.)	253.3	260.5	275.3	280.9	299.4	301.4	304.7	302.9	302.2	303.0
Beef, Choice										
Retail value (cents/lb.) ²	277.1	287.8	306.4	313.0	343.2	343.8	347.6	345.4	339.3	337.6
Wholesale value (cents/lb.) ³	153.8	171.6	182.3	168.6	201.7	204.3	198.3	185.9	188.1	186.6
Net farm value (cents/lb.) ⁴	130.8	141.1	149.0	136.6	164.1	160.1	156.2	150.5	148.8	147.2
Farm-retail spread (cents/lb.)	146.3	146.7	157.4	176.4	179.1	183.7	191.4	194.9	190.5	190.4
Wholesale-retail (cents/lb.) ⁵	123.3	116.2	124.1	144.4	141.5	139.5	149.3	159.5	151.2	151.0
Farm-wholesale (cents/lb.) ⁶	23.0	30.5	33.3	32.0	37.6	44.2	42.1	35.4	39.3	39.4
Farm value-retail value (%)	47.2	49.0	48.6	43.6	47.8	46.6	44.9	43.6	43.9	43.6
Pork										
Retail value (cents/lb.) ²	242.7	241.5	258.2	265.0	263.3	266.9	270.9	270.5	276.3	278.1
Wholesale value (cents/lb.) ³	97.3	99.0	114.5	111.9	120.5	126.0	128.4	126.2	129.2	123.9
Net farm value (cents/lb.) ⁴	61.2	60.4	79.4	77.2	87.2	93.0	97.0	95.2	92.6	82.7
Farm-retail spread (cents/lb.)	181.5	181.1	178.8	187.8	176.1	173.9	173.9	175.3	183.7	195.4
Wholesale-retail (cents/lb.) ⁵	145.4	142.5	143.7	153.1	142.8	140.9	142.5	144.3	147.1	154.2
Farm-wholesale (cents/lb.) ⁶	36.1	38.6	35.1	34.7	33.3	33.0	31.4	31.0	36.6	41.2
Farm value-retail value (%)	25.2	25.0	30.8	29.1	33.1	34.8	35.8	35.2	33.5	29.7

1. Retail costs are based on CPI-U of retail prices for domestically produced farm foods, published monthly by the Bureau of Labor Statistics (BLS). Farm value is the payment for the quantity of farm equivalent to the retail unit, less allowance for by-product. Farm values are based on prices at first point of sale, and may include marketing charges such as grading and packing for some commodities. The farm-retail spread, the difference between the retail value and farm value, represents charges for assembling, processing, transporting, and distributing. 2. Weighted-average value 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 pound 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, William F. Hahn (202) 694-5175*

Table 9—Price Indexes of Food Marketing Costs

	Annual			1999	2000				2001	
	1998	1999	2000	IV	I	II	III	IV	I	II
	1987=100*									
Labor—hourly earnings and benefits	490.4	503.3	514.0	506.7	508.2	512.0	514.1	521.7	527.5	531.6
Processing	499.3	511.4	525.0	515.6	518.1	523.4	526.9	531.3	536.4	542.9
Wholesaling	552.5	564.6	589.4	580.0	578.9	586.4	587.3	601.0	606.4	610.2
Retailing	454.1	465.8	469.9	465.4	467.1	467.8	465.2	477.2	483.8	485.7
Packaging and containers	395.5	399.4	412.0	407.7	410.3	410.6	413.5	413.7	414.2	417.8
Paperboard boxes and containers	365.2	373.0	407.7	387.8	391.9	413.0	412.4	413.5	412.0	413.1
Metal cans	487.9	486.6	452.5	486.6	489.5	440.1	440.1	440.1	441.5	444.3
Paper bags and related products	432.9	440.9	470.4	455.8	457.3	472.4	477.6	474.5	474.2	481.3
Plastic films and bottles	322.8	324.2	336.7	329.6	329.4	330.6	342.4	344.3	344.0	345.8
Glass containers	446.8	447.1	450.8	445.8	450.1	451.1	451.1	450.8	460.2	471.7
Metal foil	232.0	227.3	232.4	228.0	229.8	231.3	233.8	234.8	235.5	246.1
Transportation services	428.3	394.0	394.3	394.2	392.3	393.3	394.6	396.9	401.0	403.1
Advertising	624.5	623.7	635.7	625.6	633.6	635.0	635.7	638.6	644.3	648.7
Fuel and power	619.7	651.5	841.1	711.9	816.5	822.2	866.1	859.6	830.3	826.4
Electric	492.1	489.4	498.2	488.5	477.2	487.0	523.8	504.9	514.3	526.1
Petroleum	457.0	565.9	1,135.8	758.1	1,114.0	1,102.2	1,160.6	1,166.4	998.5	974.7
Natural gas	1,239.4	1,235.6	1,275.4	1,240.4	1,235.3	1,259.8	1,300.7	1,305.7	1,403.3	1,391.5
Communications, water and sewage	307.6	309.3	309.1	310.6	310.3	307.8	308.7	309.5	312.6	312.5
Rent	260.5	256.9	258.2	256.4	256.8	258.0	259.1	259.0	259.2	259.2
Maintenance and repair	529.3	541.6	561.2	545.3	552.2	558.3	564.7	569.7	574.8	578.8
Business services	522.9	531.9	544.6	536.1	540.3	543.2	545.9	548.8	555.3	556.6
Supplies	332.3	327.7	348.5	331.7	365.6	338.2	344.5	345.8	349.2	347.0
Property taxes and insurance	598.3	619.7	654.6	631.3	639.8	647.4	658.6	672.6	680.9	687.5
Interest, short-term	103.7	103.7	115.4	115.2	111.3	116.6	117.7	116.0	91.0	64.1
Total marketing cost index	467.2	472.2	491.5	479.1	486.7	488.8	493.1	497.1	499.5	502.2

Last two quarters 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	Produc- tion ¹	Imports	Total supply	Exports	Ending stocks	Consumption		Conversion factor ³	Primary market price ⁴
							Total	Per capita ²		
	Million lbs. ⁵						Lbs.			\$/cwt
Beef										
1998	465	25,760	2,643	28,868	2,171	393	26,305	68	0.700	61.48
1999	393	26,493	2,874	29,760	2,417	411	26,932	69	0.700	65.56
2000	411	26,888	3,032	30,331	2,516	525	27,290	69	0.700	69.65
2001	525	26,154	3,089	29,768	2,248	480	27,040	68	0.700	73.37
2002	480	25,431	3,125	29,036	2,340	385	26,311	66	0.700	78.25
Pork										
1998	408	19,011	705	20,124	1,230	584	18,309	53	0.776	34.72
1999	584	19,308	827	20,720	1,278	489	18,952	54	0.776	34.00
2000	489	18,952	967	20,408	1,305	477	18,626	52	0.776	44.70
2001	477	18,839	915	20,231	1,541	450	18,240	51	0.776	47.23
2002	450	19,155	960	20,565	1,430	500	18,635	52	0.776	44.50
Veal ⁶										
1998	8	262	0	270	0	5	265	1	0.83	82.29
1999	5	235	0	240	0	5	235	1	0.83	89.62
2000	5	225	0	230	0	5	225	1	0.83	105.67
2001	5	202	0	207	0	4	203	1	0.83	107.53
2002	4	200	0	204	0	5	199	1	0.83	110.11
Lamb and mutton										
1998	14	251	112	377	6	12	360	1	0.89	74.20
1999	12	248	113	372	5	9	358	1	0.89	75.97
2000	9	234	129	372	6	13	353	1	0.89	79.40
2001	13	222	170	405	5	15	385	1	0.89	71.28
2002	15	196	170	381	4	15	362	1	0.89	74.50
Total red meat										
1998	894	45,284	3,461	49,639	3,407	994	45,239	123	--	--
1999	994	46,284	3,813	51,092	3,700	914	46,477	125	--	--
2000	914	46,299	4,128	51,341	3,827	1,020	46,494	124	--	--
2001	1,020	45,417	4,174	50,611	3,794	949	45,868	121	--	--
2002	949	44,982	4,255	50,186	3,774	905	45,507	119	--	--
¢/lb										
Broilers										
1998	607	27,612	5	28,225	4,673	711	22,841	73	0.859	63
1999	711	29,468	4	30,183	4,920	796	24,468	77	0.859	58
2000	796	30,209	6	31,011	5,548	798	24,665	77	0.859	56
2001	798	30,673	9	31,479	6,193	675	24,611	76	0.859	59
2002	675	31,460	8	32,143	6,350	740	25,053	77	0.859	60
Mature chickens										
1998	7	525	0	533	426	6	101	1	1.0	--
1999	6	554	0	562	393	8	162	1	1.0	--
2000	8	531	0	541	223	9	308	1	1.0	--
2001	9	508	0	519	104	8	407	1	1.0	--
2002	8	500	0	510	80	10	419	1	1.0	--
Turkeys										
1998	415	5,215	0	5,630	446	304	4,880	18	1.0	62
1999	304	5,230	1	5,535	379	254	4,902	18	1.0	69
2000	254	5,333	1	5,589	458	241	4,889	18	1.0	71
2001	241	5,439	1	5,681	492	250	4,939	18	1.0	67
2002	250	5,625	1	5,876	495	275	5,105	18	1.0	68
Total poultry										
1998	1,029	33,352	6	34,387	5,545	1,022	27,821	91	--	--
1999	1,022	35,252	7	36,281	5,692	1,058	29,531	96	--	--
2000	1,058	36,073	9	37,140	6,229	1,048	29,863	96	--	--
2001	1,048	36,620	12	37,680	6,788	933	29,957	95	--	--
2002	933	37,585	11	38,529	6,925	1,025	30,577	96	--	--
Red meat and poultry										
1998	1,923	78,637	3,467	84,027	8,951	2,016	73,060	214	--	--
1999	2,016	81,537	3,820	87,372	9,392	1,972	76,008	220	--	--
2000	1,972	82,372	4,137	88,481	10,056	2,068	76,357	219	--	--
2001	2,068	82,037	4,186	88,291	10,582	1,882	75,825	216	--	--
2002	1,882	82,567	4,266	88,715	10,699	1,930	76,084	216	--	--

-- = Not available. Values for the last 2 years are forecasts. 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. 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	
Million doz.								No.	¢/doz.	
1995	14.9	6,215.6	4.1	6,234.6	208.9	847.2	11.2	5,167.3	235.6	72.9
1996	11.2	6,350.7	5.4	6,367.3	253.1	863.8	8.5	5,241.8	236.8	88.2
1997	8.5	6,473.1	6.9	6,488.5	227.8	894.7	7.4	5,358.6	240.1	81.2
1998	7.4	6,657.9	5.8	6,671.2	218.8	921.8	8.4	5,522.2	244.9	75.8
1999	8.4	6,912.0	7.4	6,927.8	161.7	941.7	7.6	5,816.7	255.7	65.6
2000	7.6	7,034.9	8.4	7,051.0	171.8	940.2	11.4	5,927.5	258.3	68.9
2001	11.4	7,150.6	9.2	7,171.1	175.4	952.0	13.0	6,030.7	260.3	68.9
2002	13.0	7,270.0	8.0	7,291.0	165.0	975.0	12.0	6,139.0	262.8	66.0

Values for the last year are forecasts. Values for previous year are preliminary. * Cartoned grade A large eggs, New York.

Information Contact: LaVerne Williams (202) 694-5190

Table 12—U.S. Milk Supply & Use

	Production	Farm use	Commercial		Imports	Total commercial supply	Commercial			All milk price ¹	CCC net removals	
			Farm market-ings	Beg. stocks			CCC net re-movals	Ending stocks	Disap-pearance		Skim solids basis	Total solids basis ²
	Million lbs. (milkfat basis)									\$/cwt	Billion lbs.	
1994	153.6	1.7	151.9	4.5	2.9	159.3	4.8	4.3	150.3	12.97	3.7	4.2
1995	155.3	1.6	153.7	4.3	2.9	160.9	2.1	4.1	154.9	12.74	4.4	3.5
1996	154.0	1.5	153.5	4.1	2.9	159.5	0.1	4.7	154.7	14.74	0.7	0.5
1997	156.1	1.4	154.7	4.7	2.7	162.1	1.1	4.9	156.1	13.34	3.7	2.7
1998	157.4	1.4	156.1	4.9	4.6	165.5	0.4	5.3	159.9	15.42	4.0	2.6
1999	162.7	1.4	161.3	5.3	4.7	171.4	0.3	6.1	164.9	14.36	6.5	4.0
2000	167.7	1.3	166.3	6.1	4.4	176.9	0.8	6.9	169.2	12.40	8.6	5.5
2001	165.5	1.3	164.3	6.8	5.5	176.6	0.2	6.4	170.1	15.40	5.3	3.2
2002	169.9	1.2	168.7	6.4	4.7	179.8	0.2	6.4	173.2	13.40	2.2	1.4

Values for latest year are forecasts. Values for the preceding year are preliminary. 1. Delivered to plants and dealers; does not reflect deductions.

2. Arbitrarily weighted average of milkfat basis (40 percent) and solids basis (60 percent). Information contact: Jim Miller (202) 694-5184

Table 13—Poultry & Eggs

	Annual			2000		2001					
	1998	1999	2000	Aug	Mar	Apr	May	Jun	Jul	Aug	
Broilers											
Federally inspected slaughter certified (mil. lb.)	27,862.7	29,741.4	30,495.2	2,754.4	2,604.2	2,498.1	2,809.2	2,619.2	2,575.3	2,823.4	
Wholesale price, 12-city (cents/lb.)	63.0	58.1	56.2	55.5	59.0	58.5	59.4	59.9	60.4	60.9	
Price of grower feed (\$/ton) ¹	128.6	103.1	104.7	94.3	101.3	98.7	98.8	98.8	106.3	107.7	
Broiler-feed price ratio ²	6.3	7.2	6.6	7.0	7.9	7.9	8.1	8.3	7.9	7.8	
Stocks beginning of period (mil. lb.)	606.8	711.1	795.6	818.5	676.6	636.5	647.0	660.8	681.3	633.7	
Broiler-type chicks hatched (mil.)	8,491.9	8,715.4	8,792.1	740.9	763.5	745.3	775.7	756.6	760.2	761.2	
Turkeys											
Federally inspected slaughter certified (mil. lb.)	5,280.6	5,296.5	5,402.2	486.6	466.5	425.7	488.9	463.9	471.9	493.8	
Wholesale price, Eastern U.S. 8-16 lb. young hens (cents/lb.)	62.2	69.0	70.5	73.6	62.4	63.5	65.7	66.0	66.1	66.4	
Price of turkey grower feed (\$/ton) ¹	115.6	95.0	95.9	86.4	96.4	93.3	94.6	92.8	97.7	99.5	
Turkey-feed price ratio ²	6.7	8.6	8.7	10.0	7.7	8.1	8.1	8.3	7.9	7.8	
Stocks beginning of period (mil. lb.)	415.1	304.3	254.3	524.0	333.5	355.4	392.6	454.6	506.7	534.2	
Poults placed in U.S. (mil.)	297.8	296.1	297.3	24.7	26.1	25.9	26.7	26.0	27.0	25.5	
Eggs											
Farm production (mil.)	79,927.0	82,943.0	84,412.0	7,104.0	7,331.0	7,090.0	7,231.0	6,979.0	7,180.0	7,206.0	
Average number of layers (mil.)	313.0	322.9	328.2	325.8	336.6	336.8	334.8	332.4	331.6	332.1	
Rate of lay (eggs per layer on farms)	255.3	256.8	257.2	21.8	21.8	21.1	21.6	21.0	21.7	21.7	
Cartoned price, New York, grade A large (cents/doz.) ³	75.8	65.6	68.9	72.5	79.6	74.4	58.1	57.3	59.8	62.8	
Price of laying feed (\$/ton) ¹	137.7	124.5	123.9	102.9	118.1	115.7	131.7	131.3	141.3	137.1	
Egg-feed price ratio ²	9.8	9.8	10.6	12.9	11.7	11.5	8.4	8.5	7.8	8.4	
Stocks, first of month											
Frozen (mil. doz.)	7.4	8.4	7.6	10.9	11.7	11.1	12.1	12.0	10.9	12.6	
Replacement chicks hatched (mil.)	438.3	451.7	429.7	34.3	40.1	41.7	42.6	40.6	37.9	35.2	

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. Price of cartoned eggs to volume buyers for delivery to retailers. Information contact: LaVerne Williams (202) 694-5190

Table 14—Dairy

	Annual			2000				2001			
	1998	1999	2000	Aug	Mar	Apr	May	Jun	Jul	Aug	
Class III (BFP before 2000) 3.5% fat (\$/cwt.)	14.20	12.43	9.74	10.13	11.42	12.06	13.83	15.02	15.46	15.55	
Wholesale prices											
Butter, Central States (cents/lb.) ¹	177.6	125.2	118.5	120.3	154.9	174.7	190.4	197.4	192.4	204.5	
Am. cheese, Wis. assembly pt. (cents/lb.)	158.1	142.3	116.2	125.5	131.9	140.5	160.3	166.8	168.4	171.8	
Nonfat dry milk (cents/lb.) ²	106.9	103.5	101.6	102.3	103.1	104.3	104.0	102.5	100.3	99.0	
USDA net removals											
Total (mil. lb.) ³	365.6	343.5	841.4	45.9	14.3	10.7	11.3	7.7	15.6	11.1	
Butter (mil. lb.)	6.3	3.7	8.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Am. cheese (mil. lb.)	8.2	4.6	28.0	1.5	0.0	0.0	0.0	0.0	0.8	0.8	
Nonfat dry milk (mil. lb.)	326.4	540.6	692.6	50.5	66.9	48.5	51.2	34.8	39.2	14.9	
Milk											
Milk prod. 20 states (mil. lb.)	134,900	140,062	144,528	11,928	12,401	12,158	12,638	12,057	12,020	11,772	
Milk per cow (lb.)	17,502	18,109	18,532	1,525	1,599	1,570	1,632	1,556	1,552	1,522	
Number of milk cows (1,000)	7,708	7,734	7,799	7,820	7,756	7,744	7,745	7,749	7,745	7,737	
U.S. milk production (mil. lb.) ⁴	157,348	162,716	167,658	13,797	14,394	14,082	14,632	13,955	13,890	13,598	
Stocks, beginning ³											
Total (mil. lb.)	4,907	5,301	6,186	10,981	8,375	8,571	9,004	9,553	10,172	10,238	
Commercial (mil. lb.)	4,889	5,274	6,142	10,846	8,167	8,325	8,749	9,299	9,907	9,968	
Government (mil. lb.)	18	27	44	135	208	246	255	254	265	270	
Imports, total (mil. lb.) ³	4,588	4,772	4,445	443	354	493	420	727	604	--	
Commercial disappearance (mil. lb.) ³	159,779	164,947	169,222	15,130	14,468	14,035	14,383	13,961	14,309	--	
Butter											
Production (mil. lb.)	1,168.0	1,277.1	1,273.6	83.7	101.9	106.0	109.1	86.9	79.9	76.5	
Stocks, beginning (mil. lb.)	20.5	25.9	24.9	136.5	81.0	89.7	106.9	131.7	147.0	144.7	
Commercial disappearance (mil. lb.)	1,222.5	1,310.7	1,297.6	124.1	97.8	96.0	90.1	87.4	94.7	--	
American cheese											
Production (mil. lb.)	3,314.7	3,532.6	3,633.9	291.9	299.5	294.3	309.8	308.1	298.4	286.8	
Stocks, beginning (mil. lb.)	410.3	407.6	458.0	628.1	503.1	503.3	509.1	503.8	528.0	534.3	
Commercial disappearance (mil. lb.)	3,338.6	3,542.2	3,588.1	317.5	302.6	294.3	318.7	292.3	295.2	--	
Other cheese											
Production (mil. lb.)	4,177.5	4,361.5	4,620.6	391.9	414.6	380.7	399.0	374.3	380.7	377.4	
Stocks, beginning (mil. lb.)	70.0	109.5	163.3	242.0	218.1	211.1	208.8	214.7	217.6	224.6	
Commercial disappearance (mil. lb.)	4,452.0	4,672.1	4,963.3	434.1	447.9	413.1	420.2	405.0	409.3	--	
Nonfat dry milk											
Production (mil. lb.)	1,135.4	1,359.7	1,451.6	105.3	121.0	131.3	139.9	131.3	117.2	95.7	
Stocks, beginning (mil. lb.)	103.3	56.9	150.9	208.3	137.7	123.4	126.9	134.2	165.9	147.0	
Commercial disappearance (mil. lb.)	866.9	737.2	770.4	84.8	68.4	79.5	81.9	65.6	97.4	--	
Frozen dessert											
Production (mil. gal.) ⁵	1,324.3	1,301.0	1,312.2	122.6	115.4	119.2	124.8	131.8	127.9	124.7	

-- = Not available. Quarterly values for latest year are preliminary. 1. Grade AA Chicago before June 1998. 2. Prices paid f.o.b. Central States production area. 3. Milk equivalent, fat basis. 4. Monthly data ERS estimates. 5. Hard ice cream, ice milk, and hard sherbet. *Information contact: LaVerne Williams (202) 694-5190*

Table 15—Wool

	Annual			2000				2001		
	1998	1999	2000	I	II	III	IV	I	II	III
U.S. wool price (¢/lb.) ¹	162	110	107	97	120	117	96	101	130	125
Imported wool price (¢/lb.) ²	164	136	137	133	139	139	136	151	155	167
U.S. mill consumption, scoured										
Apparel wool (1,000 lb.)	98,373	65,468	60,294	17,443	16,064	14,620	13,914	16,590	13,009	--
Carpet wool (1,000 lb.)	16,331	15,017	14,514	3,885	3,668	3,766	3,886	4,278	3,791	--

-- = 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 cents.

Information contact: Mae Dean Johnson (202) 694-5299

Table 16—Meat Animals

	Annual			2000			2001			
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
Cattle on feed (7 states, 1000+ head capacity)										
Number on feed (1,000 head) ¹	9,455	9,021	9,752	8,185	9,859	9,563	9,660	9,466	9,387	9,383
Placed on feed (1,000 head)	19,697	21,446	21,875	2,345	1,324	2,060	1,690	1,730	1,906	1,806
Marketings (1,000 head)	19,440	20,124	20,644	1,682	1,546	1,875	1,824	1,758	1,854	1,536
Other disappearance (1,000 head)	691	676	907	55	74	88	60	51	46	40
Market prices (\$/cwt)										
Slaughter cattle										
Choice steers, 1,100-1,300 lb.										
Texas	61.75	65.89	69.86	65.43	76.50	74.93	72.64	70.71	69.07	68.75
Neb. direct	61.47	65.56	69.65	65.14	75.92	75.39	72.81	71.60	70.16	69.16
Boning utility cows, Sioux Falls	36.20	38.40	41.71	41.88	45.56	44.90	50.00	43.25	48.00	44.13
Feeder steers										
Medium no. 1, Oklahoma City										
600-650 lb.	78.13	82.64	94.36	89.27	103.93	97.02	98.87	97.80	95.27	97.14
750-800 lb.	71.79	76.39	88.58	83.63	89.29	88.00	91.12	91.32	90.44	91.64
Slaughter hogs										
Barrows and gilts, 51-52 percent lean										
National Base converted to live equal.	34.72	34.00	34.02	43.49	49.28	52.34	54.53	53.75	52.47	46.93
Sows, Iowa, S.MN 1-2 300-400 lb.	20.29	19.26	29.79	30.72	39.38	38.44	41.88	40.75	40.75	33.12
Slaughter sheep and lambs										
Lambs, Choice, San Angelo	74.20	75.96	79.40	82.00	83.30	86.07	75.21	69.82	54.47	56.50
Ewes, Good, San Angelo	40.86	42.45	46.23	27.50	47.15	47.00	43.89	44.07	40.25	26.92
Feeder lambs										
Choice, San Angelo	79.86	80.74	95.86	93.89	112.90	99.43	81.29	78.50	73.19	69.13
Wholesale meat prices, Midwest										
Boxed beef cut-out value										
Choice, 700-800 lb.	98.60	110.90	117.45	108.56	127.08	130.13	127.85	118.96	119.40	117.65
Select, 700-800 lb.	92.19	101.99	101.99	102.06	120.62	114.90	113.42	112.77	113.62	108.21
Canner and cutter cow beef	61.49	66.51	72.57	69.57	--	--	--	--	--	--
Pork cutout	53.08	53.45	64.07	63.22	70.39	71.86	75.33	74.47	75.14	69.61
Pork loins, bone-in, 1/4 " trim, 14-19 lb.	101.63	100.38	117.13	119.22	117.98	130.72	132.51	126.41	121.22	116.21
Pork bellies, 12-14 lb.	52.38	57.12	77.46	63.94	85.80	77.91	91.45	102.42	98.39	81.91
Hams, bone-in, trimmed, 20-23 lb.	45.85	45.18	52.02	59.87	54.59	57.28	61.08	64.35	70.25	72.23
All fresh beef retail price	253.28	260.50	275.30	280.90	299.40	301.40	304.70	302.90	302.20	303.00
Commercial slaughter (1,000 head) ²										
Cattle	35,465	36,150	36,247	3,035	2,714	3,199	3,120	2,941	3,239	2,807
Steers	17,428	17,932	18,060	1,518	1,340	1,630	1,583	1,500	1,628	1,379
Heifers	11,448	11,868	12,041	1,021	885	1,025	1,036	943	1,064	948
Cows	5,983	5,710	5,522	444	440	486	446	445	487	429
Bull and stags	606	639	624	52	49	58	55	53	60	51
Calves	1,458	1,282	1,132	94	74	79	77	83	94	79
Sheep and lambs	3,804	3,701	3,455	270	290	239	233	242	273	243
Hogs	101,029	101,544	97,955	8,118	7,832	7,958	7,483	7,446	8,374	7,811
Barrows and gilts	97,025	97,732	94,585	7,840	7,554	7,668	7,211	7,178	8,087	7,544
Commercial production (mil. lb.)										
Beef	25,653	26,386	26,776	2,275	1,939	2,293	2,269	2,176	2,424	2,120
Veal	252	226	216	17	15	16	16	16	17	15
Lamb and mutton	248	244	230	17	20	17	16	17	19	16
Pork	18,981	19,278	18,905	1,554	1,532	1,555	1,457	1,434	1,600	1,513
	Annual			2000			2001			
	1998	1999	2000	II	III	IV	I	II	III	IV
Hogs and pigs (U.S.) ³										
Inventory (1,000 head) ¹	61,158	62,206	59,342	57,782	59,117	59,495	59,138	57,524	58,223	58,642
Breeding (1,000 head) ¹	6,957	6,682	6,234	6,190	6,234	6,246	6,270	6,232	6,186	6,158
Market (1,000 head) ¹	54,200	55,523	53,109	51,593	52,884	53,250	52,868	51,292	52,037	52,484
Farrowings (1,000 head)	12,061	11,641	11,462	2,885	2,889	2,838	2,749	2,844	2,838	2,877
Pig crop (1,000 head)	105,004	102,354	101,354	25,565	25,548	25,119	23,969	25,170	25,028	--
Cattle on Feed, 7 states (1,000 head) ^{1,4}										
Steers and steer calves	5,803	5,432	5,432	5,746	5,326	5,584	5,936	5,885	5,521	5,690
Heifers and heifer calves	3,615	3,552	3,552	3,810	3,602	3,877	4,081	3,913	3,894	3,882
Cows and bulls	59	37	37	37	31	41	59	61	51	41

-- = 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. The 7 states include AZ, CA, CO, IA, KS, NE, and TX. Information contact: Leland Southard (202) 694-5187

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 ⁵
	Set-aside ³	Planted	Harvested									
	Mil. acres		Bu./acre	Mil. bu.								
Wheat	--	70.4	62.8	39.5	2,481	3,020	251	1,007	1,040	2,298	722	3.38
1997/98	--	65.8	59.0	43.2	2,547	3,373	394	990	1,042	2,427	946	2.65
1998/99	--	62.7	53.8	42.7	2,299	3,339	279	1,021	1,090	2,390	950	2.48
1999/00	--	62.6	53.1	42.0	2,232	3,272	297	1,037	1,061	2,396	876	2.62
2000/01*	--	59.6	48.7	40.2	1,958	2,924	200	1,047	1,025	2,272	652	2.70-3.00
2001/02*												
	Mil. acres		Lb./acre	Mil. cwt (rough equiv)								\$/cwt
Rice ⁶	--	3.1	3.1	5,897.0	183.0	219.5	--	6/ 103.9	87.7	191.6	27.9	9.70
1997/98	--	3.3	3.3	5,663.0	184.4	223.0	--	6/ 114.0	86.8	200.9	22.1	8.89
1998/99	--	3.5	3.5	5,866.0	206.0	238.2	--	6/ 121.9	88.9	210.7	27.5	5.93
1999/00	--	3.1	3.0	6,281.0	190.9	229.2	--	6/ 117.6	83.2	200.8	28.4	5.56
2000/01*	--	3.3	3.3	6,328.0	208.2	247.6	--	6/ 121.0	86.0	207.0	40.6	4.00-4.50
2001/02*												
	Mil. acres		Bu./acre	Mil. bu.								\$/bu.
Corn	--	79.5	72.7	126.7	9,207	10,099	5,482	1,805	1,504	8,791	1,308	2.43
1997/98	--	80.2	72.6	134.4	9,759	11,085	5,471	1,846	1,981	9,298	1,787	1.94
1998/99	--	77.4	70.5	133.8	9,431	11,232	5,664	1,913	1,937	9,515	1,718	1.82
1999/00	--	79.5	72.7	137.1	9,968	11,693	5,887	1,967	1,940	9,794	1,899	1.85
2000/01*	--	76.0	69.2	136.3	9,430	11,338	5,800	2,030	2,050	9,880	1,458	1.90-2.30
2001/02*												
	Mil. acres		Bu./acre	Mil. bu.								\$/bu.
Sorghum	--	10.1	9.2	69.2	634	681	365	55	212	632	49	2.21
1997/98	--	9.6	7.7	67.3	520	569	262	45	197	504	65	1.66
1998/99	--	9.3	8.5	69.7	595	660	284	55	256	595	65	1.57
1999/00	--	9.2	7.7	60.9	470	535	219	35	240	494	42	1.88
2000/01*	--	10.0	8.8	61.0	536	578	240	45	240	525	53	1.85-2.25
2001/02*												
	Mil. acres		Bu./acre	Mil. bu.								\$/bu.
Barley	--	6.7	6.2	58.1	360	510	144	172	74	390	119	2.38
1997/98	--	6.3	5.9	60.0	352	501	161	170	28	360	142	1.98
1998/99	--	5.2	4.7	59.2	280	450	136	172	30	338	111	2.13
1999/00	--	5.9	5.2	61.1	319	459	123	172	58	353	106	2.11
2000/01*	--	5.0	4.3	58.2	250	381	95	172	30	297	84	2.05-2.45
2001/02*												
	Mil. acres		Bu./acre	Mil. bu.								\$/bu.
Oats	--	5.1	2.8	59.5	167	332	185	72	2	258	74	1.60
1997/98	--	4.9	2.8	60.2	166	348	196	69	2	266	81	1.10
1998/99	--	4.7	2.5	59.6	146	326	180	68	2	250	76	1.12
1999/00	--	4.5	2.3	64.2	150	332	189	68	2	259	73	1.10
2000/01*	--	4.4	1.9	61.3	117	280	155	68	2	225	55	1.15-1.45
2001/02*												
	Mil. acres		Bu./acre	Mil. bu.								\$/bu.
Soybeans ⁷	--	70.0	69.1	38.9	2,689	2,826	156	1,597	873	2,626	200	6.47
1997/98	--	72.0	70.4	38.9	2,741	2,944	201	1,590	805	2,595	348	4.93
1998/99	--	73.7	72.4	36.6	2,654	3,006	165	1,578	973	2,716	290	4.63
1999/00	--	74.3	72.4	38.1	2,758	3,052	162	1,641	1,000	2,804	248	4.55
2000/01*	--	75.2	74.1	39.2	2,907	3,158	173	1,660	980	2,813	345	3.90-4.70
2001/02*												
	Mil. lbs.			Mil. lbs.								¢/lb.
Soybean oil	--	--	--	--	18,143	19,723	--	15,262	3,079	18,341	1,382	25.84
1997/98	--	--	--	--	18,081	19,546	--	15,655	2,372	18,027	1,520	19.90
1998/99	--	--	--	--	17,825	19,427	--	16,056	1,376	17,432	1,995	15.60
1999/00	--	--	--	--	18,480	20,550	--	16,350	1,400	17,750	2,800	14.15
2000/01*	--	--	--	--	18,760	21,640	--	16,700	2,450	19,150	2,490	14.00-17.00
2001/02*												
	1,000 tons			1,000 tons								\$/ton ⁸
Soybean meal	--	--	--	--	38,176	38,443	--	28,895	9,329	38,225	218	185.5
1997/98	--	--	--	--	37,792	38,109	--	30,657	7,122	37,779	330	138.5
1998/99	--	--	--	--	37,591	37,970	--	30,346	7,331	37,678	293	167.7
1999/00	--	--	--	--	39,409	39,750	--	31,850	7,575	39,425	325	173.6
2000/01*	--	--	--	--	39,750	40,125	--	32,450	7,400	39,850	275	145-165
2001/02*												

See footnotes at end of table, next page

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									
	<i>Mil. acres</i>			<i>Lb./acre</i>								<i>¢/lb.</i>
Cotton ⁹												
1997/98	1.7	13.9	13.4	673	18.8	22.8	--	11.3	7.5	18.8	3.9	65.2
1998/99	0.3	13.4	10.7	625	13.9	18.2	--	10.4	4.3	14.7	3.9	60.2
1999/00	--	14.9	13.4	607	17.0	21.0	--	10.2	6.8	17.0	3.9	45.0
2000/01*	--	15.5	13.1	632	17.2	21.1	--	8.9	6.7	17.0	6.0	50.4
2001/02*	--	16.2	14.1	681	20.1	26.1	--	9.3	9.0	18.3	5.0	--

-- = Not available or not applicable. *October 12, 2001 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, 0/92 & 50/92 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 protein, 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. Average for August 2000-February 2001. USDA is prohibited by law from publishing cotton price projections. *Information contact: Mae Dean Johnson (202) 694-5299*

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

	Marketing year ¹			2000		2001					
	1998/99	1999/00	2000/01	Sep	Apr	May	Jun	Jul	Aug	Sep	
Wheat, no. 1 HRW, Kansas City (\$/bu.) ²	3.08	2.87	3.30	3.13	3.41	3.49	3.32	3.20	3.15	3.18	
Wheat, DNS, Minneapolis (\$/bu.) ³	3.83	3.65	3.62	3.17	3.73	3.88	3.81	3.72	3.54	3.52	
Rice, S.W. La. (\$/cwt) ⁴	16.79	12.99	12.46	11.88	12.60	12.47	12.38	12.38	12.19	10.97	
Corn, no. 2 yellow, 30-day, Chicago (\$/bu.)	2.06	1.97	--	1.67	2.04	1.96	1.89	2.07	2.13	2.10	
Sorghum, no. 2 yellow, Kansas City (\$/cwt)	3.29	3.10	--	3.55	3.56	3.56	3.56	3.59	3.65	3.55	
Barley, feed, Duluth (\$/bu.)	--	--	1.47	--	1.50	1.50	1.50	1.49	1.49	1.48	
Barley, malting Minneapolis (\$/bu.)	--	--	2.37	--	2.35	2.41	--	--	2.35	2.34	
U.S. cotton price, SLM, 1-1/16 in. (¢/lb.) ⁵	60.12	52.36	51.56	60.62	42.19	40.02	37.38	37.48	36.05	33.22	
Northern Europe prices cotton index (¢/lb.) ⁶	58.97	52.85	57.25	61.55	51.24	49.76	47.33	45.55	43.31	41.13	
U.S. M 1-3/32 in. (¢/lb.) ⁷	74.08	59.64	62.54	67.38	55.50	52.90	51.44	50.56	51.25	46.06	
Soybeans, no. 1 yellow, 15-day ⁸ Central Illinois (\$/bu)	4.85	4.76	4.61	4.71	4.29	4.47	4.69	5.09	4.98	4.59	
Soybean oil, crude, Decatur (¢/lb.)	19.90	20.50	--	14.24	12.38	13.53	12.38	16.49	12.38	15.46	
Soybean meal, 48% protein, Decatur (\$/ton)	138.50	165.45	--	181.13	166.08	171.48	183.35	184.52	180.35	182.32	

-- = Not available. 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 percent protein. 4. Long grain, milled basis. 5. Average spot market. 6. Liverpool Cotlook "A" Index; average of 5 lowest priced growth. 7. Cotton, Memphis territory growth. 8. Soybean 30-day price discontinued. *Information contact: Mae Dean Johnson (202) 694-5299*

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

	Marketing assistance loan rate	Marketing loan benefit ¹	Flexibility contract payment rate	Acres under contract	Contract payment yields
				<i>Mil. acres</i>	<i>Bu./acre</i>
Wheat		<i>\$/bu.</i>			
1997/98	2.58	0.01	0.631	76.7	34.70
1998/99	2.58	0.19	0.663	78.9	34.50
1999/2000	2.58	0.41	0.637	79.0	34.50
2000/2001	2.58	--	0.588	78.9	34.50
2001/2002 ²	2.58	--	0.474	78.2	34.60
					<i>Cwt/acre</i>
Rice		<i>\$/cwt</i>			
1997/98	6.50	0.00	2.710	4.2	48.17
1998/99	6.50	0.08	2.921	4.2	48.17
1999/2000	6.50	1.94	2.820	4.2	48.15
2000/2001	6.50	--	2.600	4.1	48.15
2001/2002 ²	6.50	--	2.100	4.1	48.15
					<i>Bu./acre</i>
Corn		<i>\$/bu.</i>			
1997/98	1.89	0.01	0.486	80.9	102.80
1998/99	1.89	0.14	0.377	82.0	102.60
1999/2000	1.89	0.26	0.363	81.9	102.60
2000/2001	1.89	--	0.334	81.9	102.60
2001/2002 ²	1.89	--	0.269	81.5	102.70
					<i>Bu./acre</i>
Sorghum		<i>\$/bu.</i>			
1997/98	1.76	0.00	0.544	13.1	57.30
1998/99	1.74	0.12	0.452	13.6	56.90
1999/2000	1.74	0.26	0.435	13.7	56.90
2000/2001	1.71	--	0.400	13.6	57.00
2001/2002 ²	1.71	--	0.324	13.5	57.00
					<i>Bu./acre</i>
Barley		<i>\$/bu.</i>			
1997/98	1.57	0.01	0.277	10.5	47.20
1998/99	1.56	0.23	0.284	11.2	46.70
1999/2000	1.59	0.14	0.271	11.2	46.60
2000/2001	1.62	--	0.251	11.2	46.60
2001/2002 ²	1.65	--	0.206	11.0	46.60
					<i>Bu./acre</i>
Oats		<i>\$/bu.</i>			
1997/98	1.11	0.00	0.031	6.2	50.80
1998/99	1.11	0.18	0.031	6.5	50.70
1999/2000	1.13	0.19	0.030	6.5	50.60
2000/2001	1.16	--	0.028	6.5	50.60
2001/2002 ²	1.21	--	0.022	6.5	50.60
					<i>Bu./acre</i>
Soybeans ³		<i>\$/bu.</i>			
1997/98	5.26	0.01	--	--	--
1998/99	5.26	0.45	--	--	--
1999/2000	5.26	0.88	--	--	--
2000/2001	5.26	--	--	--	--
2001/2002	5.26	--	--	--	--
					<i>Lb./acre</i>
Upland cotton		<i>¢/lb.</i>			
1997/98	51.92	0.00	7.625	16.2	608.00
1998/99	51.92	0.09	8.173	16.4	604.00
1999/2000	51.92	0.20	7.880	16.4	604.00
2000/2001	51.92	--	7.330	16.3	604.00
2001/2002 ²	51.92	--	5.990	16.2	605.80

-- = Not available. 1. Weighted average, based on portions of crop receiving marketing loan gains, loan deficiency payments, and no benefits (calculated by Economic Research Service). 2. Estimated payment rates and acres under contract. 3. There are no flexibility contract payments for soybeans.

Information contact: Brenda Chewning, Farm Service Agency (202) 720-8838

Table 20—Fruit

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Citrus¹										
Production (1,000 tons)	12,452	15,274	14,561	15,799	15,712	17,270	17,770	13,633	17,288	16,300
Per capita consumpt. (lb.) ²	24.4	26.0	25.0	24.1	25.0	27.0	27.1	20.7	25.6	--
Noncitrus³										
Production (1,000 tons)	17,124	16,554	17,339	16,348	16,103	18,382	16,545	17,316	18,818	--
Per capita consumpt. (lb.) ²	73.7	73.8	75.6	73.6	73.9	73.1	76.4	81.3	75.7	--
	2000					2001				
	Sep	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Grower prices										
Apples (¢/pound) ⁴	23.3	16.1	15.2	14.2	15.8	15.4	15.3	14.4	16.9	18.7
Pears (¢/pound) ⁴	16.60	17.00	12.55	13.70	15.20	18.20	19.95	28.50	26.65	23.2
Oranges (\$/box) ⁵	0.93	2.82	3.29	4.13	5.02	4.80	4.30	6.23	5.57	6.5
Grapefruit (\$/box) ⁵	6.71	1.87	2.07	1.53	1.36	1.94	5.27	8.81	3.69	6.9
Stocks, ending										
Fresh apples (mil. lb.)	3,299	4,102	3,408	2,603	1,891	1,330	898	487	143	2,743
Fresh pears (mil. lb.)	532	250	181	113	55	18	0	18	93	555
Frozen fruits (mil. lb.)	1,234	1,471	1,372	1,270	1,122	1,000	1,046	1,184	1,148	1,110
Frozen conc. orange juice (mil. single-strength gallons)	550	657	745	708	768	842	831	781	690	628

-- = Not available. 1. Year shown is when harvest concluded. 2. Fresh per capita consumption. 3. Calendar year. 4. Fresh use. 5. U.S. equivalent on-tree returns. *Information contact: Susan Pollack (202) 694-5251*

Table 21—Vegetables

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Production¹										
Total vegetables (1,000 cwt)	565,754	689,070	692,022	785,798	751,715	765,645	763,532	732,803	834,654	798,773
Fresh (1,000 cwt) ^{2,4}	242,733	389,597	390,528	416,173	397,125	412,010	436,459	420,012	450,715	454,990
Processed (tons) ^{3,4}	16,151,030	14,973,630	15,074,707	18,481,238	17,729,497	17,681,732	16,353,639	15,639,548	19,196,942	17,189,152
Mushrooms (1,000 lbs) ⁵	746,832	776,357	750,799	782,340	777,870	776,677	808,678	847,760	854,394	838,611
Potatoes (1,000 cwt)	417,622	425,367	430,349	469,425	445,099	499,254	467,091	475,771	478,216	513,621
Sweet potatoes (1,000 cwt)	11,203	12,005	11,027	13,380	12,821	13,216	13,327	12,382	12,234	13,794
Dry edible beans (1,000 cwt)	33,765	22,615	21,862	28,950	30,689	27,912	29,370	30,418	33,085	26,440
	2000					2001				
	Sep	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
Shipments (1,000 cwt)										
Fresh	16,413	14,775	23,799	20,494	23,645	37,308	30,270	20,761	22,934	15,340
Iceberg lettuce	3,330	2,168	3,517	3,270	3,017	4,626	3,436	3,060	3,773	2,976
Tomatoes, all	2,778	2,602	4,892	3,495	4,294	4,189	3,240	2,271	2,702	2,223
Dry-bulb onions	4,611	2,628	3,774	2,983	3,819	4,563	3,212	3,448	4,311	3,844
Others ⁶	5,694	7,377	11,616	10,746	12,515	23,930	20,382	11,982	12,148	6,297
Potatoes, all	13,020	10,001	15,572	14,624	18,926	21,139	12,947	9,646	11,653	10,063
Sweet potatoes	301	183	327	242	310	239	189	161	226	266

-- = Not available. 1. Calendar year except mushrooms. 2. Includes fresh production of asparagus, broccoli, carrots, cauliflower, celery, sweet corn, lettuce, honeydews, onions, & tomatoes through 1991. 3. Includes processing production of snap beans, sweet corn, green peas, tomatoes, cucumbers (for pickles), asparagus, broccoli, carrots, and cauliflower. 4. Data after 1991 not comparable to previous years because commodity estimates reinstated in 1992 are included. 5. Fresh and processing agaricus mushrooms only. Excludes specialty varieties. Crop year July 1- June 30. 6. Includes snap beans, broccoli, cabbage, cauliflower, celery, sweet corn, cucumbers, eggplant, bell peppers, honeydews, and watermelons.

Information contact: Gary Lucier (202) 694-5253

Table 22—Other Commodities

	Annual			1999			2000			2001
	1998	1999	2000	IV	I	II	III	IV	I	II
Sugar										
Production ¹	7,891	9,083	8,912	4,667	2,681	922	772	4,537	2,660	827
Deliveries ¹	9,851	10,167	10,091	2,609	2,348	2,513	2,641	2,589	2,399	2,524
Stocks, ending ¹	3,423	3,855	4,338	3,855	4,551	3,498	2,219	4,338	5,122	3,720
Coffee										
Composite green price ²										
N.Y. (¢/lb.)	114.43	88.49	71.94	91.79	85.66	75.78	66.73	59.63	54.95	51.97
	Annual			2000						
	1997	1998	1999	Mar	Apr	May	Jun	Jul	Aug	Sep
Tobacco										
Avg. price to grower ³										
Flue-cured (\$/lb.)	1.73	1.76	1.74	--	--	--	--	--	1.69	1.82
Burley (\$/lb.)	1.91	1.90	1.90	1.77	--	--	--	--	--	--
Domestic taxable removals										
Cigarettes (bil.)	471.4	457.9	432.6	38.8	29.3	40.8	39.6	34.2	40.8	33.1
Large cigars (mil.) ⁴	3,552	3,721	3,844	333.9	314.0	345.7	365.8	319.6	352.7	314.4

-- = Not available. 1. 1,000 short tons, raw value. Quarterly data shown at end of each quarter. 2. Net imports of green and processed coffee.

3. Crop year July-June for flue-cured, October-September for burley. 4. Includes imports of large cigars. *Information contacts: sugar and coffee, Fannye Jolly (202) 694-5249; tobacco, Tom Capehart (202) 694-5245*

World Agriculture

Table 23—World Supply & Utilization of Major Crops, Livestock, & Products

	1992/93	1993/94	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01 F	2001/02 F
<i>Million units</i>										
Wheat										
Area (hectares)	222.9	221.9	214.5	218.7	230.0	228.0	224.7	216.8	217.6	214.1
Production (metric tons)	562.1	558.6	524.0	538.4	581.9	609.2	588.8	586.4	579.1	571.1
Exports (metric tons) ¹	113.1	101.6	101.5	99.1	100.1	104.0	101.9	112.4	103.0	107.2
Consumption (metric tons) ²	549.8	556.2	546.9	548.4	575.8	583.7	585.2	593.0	588.6	595.1
Ending stocks (metric tons) ³	170.0	172.4	149.4	139.5	145.6	171.1	174.6	167.1	158.5	134.5
Coarse grains										
Area (hectares)	325.9	318.7	324.0	313.9	322.7	311.2	307.3	301.1	296.1	300.2
Production (metric tons)	871.6	798.9	871.3	802.9	908.5	884.1	889.7	877.2	857.1	860.2
Exports (metric tons) ¹	93.4	86.3	98.4	87.9	91.2	85.6	96.4	104.4	102.3	100.0
Consumption (metric tons) ²	844.9	838.6	859.6	841.8	875.0	873.5	870.5	882.5	874.2	895.4
Ending stocks (metric tons) ³	218.7	179.0	190.6	151.8	185.3	195.9	215.1	209.8	192.6	157.4
Rice, milled										
Area (hectares)	146.4	144.9	147.4	148.1	149.7	151.3	152.4	155.0	151.9	151.1
Production (metric tons)	355.7	355.4	364.5	371.4	380.2	386.8	394.0	408.5	395.7	393.3
Exports (metric tons) ¹	14.9	16.5	21.0	19.7	18.9	27.7	24.9	22.9	22.2	22.4
Consumption (metric tons) ²	358.7	359.3	366.1	372.1	379.0	379.5	387.3	398.6	401.1	404.8
Ending stocks (metric tons) ³	123.9	120.0	118.4	117.8	119.0	126.3	133.0	142.9	137.5	126.0
Total grains										
Area (hectares)	695.2	685.5	685.9	680.7	702.4	690.5	684.4	672.9	665.6	665.4
Production (metric tons)	1,789.4	1,712.9	1,759.8	1,712.7	1,870.6	1,880.1	1,872.5	1,872.1	1,831.8	1,824.6
Exports (metric tons) ¹	221.4	204.4	220.9	206.7	210.2	217.3	223.2	239.7	227.5	229.6
Consumption (metric tons) ²	1,753.4	1,754.1	1,772.6	1,762.3	1,829.8	1,836.7	1,843.0	1,874.1	1,864.0	1,895.3
Ending stocks (metric tons) ³	512.6	471.4	458.4	409.1	449.9	493.3	522.7	519.8	488.6	417.8
Oilseeds										
Crush (metric tons)	184.4	190.1	208.1	217.5	216.7	226.3	240.6	247.4	252.6	260.4
Production (metric tons)	227.5	229.4	261.9	258.9	261.4	286.5	294.7	303.2	310.7	321.3
Exports (metric tons)	38.2	38.7	44.1	44.3	49.6	54.0	54.9	64.4	70.9	70.3
Ending stocks (metric tons)	23.6	20.3	27.2	22.2	19.1	28.6	31.8	34.1	33.3	32.6
Meals										
Production (metric tons)	125.2	131.7	142.1	147.3	147.8	153.9	164.6	168.7	175.6	181.6
Exports (metric tons)	40.8	44.9	46.7	49.8	50.7	52.1	54.0	56.1	56.2	57.5
Oils										
Production (metric tons)	61.1	63.7	69.6	73.1	73.7	75.2	80.6	85.9	88.6	90.6
Exports (metric tons)	21.3	24.3	27.1	26.0	28.3	29.7	31.5	32.8	34.6	35.2
Cotton										
Area (hectares)	32.6	30.7	32.2	35.9	33.8	33.8	33.0	32.4	31.9	34.2
Production (bales)	82.5	77.1	86.0	93.1	89.6	91.8	85.0	87.4	88.3	96.1
Exports (bales)	25.5	26.8	28.4	27.3	28.8	26.7	23.7	27.3	26.4	28.1
Consumption (bales)	85.9	85.4	84.7	86.0	88.0	87.2	85.4	91.9	91.7	92.1
Ending stocks (bales)	34.7	26.8	29.8	36.7	40.1	43.9	45.1	41.5	39.0	43.3
	1992	1993	1994	1995	1996	1997	1998	1999	2000 E	2001 F
Beef and Pork⁴										
Production (metric tons)	111.6	111.6	116.7	122.1	116.6	122.1	127.1	130.4	131.8	133.1
Consumption (metric tons)	109.9	110.6	115.7	120.7	114.1	119.7	124.6	128.4	129.8	131.3
Exports (metric tons) ¹	6.6	6.6	7.2	7.4	7.7	8.2	8.0	9.2	9.1	8.8
Poultry⁴										
Production (metric tons)	38.0	40.5	43.2	47.5	50.4	52.7	53.5	56.5	58.0	59.6
Consumption (metric tons)	37.0	39.4	42.0	47.0	49.6	51.8	52.6	55.3	56.8	58.5
Exports (metric tons) ¹	2.4	2.8	3.6	4.5	5.1	5.6	5.7	6.0	6.6	6.8
Dairy										
Milk production (metric tons) ⁵	--	--	--	--	364.4	365.6	368.4	372.0	375.9	376.3

-- = Not available. E = Estimated, F = forecast. 1. Excludes intra-EU trade but includes intra-FSU trade. 2. Where stocks data are not available, consumption includes stock changes. 3. Stocks data are based on differing marketing years and do not represent levels at a given date. Data not available for all countries. 4. Calendar year, selected countries. 5. Data prior to 1989 no longer comparable.

Information contacts: Crops, Ed Allen (202) 694-5288; red meat and poultry, Leland Southard (202) 694-5187; dairy, LaVerne Williams (202) 694-5190

U.S. Agricultural Trade

Table 24—Prices of Principal U.S. Agricultural Trade Products

	Annual		2000		2001					
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
Export commodities										
Wheat, f.o.b. vessel, Gulf ports (\$/bu.)	3.44	3.04	3.17	3.31	3.58	3.69	3.50	3.40	3.40	3.40
Corn, f.o.b. vessel, Gulf ports (\$/bu.)	2.58	2.29	2.24	1.91	2.22	2.14	1.91	2.30	2.36	2.30
Grain sorghum, f.o.b. vessel, Gulf ports (\$/bu.)	2.49	2.14	2.23	1.94	2.38	2.40	1.98	2.36	2.43	2.44
Soybeans, f.o.b. vessel, Gulf ports (\$/bu.)	6.37	5.02	5.26	5.19	4.60	4.81	4.97	5.39	5.35	5.11
Soybean oil, Decatur (¢/lb.)	25.78	17.51	15.01	14.24	13.53	13.53	14.21	16.49	17.08	15.54
Soybean meal, Decatur (\$/ton)	162.74	141.52	174.69	174.60	158.48	165.14	172.60	184.43	178.46	172.73
Cotton, 7-market avg. spot (¢/lb.)	67.04	52.30	57.47	60.62	42.19	40.02	37.38	37.48	36.05	33.59
Tobacco, avg. price at auction (¢/lb.)	179.77	177.82	182.73	182.97	142.03	--	--	--	179.06	--
Rice, f.o.b., mill, Houston (\$/cwt)	18.95	16.99	14.84	14.56	15.00	15.00	15.00	15.00	14.81	14.25
Inedible tallow, Chicago (¢/lb.)	17.67	12.99	9.92	9.35	9.00	9.50	10.00	15.00	16.25	14.15
Import commodities										
Coffee, N.Y. spot (\$/lb.)	1.39	1.05	0.92	0.82	0.71	0.76	0.54	0.47	0.47	0.45
Rubber, N.Y. spot (¢/lb.)	40.57	36.66	37.72	37.35	34.50	34.80	35.00	34.80	34.48	33.13
Cocoa beans, N.Y. (\$/lb.)	0.72	0.47	0.36	0.36	0.46	0.47	0.42	0.42	0.45	0.42

-- = Not available. Information contact: Mae Dean Johnson (202) 694-5299.

Table 25—Trade Balance

	Fiscal year			2000		2001				
	2000 ³	2001 E	2002 F	Aug	Mar	Apr	May	Jun	Jul	Aug
\$ million										
Exports										
Agricultural	50,911	53,500	57,000	4,259	4,871	4,285	4,143	4,092	3,939	4,468
Nonagricultural	647,384	--	--	58,029	59,467	52,529	54,773	53,755	45,948	50,296
Total ¹	698,295	--	--	62,288	64,338	56,814	58,916	57,847	49,887	54,764
Imports										
Agricultural	38,923	38,500	39,000	3,166	3,453	3,417	3,346	3,245	3,223	3,163
Nonagricultural	1,132,257	--	--	104,491	99,049	92,292	92,832	92,103	90,616	92,700
Total ²	1,171,180	--	--	107,657	102,502	95,709	96,178	95,348	93,839	95,863
Trade balance										
Agricultural	11,988	15,000	18,000	1,093	1,418	868	797	847	716	1,305
Nonagricultural	-484,873	--	--	-46,462	-39,582	-39,763	-38,059	-38,348	-44,668	-42,404
Total	-472,885	--	--	-45,369	-38,164	-38,895	-37,262	-37,501	-43,952	-41,099

E = Estimate. F = Forecast. -- = Not available. Fiscal year (Oct. 1-Sep. 30). 1. Domestic exports including Department of Defense shipments (f.a.s. value). 2. Imports for consumption (customs value). 3. Preliminary. Information contact: Mary Fant (202) 694-5272

Table 26—Indexes of Real Trade-Weighted Dollar Exchange Rates¹

	Annual		2000		2001					
	1998	1999	2000	Aug	Mar	Apr	May	Jun	Jul	Aug
<i>1995 = 100</i>										
Total U.S. Trade	114.0	114.2	119.0	118.3	126.0	125.2	125.2	126.4	126.3	124.5
U.S. markets										
All agricultural trade	119.2	117.5	120.2	119.1	128.6	128.4	127.7	129.6	129.4	127.2
Bulk commodities	118.3	116.6	121.2	119.9	129.8	130.2	129.5	131.9	131.3	129.2
Corn	122.1	116.3	119.2	117.3	129.3	129.1	127.8	130.4	130.5	128.4
Cotton	113.6	112.4	118.3	116.7	127.0	128.5	127.4	128.9	126.4	125.3
Rice	111.5	112.5	117.8	117.4	125.2	125.1	125.4	126.4	126.0	125.1
Soybeans	121.8	119.4	127.3	126.6	134.1	134.8	134.8	137.9	137.2	133.5
Tobacco, raw	108.1	112.8	134.3	136.6	146.6	147.6	147.9	151.4	150.6	146.5
Wheat	125.6	124.6	120.2	118.1	126.7	127.1	127.2	128.6	128.3	128.2
High-value products	119.9	118.3	119.4	118.5	127.7	126.9	126.2	127.9	127.9	125.6
Processed intermediates	115.9	115.1	120.2	119.4	127.4	127.2	126.9	128.6	128.4	126.1
Soymeal	106.6	107.2	117.0	113.3	118.2	117.9	117.8	118.2	118.1	117.2
Soyoil	89.1	98.1	105.2	106.2	109.5	109.7	110.5	110.6	110.1	110.2
Produce and horticulture	118.4	117.3	122.0	121.7	130.7	129.8	129.7	131.1	131.0	128.8
Fruits	120.4	116.8	119.2	118.4	129.2	128.2	127.4	129.0	129.0	127.3
Vegetables	115.9	113.6	114.4	113.4	123.6	120.8	120.4	120.0	120.8	120.5
High-value processed	123.9	121.4	117.8	116.6	126.9	125.7	124.5	126.2	126.4	124.1
Fruit juices	122.9	120.1	123.4	123.0	133.9	132.5	131.9	133.4	133.6	131.2
Poultry	139.2	155.0	116.9	115.5	116.2	115.0	114.4	114.3	114.0	112.9
Red meats	135.4	124.0	121.7	120.1	138.3	136.8	133.8	137.6	138.2	134.0
U.S. competitors										
All agricultural trade	115.7	122.1	135.5	137.0	140.5	141.7	143.4	145.6	144.3	140.2
Bulk commodities	122.2	130.4	134.0	134.3	139.7	140.8	141.5	142.5	140.5	138.2
Corn	113.1	120.5	134.0	135.3	137.7	138.7	140.0	142.0	141.2	138.0
Cotton	128.1	130.7	133.4	122.8	129.7	128.8	129.6	130.4	130.2	128.6
Rice	118.9	120.5	131.1	131.8	140.8	141.9	142.5	144.0	143.7	140.7
Soybeans	106.4	132.1	134.6	133.6	143.7	146.4	150.1	153.1	155.2	155.8
Tobacco, raw	115.3	127.3	121.8	123.5	124.8	125.5	126.1	126.3	125.3	124.5
Wheat	115.6	118.5	129.8	130.7	137.8	136.5	137.6	138.5	138.2	134.7
High-value products	118.4	125.2	139.1	140.6	143.6	145.0	146.9	149.4	148.2	143.5
Processed intermediates	119.9	127.1	138.2	139.2	144.1	145.5	147.1	149.2	147.8	144.1
Soymeal	107.8	132.0	136.9	136.5	145.7	148.9	152.8	155.9	156.9	156.6
Soyoil	107.1	123.3	130.0	130.7	137.8	139.6	142.3	144.9	145.3	144.4
Produce and horticulture	114.2	120.0	133.3	134.6	135.6	137.0	138.5	140.8	139.7	135.6
Fruits	121.0	123.5	135.9	136.6	142.5	143.8	144.5	145.9	145.2	141.5
Vegetables	102.4	109.2	121.7	122.9	124.6	125.5	126.8	128.7	127.8	124.4
High-value processed	118.7	125.7	141.3	143.2	145.6	147.1	149.2	152.2	150.9	145.6
Fruit juices	116.6	122.1	137.0	138.4	141.6	142.7	144.4	146.5	145.9	141.8
Poultry	109.5	121.6	134.9	136.3	140.8	142.7	144.9	147.0	146.6	143.1
Red meats	116.3	122.3	137.8	139.7	145.1	145.5	147.3	150.1	148.9	143.6
U.S. suppliers										
All agricultural trade	111.4	113.5	120.0	120.0	125.4	125.5	125.7	126.4	125.5	124.0
High-value products	108.8	111.6	118.2	118.4	122.9	122.4	122.8	123.6	123.5	121.6
Processed intermediates	112.3	114.8	121.4	121.9	127.8	127.3	127.8	128.3	128.1	126.3
Grains and feeds	112.5	113.0	117.9	117.6	125.1	123.2	123.6	123.1	123.6	122.8
Vegetable oils	123.1	120.9	130.1	130.5	137.2	138.7	139.0	140.3	139.3	137.0
Produce and horticulture	98.4	101.1	103.7	103.0	103.9	103.5	103.1	103.4	103.6	102.9
Fruits	96.5	97.2	98.0	98.4	101.2	100.5	100.5	101.5	103.5	102.6
Vegetables	88.7	84.1	81.3	79.8	81.2	79.3	78.5	78.2	79.0	78.7
High-value processed	111.8	114.9	123.7	124.2	129.7	129.2	130.0	131.2	131.0	128.3
Cocoa and products	120.3	126.1	137.6	138.3	143.1	144.5	145.4	146.2	141.8	139.8
Coffee and products	101.6	111.6	116.4	115.3	117.9	118.9	119.2	119.7	119.1	118.8
Dairy products	117.2	122.5	137.9	140.7	143.3	143.7	145.2	147.9	146.5	140.6
Fruit juices	109.2	122.3	127.8	127.9	135.2	137.0	139.0	141.0	142.1	140.9
Meats	102.1	105.6	115.4	122.2	129.4	127.5	127.9	128.3	128.3	125.9

Real indexes adjust nominal exchange rates for relative rates of inflation among countries. A higher value means the dollar has appreciated.

The weights used for "total U.S. trade" index are based on U.S. total merchandise exports to the largest 85 trading partners. Weights are based on relative importance of major U.S. customers, competitors in world markets, and suppliers to the U.S. Indexes are subject to revision for up to 1 year due to delayed reporting by some countries. High-value products are total agricultural products minus bulk commodities.

Source: Nominal exchange rates are obtained from the IMF International Financial Statistics. Exchange rates for the EU-11 are obtained from the Board of Governors of the Federal Reserve System. Full historical series are available back to January 1970 at

<http://usda.mannlib.cornell.edu/data-sets/international/88021/>

1. A major revision to the weighting scheme and commodity definitions was completed in May 2000. This significantly altered the series from previous versions.

Information contact: Mathew Shane (202) 694-5282 or email: mshane@ers.usda.gov.

Table 27—U.S. Agricultural Exports & Imports

	Fiscal year			Aug		Fiscal year			Aug	
	2000	2001 E	2002 F	2000	2001	2000	2001 E	2002 F	2000	2001
	1,000 units			\$ million						
Exports										
Animals, live	--	--	--	--	--	608	--	--	41	52
Meats and preps., excl. poultry (mt)	2,457	1,900	1,900	218	215	5,454	5,000	5,100	473	452
Dairy products	--	--	--	--	--	996	1,100	1,100	83	102
Poultry meats (mt)	2,845	3,100	3,200	248	277	1,961	2,200	2,200	173	213
Fats, oils, and greases (mt)	1,206	1,100	1,000	113	91	421	--	--	33	31
Hides and skins, incl. furskins	--	--	--	--	--	1,479	2,000	1,900	145	170
Cattle hides, whole (no.)	21,837	--	--	2,133	2,065	1,166	--	--	121	129
Mink pelts (no.)	4,352	--	--	243	164	111	--	--	6	6
Grains and feeds (mt) ²	104,009	--	--	10,002	10,112	13,788	13,800	16,000	1,260	1,344
Wheat (mt) ³	27,779	25,500	28,400	2,842	2,422	3,378	3,500	4,200	330	306
Wheat flour (mt)	825	600	600	32	20	132	--	--	7	5
Rice (mt)	3,299	3,000	3,100	253	287	903	700	700	64	67
Feed grains, incl. products (mt) ⁴	57,195	53,000	58,500	5,480	6,176	5,483	5,000	6,500	479	600
Feeds and fodders (mt)	13,386	12,900	13,200	1,254	1,066	2,496	2,800	2,900	249	240
Other grain products (mt)	1,525	--	--	141	142	1,397	--	--	131	126
Fruits, nuts, and preps. (mt)	3,736	--	--	341	303	3,871	4,800	5,000	351	321
Fruit juices, incl.										
froz. (1,000 hectoliters)	11,902	--	--	1,123	992	716	--	--	70	63
Vegetables and preps.	--	--	--	--	--	4,443	3,100	3,200	352	358
Tobacco, unmanufactured (mt)	180	200	200	14	18	1,229	1,100	1,200	84	124
Cotton, excl. linters (mt) ⁵	1,474	1,600	2,000	94	206	1,809	2,100	2,300	124	231
Seeds (mt)	730	--	--	38	44	787	800	800	43	49
Sugar, cane or beet (mt)	115	--	--	6	10	40	--	--	2	4
Oilseeds and products (mt)	36,055	37,700	38,000	2,265	1,954	8,386	8,900	9,700	560	487
Oilseeds (mt)	--	--	--	--	--	--	--	--	--	--
Soybeans (mt)	26,038	27,100	27,100	1,591	1,182	5,070	5,200	5,600	305	235
Protein meal (mt)	6,870	--	--	411	535	1,259	--	--	77	106
Vegetable oils (mt)	2,130	--	--	146	150	1,346	--	--	94	91
Essential oils (mt)	53	--	--	6	5	593	--	--	64	54
Other	--	--	--	--	--	4,330	--	--	398	414
Total	--	--	--	--	--	50,911	53,500	57,000	4,259	4,468
Imports										
Animals, live	--	--	--	--	--	1,737	2,200	2,200	121	159
Meats and preps., excl. poultry	1,555	1,600	1,600	150	147	3,724	4,000	4,100	349	380
Beef and veal (mt)	1,027	--	--	104	97	2,405	--	--	234	248
Pork (mt)	402	--	--	34	40	958	--	--	86	104
Dairy products	--	--	--	--	--	1,635	1,700	1,700	150	163
Poultry and products	--	--	--	--	--	288	--	--	25	20
Fats, oils, and greases (mt)	107	--	--	7	11	71	--	--	6	5
Hides and skins, incl. furskins (mt)	--	--	--	--	--	160	--	--	9	8
Wool, unmanufactured (mt)	25	--	--	2	1	66	--	--	5	3
Grains and feeds	--	--	--	--	--	3,058	3,200	3,300	252	268
Fruits, nuts, and preps.,										
excl. juices (mt) ⁶	8,366	11,900	12,000	568	537	4,546	5,300	5,400	300	304
Bananas and plantains (mt)	4,396	4,100	4,100	358	309	1,128	1,100	1,200	88	90
Fruit juices (1,000 hectoliters)	32,199	28,500	29,200	2,232	2,217	783	--	--	55	48
Vegetables and preps.	--	--	--	--	--	4,657	5,100	5,200	323	368
Tobacco, unmanufactured (mt)	220	200	200	20	18	651	700	700	73	48
Cotton, unmanufactured (mt)	34	--	--	2	2	28	--	--	1	1
Seeds (mt)	448	--	--	20	19	493	--	--	29	24
Nursery stock and cut flowers	--	--	--	--	--	1,165	1,200	1,200	97	92
Sugar, cane or beet (mt)	1,379	--	--	201	167	493	--	--	70	55
Oilseeds and products (mt)	4,069	4,100	3,900	353	366	1,873	1,700	2,000	141	140
Oilseeds (mt)	1,103	--	--	110	146	310	--	--	22	25
Protein meal (mt)	1,194	--	--	96	75	150	--	--	12	11
Vegetable oils (mt)	1,772	--	--	147	144	1,413	--	--	107	104
Beverages, excl. fruit										
juices (1,000 hectoliters)	--	--	--	--	--	4,702	--	--	466	454
Coffee, tea, cocoa, spices (mt)	2,841	--	--	212	208	5,218	--	--	389	320
Coffee, incl. products (mt)	1,411	1,200	1,200	109	96	2,905	1,700	1,700	205	128
Cocoa beans and products (mt)	1,046	800	900	70	78	1,466	1,300	1,300	102	125
Rubber and allied gums (mt)	1,249	1,000	1,100	100	111	841	600	600	66	63
Other	--	--	--	--	--	2,735	--	--	237	238
Total	--	--	--	--	--	38,923	38,500	39,000	3,166	3,163

E = Estimated. F = Forecast. -- = Not available. Projections are fiscal years (Oct. 1 through Sept. 30) and are from Outlook for U.S.

Agricultural Exports. 2000 data are from *Foreign Agricultural Trade of the U.S.*. 1. Projection includes beef, pork, and variety meat.

2. Projection includes pulses. 3. Value projection includes wheat flour. 4. Projection excludes grain products. 5. Projection includes linters.

6. Value projection includes juice.

Information contact: Mary Fant (202) 694-5272

Table 28—U.S. Agricultural Exports by Region

	Fiscal year			2000	2001					
	1999	2000	2001 E	Aug	Mar	Apr	May	Jun	Jul	Aug
	<i>\$ million</i>									
Region and country										
Western Europe	7,528	6,712	6,800	470	574	546	460	413	417	474
European Union ¹	6,958	6,373	6,200	425	528	470	397	385	388	455
Belgium-Luxembourg	602	538	--	38	63	52	40	32	40	49
France	377	348	--	26	29	24	20	25	36	16
Germany	1,057	947	--	74	73	76	72	49	69	72
Italy	574	560	--	29	42	46	27	31	28	43
Netherlands	1,587	1,459	--	84	113	98	75	98	54	68
United Kingdom	1,122	1,033	--	79	87	84	84	76	87	73
Portugal	131	145	--	11	8	7	11	5	6	9
Spain, incl. Canary Islands	784	664	--	28	49	24	26	21	17	61
Other Western Europe	570	340	600	45	46	76	63	28	30	19
Switzerland	455	250	--	36	41	67	54	22	23	8
Eastern Europe	190	167	200	17	24	23	13	11	14	12
Poland	73	47	--	6	12	13	5	4	8	6
Former Yugoslavia	47	67	--	4	5	1	1	2	1	1
Romania	18	12	--	3	1	3	3	1	1	1
Former Soviet Union	881	937	900	56	47	82	113	113	82	106
Russia	532	674	700	47	40	69	90	86	73	88
Asia	20,441	22,051	22,800	1,814	2,297	1,790	1,735	1,721	1,618	1,823
West Asia (Mideast)	1,978	2,363	2,300	215	177	156	140	180	161	225
Turkey	448	701	600	42	55	49	39	70	43	46
Iraq	9	8	--	8	2	2	--	--	--	--
Israel, incl. Gaza and W. Bank	417	458	--	43	40	38	28	24	20	48
Saudi Arabia	468	482	500	52	33	12	37	36	44	57
South Asia	499	416	500	29	25	36	62	68	68	60
Bangladesh	165	82	--	5	7	7	12	11	8	9
India	189	186	--	16	13	17	32	35	36	38
Pakistan	89	93	--	3	5	5	11	19	9	13
China	1,011	1,474	2,200	167	396	119	73	86	69	75
Japan	8,933	9,353	9,000	698	843	771	812	723	615	699
Southeast Asia	2,218	2,602	3,100	208	296	212	227	224	219	228
Indonesia	499	681	900	58	89	54	86	88	71	69
Philippines	735	866	900	70	79	62	54	50	55	71
Other East Asia	5,803	5,844	5,700	497	559	496	422	439	486	537
Korea, Rep.	2,482	2,569	2,500	233	247	208	180	203	221	250
Hong Kong	1,264	1,255	1,300	117	115	100	91	92	93	110
Taiwan	2,047	2,011	1,900	146	197	189	151	144	172	177
Africa	2,160	2,272	2,200	246	167	142	89	160	168	185
North Africa	1,468	1,565	1,500	180	112	95	49	83	116	134
Morocco	162	141	--	9	8	6	2	8	4	11
Algeria	223	255	--	36	13	16	11	13	11	12
Egypt	1,002	1,094	1,000	127	82	69	34	52	97	104
Sub-Sahara	693	707	700	66	55	48	40	77	52	51
Nigeria	176	160	--	19	20	15	16	36	26	20
S. Africa	165	164	--	8	10	7	8	11	10	11
Latin America and Caribbean	10,495	10,639	11,700	958	1,037	987	961	904	940	1,140
Brazil	366	253	200	23	16	20	17	18	21	18
Caribbean Islands	1,453	1,457	1,400	110	124	125	111	111	103	117
Central America	1,209	1,129	1,200	109	106	113	92	93	95	120
Colombia	468	427	400	35	36	51	33	44	38	39
Mexico	5,672	6,329	7,500	599	681	587	618	551	584	745
Peru	347	201	--	11	11	19	19	16	21	21
Venezuela	458	404	400	37	23	33	38	45	44	51
Canada	6,951	7,520	8,000	618	680	669	723	724	649	664
Oceania	502	490	500	51	42	38	39	36	32	38
Total	49,148	50,911	53,500	4,259	4,871	4,285	4,143	4,092	3,939	4,468

E = Estimated. -- = Not available. Based on fiscal year beginning October 1 and ending September 30. 1. Austria, Finland, and Sweden are included in the European Union. NOTE: Adjusted for transshipments through Canada for 1998 and 1999 through December 1999, but transshipments are not distributed by country as previously for 2000 and 2001, but are only included in total. *Information contact: Mary Fant (202) 694-5272*

Farm Income

Table 29—Value Added to the U.S. Economy by the Agricultural Sector

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001F
	\$ billion									
Final crop output	89.0	82.6	100.3	95.7	115.5	112.3	101.5	93.2	95.3	97.3
Food grains	8.5	8.3	9.5	10.4	10.8	10.4	8.8	7.0	6.6	6.7
Feed crops	20.1	20.2	20.3	24.5	27.3	27.1	22.7	19.6	20.0	21.4
Cotton	5.2	5.3	6.7	6.9	7.0	6.3	6.1	4.7	4.6	4.0
Oil crops	13.3	13.2	14.7	15.5	16.3	19.7	17.4	13.6	13.9	14.8
Tobacco	3.0	2.9	2.7	2.5	2.8	2.9	2.8	2.3	2.3	1.8
Fruits and tree nuts	10.2	10.3	10.3	11.1	11.9	13.1	11.6	12.3	12.7	13.4
Vegetables	11.8	13.7	14.1	15.0	14.5	14.7	15.2	15.2	15.9	16.2
All other crops	13.7	13.7	14.7	15.0	15.8	16.9	17.2	17.9	18.2	18.7
Home consumption	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Value of inventory adjustment ¹	3.2	-5.3	7.2	-5.3	9.0	1.0	-0.3	0.4	1.0	0.2
Final animal output	87.2	92.1	89.8	87.8	92.1	96.5	94.2	95.3	99.3	108.9
Meat animals	47.7	51.0	46.7	44.9	44.2	49.7	43.3	45.6	53.0	55.0
Dairy products	19.7	19.3	20.0	19.9	22.8	20.9	24.1	23.2	20.6	25.3
Poultry and eggs	15.5	17.4	18.5	19.1	22.5	22.3	22.9	22.9	21.8	24.2
Miscellaneous livestock	2.7	3.0	3.2	3.4	3.6	3.6	3.7	3.8	4.1	4.1
Home consumption	0.5	0.4	0.4	0.4	0.3	0.4	0.3	0.4	0.4	0.4
Value of inventory adjustment ¹	1.0	1.1	1.1	0.2	-1.1	-0.4	-0.3	-0.6	-0.6	0.0
Services and forestry	15.2	17.0	18.1	19.9	20.8	22.2	23.7	25.4	24.0	24.3
Machine hire and customwork	1.8	1.9	2.1	1.9	2.2	2.4	2.2	2.0	2.2	2.2
Forest products sold	2.2	2.5	2.6	2.8	2.7	2.9	3.1	2.7	2.8	2.8
Other farm income	4.1	4.6	4.3	5.8	6.2	6.9	8.7	10.2	8.7	8.8
Gross imputed rental value of farm dwellings	7.2	8.1	9.0	9.4	9.8	10.1	9.8	10.4	10.4	10.5
Final agricultural sector output²	191.4	191.6	208.2	203.5	228.4	231.0	219.5	213.8	218.6	230.6
<i>Minus</i> Intermediate consumption outlays:	93.4	100.7	104.9	109.7	113.2	121.0	118.6	119.6	122.4	127.2
Farm origin	38.6	41.3	41.3	41.8	42.7	46.9	44.8	45.6	47.7	48.6
Feed purchased	20.1	21.4	22.6	23.8	25.2	26.3	25.0	24.5	24.5	25.6
Livestock and poultry purchased	13.6	14.7	13.3	12.5	11.3	13.8	12.6	13.8	15.8	15.4
Seed purchased	4.9	5.2	5.4	5.5	6.2	6.7	7.2	7.2	7.3	7.5
Manufactured inputs	22.7	23.1	24.4	26.1	28.6	29.2	28.2	27.1	28.7	30.8
Fertilizers and lime	8.3	8.4	9.2	10.0	10.9	10.9	10.6	9.9	10.0	11.8
Pesticides	6.5	6.7	7.2	7.7	8.5	9.0	9.0	8.6	8.5	8.5
Petroleum fuel and oils	5.3	5.4	5.3	5.4	6.0	6.2	5.6	5.6	7.2	7.3
Electricity	2.6	2.7	2.7	3.0	3.2	3.0	2.9	3.0	3.0	3.2
Other intermediate expenses	32.1	36.2	39.2	41.7	41.9	44.9	45.6	46.9	46.0	47.7
Repair and maintenance of capital items	8.5	9.2	9.1	9.5	10.3	10.4	10.4	10.5	10.8	11.2
Machine hire and customwork	3.8	4.4	4.8	4.8	4.7	4.9	5.4	5.3	5.0	5.2
Marketing, storage, and transportation	4.5	5.6	6.8	7.2	6.9	7.1	6.9	7.3	7.5	7.8
Contract labor	1.7	1.8	1.8	2.0	2.1	2.5	2.4	2.5	2.7	2.8
Miscellaneous expenses	13.6	15.2	16.7	18.3	17.9	19.9	20.6	21.4	20.0	20.7
<i>Plus</i> Net government transactions:	2.7	6.9	1.0	0.1	0.1	0.1	4.9	14.2	15.5	12.5
+ Direct government payments	9.2	13.4	7.9	7.3	7.3	7.5	12.4	21.5	22.9	20.0
- Motor vehicle registration and licensing fees	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.4	0.5	0.5
- Property taxes	6.1	6.2	6.5	6.7	6.8	7.0	7.0	6.8	6.9	7.0
Gross value added	100.7	97.8	104.3	93.9	115.3	110.1	105.7	108.4	111.7	115.9
<i>Minus</i> Capital consumption	18.3	18.3	18.6	19.2	19.4	19.6	20.0	20.3	20.6	20.7
Net value added²	82.4	79.5	85.7	74.8	95.9	90.5	85.8	88.1	91.1	95.1
<i>Minus</i> Factor payments:	34.6	34.8	36.8	37.8	41.1	42.0	42.9	43.8	44.7	45.8
Employee compensation (total hired labor)	12.3	13.2	13.5	14.3	15.2	16.0	16.9	17.5	17.3	18.1
Net rent received by nonoperator landlords	11.2	10.9	11.8	10.9	13.0	12.9	12.7	12.8	13.2	13.4
Real estate and non-real estate interest	11.0	10.7	11.6	12.6	13.0	13.1	13.4	13.6	14.1	14.2
Net farm income²	47.8	44.7	48.9	36.9	54.8	48.5	42.9	44.3	46.4	49.4

Values in last two columns are preliminary or forecast. 1. A positive value of inventory change represents current-year production not sold by December 31. A negative value is an offset to production from prior years included in current-year sales. 2. Final sector output is the gross value of commodities and services produced within a year. Net value added is the sector's contribution to the National economy and is the sum of income from production earned by all factors of production. Net farm income is farm operators' share of income from the sector's production activities. The concept presented is consistent with that employed by the Organization for Economic Cooperation and Development. *Information contact: Roger Strickland: rogers@ers.usda.gov*
To confirm that this table contains the current forecast, go to <http://www.ers.usda.gov/briefing/farmincome/fore/fore.htm>

Table 30—Farm Income Statistics

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001F
\$ billion										
Cash income statement										
1. Cash receipts	171.4	178.2	181.3	188.0	199.3	207.6	195.8	188.1	193.6	205.5
Crops ¹	85.7	87.7	93.0	100.8	106.3	111.2	101.7	92.6	94.1	97.0
Livestock	85.8	90.5	88.3	87.2	92.9	96.5	94.1	95.5	99.5	108.5
2. Direct Government payments	9.2	13.4	7.9	7.3	7.3	7.5	12.4	21.5	22.9	20.0
3. Farm-related income ²	8.0	9.0	9.0	10.5	11.0	12.1	13.9	15.0	13.6	13.8
4. Gross cash income (1+2+3)	188.6	200.6	198.2	205.9	217.7	227.3	222.1	224.6	230.1	239.3
5. Cash expenses ³	133.5	141.2	147.5	153.3	159.9	168.7	167.4	168.9	172.6	178.5
6. Net cash income (4-5)	55.1	59.4	50.7	52.5	57.7	58.5	54.8	55.7	57.5	60.8
Farm income statement										
7. Gross cash income (4)	188.6	200.6	198.2	205.9	217.7	227.3	222.1	224.6	230.1	239.3
8. Noncash income ⁴	7.8	8.7	9.6	9.9	10.2	10.6	10.3	10.9	11.0	11.1
9. Value of inventory adjustment	4.2	-4.2	8.3	-5.0	7.9	0.6	-0.6	-0.2	0.5	0.2
10. Gross farm income (7+8+9)	200.6	205.0	216.0	210.8	235.8	238.5	231.8	235.3	241.5	250.6
11. Total production expenses	152.8	160.4	167.2	173.8	181.0	190.0	189.0	191.0	195.1	201.2
12. Net farm income (10-11)	47.8	44.7	48.9	36.9	54.8	48.5	42.9	44.3	46.4	49.4

Values for last 2 years are preliminary or forecast. Numbers in parentheses indicate the combination of items required to calculate an item. Totals may not add due to rounding. 1. Includes commodities placed under CCC loans and profits made on loans redeemed. 2. Income from custom labor, machine hire, recreational activities, forest product sales, and other farm sources. 3. Excludes depreciation and perquisites to hired labor. Excludes farm operator dwellings. 4. Value of farm products consumed on farms where produced plus the imputed rental value of farm dwellings.

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To confirm that this table contains the current forecast, go to <http://www.ers.usda.gov/briefing/farmincome/fore/fore.htm>

Table 31—Average Income to Farm Operator Households¹

	1993	1994	1995	1996	1997	1998	1999	2000P ²	2001F
\$ per farm									
Net cash farm business income ²	11,248	11,389	11,218	13,502	12,676	14,357	13,194	11,175	11,093
Less depreciation ³	6,219	6,466	6,795	6,906	6,578	7,409	7,027	7,357	--
Less wages paid to operator ⁴	454	425	522	531	513	637	499	608	--
Less farmland rental income ⁵	534	701	769	672	568	543	802	757	--
Less adjusted farm business income due to other household(s) ⁶	872	815	649	1,094	*1,505	1,332	1,262	801	--
\$ per farm operator household									
Equals adjusted farm business income	3,168	2,981	2,484	4,300	3,513	4,436	3,603	*1,652	--
Plus wages paid to operator	454	425	522	531	513	637	499	608	--
Plus net income from farmland rental ⁷	--	--	1,053	1,178	945	868	1,312	--	--
Equals farm self-employment income	3,623	3,407	4,059	6,009	4,971	5,941	5,415	*2,260	--
Plus other farm-related earnings ⁸	1,192	970	661	1,898	1,234	1,165	944	339	--
Equals earnings of the operator household from farming activities	4,815	4,376	4,720	7,906	6,205	7,106	6,359	2,598	2,725
Plus earnings of the operator household from off-farm sources ⁹	35,408	38,092	39,671	42,455	46,358	52,628	57,988	58,709	59,296
Equals average farm operator household income	40,223	42,469	44,392	50,361	52,562	59,734	64,347	61,307	62,021
\$ per U.S. household									
U.S. average household income ¹⁰	41,428	43,133	44,938	47,123	49,692	51,855	54,842	--	--
Percent									
Average farm operator household income as percent of U.S. average household income	97.1	98.5	98.8	106.9	105.8	115.2	117.3	--	--
Average operator household earnings from farming activities as percent of average operator household income	12.0	10.3	10.6	15.7	11.8	11.9	9.9	5.2	--

-- = Not available. Values in last two columns are preliminary or forecast. 1. This table derives farm operator household income estimates from the Agricultural Resource Management Study (ARMS) that are consistent with Current Population Survey (CPS) methodology. The CPS, conducted by the Census Bureau, is the source of official U.S. household income statistics. The CPS defines income to include any income received as cash. The CPS definition departs from a strictly cash concept by including depreciation as an expense that farm operators and other self-employed people subtract from gross receipts when reporting net cash income. 2. A component of farm-sector income. Excludes income of contractors and landlords as well as the income of farms organized as nonfamily corporations or cooperatives, and farms run by a hired manager. Includes income of farms organized as proprietorships, partnerships, and family corporations. 3. Consistent with the CPS definition of self-employed income, reported depreciation expenses are subtracted from net cash farm income. The ARMS collects data on farm business depreciation used for tax purposes. 4. Wages paid to the operator are excluded because they are not shared among other households that have claims on farm business income. These wages are added to the operator household's adjusted farm business income to obtain farm self-employment income. 5. Gross rental income is excluded because net rental income from farm operation is added below to income received by the household. 6. More than one household may have a claim on the income of a farm business. On average, 1.1 households share the income of a farm business. 7. Includes net rental income from the farm business. Also includes net rental income from farmland held by household members that is not part of the farm business. In 1992, gross rental income from the farm business was used because net rental income data were not collected. In 1993 and 1994, net rental income data were collected as part of off-farm income. 8. Wages paid to other operator household members by the farm business, and net income from a farm business other than the one surveyed. In 1996, also includes the value of commodities provided to household members for farm work. 9. Wages, salaries, net income from nonfarm businesses, interest, dividends, transfer payments, etc. In 1993 and 1994, also includes net rental income from farmland. 10. From the CPS. Sources: U.S. Department of Agriculture, Economic Research Service, 1992, 1993, 1994, and 1995 Farm Costs and Returns Survey (FCRS), and 1996 and 1997 Agricultural Resource Management Study for farm operator household data. U.S. Department of Commerce, Census Bureau Current Population Survey (PCS), for average household income. Information contact: Bob Hoppe (202) 694-5572 or rhope@ers.usda.gov

Table 32—Balance Sheet of the U.S. Farming Sector

	1992	1993	1994	1995	1996	1997	1998	1999	2000P	2001F
	\$ billion									
Farm assets	868.3	910.2	936.1	967.6	1,004.8	1,053.1	1,085.5	1,116.6	1,156.2	1,189.1
Real estate	640.8	677.6	704.1	740.5	769.5	808.2	841.8	870.0	905.8	932.9
Livestock and poultry ¹	71.0	72.8	67.9	57.8	60.3	67.1	63.4	70.6	73.5	77.7
Machinery and motor vehicles	85.4	86.4	88.1	89.4	89.8	90.1	90.2	89.0	89.3	89.9
Crops stored ^{2,3}	24.2	23.3	23.3	27.4	31.7	32.9	30.1	26.9	28.1	28.0
Purchased inputs	3.9	3.8	5.0	3.4	4.4	5.1	5.3	4.2	4.5	4.6
Financial assets	43.1	46.3	47.6	49.1	49.0	49.7	54.8	55.8	55.0	56.0
Total farm debt	139.1	142.0	146.8	150.8	156.1	165.4	172.9	176.4	183.6	185.2
Real estate debt ³	75.4	76.0	77.7	79.3	81.7	85.4	89.6	94.2	97.6	98.9
Non-real estate debt ⁴	63.6	65.9	69.1	71.5	74.4	80.1	83.2	82.2	86.0	86.3
Total farm equity	729.3	768.2	789.3	816.8	848.7	887.7	912.7	940.2	972.6	1,003.9
Selected ratios										
Debt to equity	19.1	18.5	18.6	18.5	18.4	18.6	18.9	18.8	18.9	18.4
Debt to assets	16.0	15.6	15.7	15.6	15.5	15.7	15.9	15.8	15.9	15.6

Values in the last two columns are preliminary or forecast. 1. As of December 31. 2. Non-CCC crops held on farms plus value above loan rates for crops held under CCC. 3. Includes CCC storage and drying facilities loans, but excludes debt on operator dwellings. 4. Excludes debt for nonfarm purposes. *Information contact: Ken Erickson (202) 694-5565 or erickson@ers.usda.gov*

To confirm that this table contains the current forecast, go to <http://www.ers.usda.gov/briefing/farmincome/fore/fore.htm>

Table 33—Cash Receipts from Farming

	Annual			2000		2001				
	1998	1999	2000	Jul	Feb	Mar	Apr	May	Jun	Jul
	\$ million									
Commodity cash receipts¹	195,816	188,132	193,586	16,044	12,772	14,478	14,203	14,808	14,719	17,204
Livestock and products	94,121	95,547	99,473	9,115	7,369	8,252	8,134	9,022	8,632	9,592
Meat animals	43,339	45,614	52,994	4,780	3,862	4,256	4,180	4,947	4,466	4,930
Dairy products	24,114	23,207	20,622	1,757	1,724	2,026	2,021	2,195	2,223	2,218
Poultry and eggs	22,947	22,898	21,789	1,821	1,546	1,714	1,699	1,638	1,665	1,686
Other	3,720	3,828	4,067	758	237	256	234	242	279	757
Crops	101,695	92,585	94,113	6,928	5,403	6,227	6,069	5,786	6,086	7,612
Food grains	8,822	6,965	6,639	1,149	407	372	294	360	821	1,316
Feed crops	22,655	19,622	19,960	1,164	1,401	1,496	1,017	895	1,029	1,382
Cotton (lint and seed)	6,073	4,698	4,555	79	387	134	83	82	61	90
Tobacco	2,803	2,273	2,315	0	92	19	1	0	0	193
Oil-bearing crops	17,377	13,608	13,857	661	724	840	547	446	452	755
Vegetables and melons	15,160	15,236	15,889	1,650	773	1,080	1,319	1,669	1,746	1,668
Fruits and tree nuts	11,649	12,287	12,692	1,198	512	659	704	749	997	1,181
Other	17,156	17,894	18,206	1,028	1,106	1,626	2,105	1,584	981	1,028
Government payments	12,380	21,513	22,896	524	1,192	454	317	--	--	--
Total	208,196	209,645	216,482	16,568	13,964	14,933	14,520	14,808	14,719	17,204

-- = Not available. Annual values for the most recent year and monthly values for current year are preliminary. 1. Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. *Information contact: Larry Traub (202) 694-5593 or ltraub@ers.usda.gov. To receive current monthly cash receipts via e-mail contact Larry Traub.*

Table 34—Cash Receipts from Farm Marketings, by State

Region and State	Livestock and products				Crops ¹				Total ¹			
	1999	2000	Jun 2001	Jul 2001	1999	2000	Jun 2001	Jul 2001	1999	2000	Jun 2001	Jul 2001
	\$ million											
North Atlantic												
Maine	286	262	21	21	208	242	5	20	494	504	26	40
New Hampshire	63	60	5	5	92	94	4	6	155	154	9	11
Vermont	472	441	42	43	69	67	2	12	541	508	44	56
Massachusetts	101	91	8	7	279	301	24	28	380	392	32	36
Rhode Island	8	8	1	1	39	40	2	3	47	48	3	4
Connecticut	180	165	12	12	303	337	14	19	483	503	26	31
New York	2,049	1,934	200	203	1,098	1,189	53	105	3,148	3,123	253	307
New Jersey	193	193	7	56	536	619	52	76	729	812	60	133
Pennsylvania	2,890	2,781	303	306	1,189	1,252	77	91	4,079	4,033	380	397
North Central												
Ohio	1,777	1,751	149	158	2,695	2,654	129	266	4,472	4,405	278	423
Indiana	1,583	1,695	152	169	2,814	2,886	150	249	4,397	4,581	303	418
Illinois	1,525	1,710	150	166	5,086	5,312	238	386	6,611	7,022	388	552
Michigan	1,328	1,335	126	134	2,139	2,140	93	201	3,467	3,475	219	334
Wisconsin	4,136	3,804	405	413	1,362	1,416	46	81	5,498	5,221	451	494
Minnesota	3,550	3,875	371	349	3,543	3,647	188	234	7,093	7,522	558	583
Iowa	4,713	5,747	527	544	5,036	5,027	181	381	9,749	10,774	708	924
Missouri	2,480	2,677	234	203	1,796	1,890	81	138	4,276	4,567	314	341
North Dakota	633	639	51	52	2,091	2,050	141	147	2,724	2,689	192	199
South Dakota	1,830	2,035	181	177	1,743	1,755	92	140	3,573	3,790	273	317
Nebraska	5,426	5,923	573	551	2,996	3,029	99	167	8,422	8,952	673	719
Kansas	5,012	5,488	466	547	2,464	2,417	92	410	7,477	7,905	558	957
Southern												
Delaware	566	557	50	47	159	184	13	14	725	741	63	62
Maryland	937	848	71	70	559	625	46	58	1,496	1,473	117	128
Virginia	1,579	1,549	123	132	702	732	43	71	2,281	2,281	166	203
West Virginia	334	339	27	28	53	51	7	7	387	391	34	35
North Carolina	3,840	4,275	369	325	2,861	3,135	176	318	6,700	7,410	546	643
South Carolina	774	792	54	59	638	752	74	80	1,412	1,544	128	139
Georgia	3,329	3,105	240	249	1,901	1,945	214	149	5,230	5,050	454	399
Florida	1,361	1,378	120	126	5,495	5,573	216	153	6,856	6,951	337	279
Kentucky	2,254	2,335	118	544	1,301	1,271	42	37	3,554	3,605	159	581
Tennessee	1,002	990	65	69	956	1,030	59	50	1,958	2,020	123	119
Alabama	2,746	2,684	183	200	658	588	42	32	3,404	3,272	225	232
Mississippi	2,145	2,037	160	156	1,012	886	49	35	3,156	2,922	209	191
Arkansas	3,397	3,248	255	251	1,816	1,639	142	50	5,213	4,887	397	300
Louisiana	622	653	61	61	1,197	1,167	30	23	1,819	1,820	91	84
Oklahoma	3,136	3,441	269	325	842	779	119	127	3,978	4,220	388	452
Texas	8,484	9,162	743	835	4,588	4,181	243	320	13,071	13,344	986	1,155
Western												
Montana	932	1,102	81	107	787	704	38	47	1,719	1,806	119	154
Idaho	1,616	1,628	168	186	1,666	1,761	148	138	3,282	3,389	317	324
Wyoming	679	795	54	109	171	160	4	9	850	954	57	118
Colorado	3,016	3,332	247	336	1,305	1,229	86	122	4,321	4,561	333	458
New Mexico	1,441	1,613	141	165	529	473	76	57	1,969	2,086	217	222
Arizona	991	1,063	97	117	1,233	1,226	96	49	2,224	2,290	193	167
Utah	713	770	64	67	244	240	13	22	957	1,010	77	89
Nevada	212	237	18	15	126	149	17	25	338	386	35	40
Washington	1,648	1,710	159	155	3,201	3,339	247	313	4,849	5,050	406	467
Oregon	793	826	69	75	2,195	2,223	116	199	2,988	3,049	186	274
California	6,651	6,269	628	657	18,346	19,241	1,927	1,903	24,997	25,510	2,555	2,560
Alaska	29	32	3	3	21	20	2	2	50	52	5	5
Hawaii	88	87	8	7	444	444	37	40	532	530	45	47
U.S.	95,547	99,473	8,632	9,592	92,585	94,113	6,086	7,612	188,132	193,586	14,719	17,204

Annual values for the most recent year are preliminary. Estimates as of end of current month. Totals may not add because of rounding.

1. Sales of farm products include receipts from commodities placed under nonrecourse CCC loans, plus additional gains realized on redemptions during the period. Information contact: Larry Traub (202) 694-5593 or ltraub@ers.usda.gov. To receive current monthly cash receipts via e-mail, contact Larry Traub.

Table 35—CCC Net Outlays by Commodity & Function

	Fiscal year									
	1993	1994	1995	1996	1997	1998	1999	2000	2001 ⁴	2002 ⁴
	\$ million									
Commodity/Program										
Feed grains:										
Corn	5,143	625	2,090	2,021	2,587	2,873	5,402	10,135	4,355	3,434
Grain sorghum	410	130	153	261	284	296	502	979	268	313
Barley	186	202	129	114	109	168	224	397	147	104
Oats	16	5	19	8	8	17	41	61	60	24
Corn and oat products	10	10	1	0	0	0	0	5	14	8
Total feed grains	5,765	972	2,392	2,404	2,988	3,354	6,169	11,577	4,844	3,883
Wheat and products	2,185	1,729	803	1,491	1,332	2,187	3,435	5,320	1,645	1,225
Rice	887	836	814	499	459	491	911	1,774	950	1,026
Upland cotton	2,239	1,539	99	685	561	1,132	1,882	3,808	1,095	1,871
Tobacco	235	693	-298	-496	-156	376	113	634	24	-97
Dairy	253	158	4	-98	67	291	480	684	1,232	100
Soybeans	109	-183	77	-65	5	139	1,289	2,839	3,029	2,765
Peanuts	-13	37	120	100	6	-11	21	35	65	0
Sugar	-35	-24	-3	-63	-34	-30	-51	465	-45	-37
Honey	22	0	-9	-14	-2	0	2	7	31	-10
Wool and mohair	179	211	108	55	0	0	10	-2	23	-1
Operating expense ¹	6	6	6	6	6	5	4	60	5	5
Interest expenditure	129	-17	-1	140	-111	76	210	736	319	546
Export programs ²	2,193	1,950	1,361	-422	125	212	165	216	171	641
1988-2000 Disaster/tree/ livestock assistance	944	2,566	660	95	130	3	2,241	1,452	2,799	0
Conservation Reserve Program	0	0	0	2	1,671	1,693	1,462	1,511	1,700	1,796
Other conservation programs	0	0	0	7	105	197	292	263	366	283
Other	949	-137	-103	320	104	28	588	886	1,820	1,287
Total	16,047	10,336	6,030	4,646	7,256	10,143	19,223	32,265	20,073	15,283
Function										
Price support loans (net)	2,065	527	-119	-951	110	1,128	1,455	3,369	3,125	3,813
Cash direct payments: ³										
Production flexibility contract	0	0	0	5,141	6,320	5,672	5,476	5,057	4,074	3,949
Market loss assistance	0	0	0	0	0	0	3,011	11,046	853	0
Deficiency	8,607	4,391	4,008	567	-1,118	-7	-3	1	0	0
Loan deficiency	387	495	29	0	0	478	3,360	6,419	5,565	4,908
Oilseed	0	0	0	0	0	0	0	460	496	0
Cotton user marketing	114	149	88	34	6	416	280	446	203	85
Other	35	22	9	61	1	0	1	460	553	14
Conservation Reserve Program	0	0	0	2	1,671	1,693	1,435	1,476	1,672	1,796
Other conservation programs	0	0	0	0	85	156	247	215	306	233
Noninsured Assistance (NAP)	0	0	0	2	52	23	54	38	169	159
Total direct payments	9,143	5,057	4,134	5,807	7,017	8,431	13,861	25,618	13,891	11,144
1988-2000 crop disaster	872	2,461	577	14	2	-2	1,913	1,251	2,250	0
Emergency livestock/tree/DRAP livestock indemn./forage assist.	72	105	83	81	128	5	328	201	549	0
Purchases (net)	525	293	-51	-249	-60	207	668	120	-1,334	-1,792
Producer storage payments	9	12	23	0	0	0	0	0	0	0
Processing, storage, and transportation	136	112	72	51	33	38	62	81	109	86
Export donations ocean transportation	352	156	50	69	34	40	323	370	448	335
Operating expense ¹	6	6	6	6	6	5	4	60	5	5
Interest expenditure	129	-17	-1	140	-111	76	210	736	319	546
Export programs ²	2,193	1,950	1,361	-422	125	212	165	216	171	641
Other	545	-326	-105	100	-28	3	234	243	540	505
Total	16,047	10,336	6,030	4,646	7,256	10,143	19,223	32,265	20,073	15,283

1. Does not include CCC Transfers to General Sales Manager. 2. Includes Export Guarantee Program, Direct Export Credit Program, CCC Transfers to the General Sales Manager, Market Access (Promotion) Program, starting in FY 1991 and starting in FY 1992 the Export Guarantee Program - Credit Reform, Export Enhancement Program, Dairy Export Incentive Program, and Technical Assistance to Emerging Markets, and starting in FY 2000 Foreign Market Development Cooperative Program and Quality Samples Program. 3. Includes cash payments only. Excludes generic certificates in FY 1986-96.

4. Estimated in FY 2002 Mid-Session Review Budget which was released on August 22, 2001 based on May 2001 supply & demand estimates. The CCC outlays shown for 1996-2002 include the impact of the Federal Agriculture Improvement and Reform Act of 1996, which was enacted on April 4, 1996, and FY 2000-FY 2002 outlays include the impact of the Agricultural Risk Protection Act of 2000, which was enacted on June 20, 2000. FY 2001 outlays do not include the impact of the \$5.5 billion of payments mandated by P.L. 107-25.

Minus (-) indicates a net receipt (excess of repayments or other receipts over gross outlays of funds).

Information contact: Richard Pazdalski, Farm Service Agency-Budget at (202) 720-3675 or Richard_Pazdalski@wdc.fsa.usda.gov

Food Expenditures

Table 36—Food Sales

	Annual			2001			Year-to-date cumulative		
	1998	1999	2000	Jul	Aug	Sep	Jul	Aug	Sep
<i>\$ billion</i>									
Sales ¹									
At home ²	390.1	407.6	442.4	37.7	38.6	36.2	257.3	295.9	332.1
Away from home ³	310.4	332.7	359.9	32.0	32.8	29.3	214.3	247.1	276.4
<i>1998 \$ billion</i>									
Sales ¹									
At home ²	390.1	400.0	424.4	35.0	35.7	33.4	240.3	276.0	309.4
Away from home ³	310.4	324.3	341.7	29.6	30.2	26.9	199.9	230.1	257.0
<i>Percent change from year earlier (\$ billion)</i>									
Sales ¹									
At home ²	3.9	4.5	8.5	1.0	3.3	-0.4	3.0	3.0	2.6
Away from home ³	4.4	7.2	8.2	3.9	7.4	-0.7	4.7	5.0	4.4
<i>Percent change from year earlier (1998 \$ billion)</i>									
Sales ¹									
At home ²	1.6	2.5	6.1	-2.2	0.1	-3.4	-0.4	-0.3	-0.6
Away from home ³	1.7	4.5	5.4	0.9	4.2	-3.6	1.9	2.2	1.6

-- = Not available. 1. Food only (excludes alcoholic beverages). Not seasonally adjusted. 2. Excludes donations and home production. 3. Excludes donations, child nutrition subsidies, and meals furnished to employees, patients, and inmates. *Information contact: Annette Clauson (202) 694-5389*

Note: This table differs from Personal Consumption Expenditures (PCE), U.S. Department of Commerce, table 2, for several reasons: (1) this series includes only food, excluding alcoholic beverages and pet food which are included in PCE; (2) this series is not seasonally adjusted, whereas PCE is seasonally adjusted at annual rates; (3) this series reports sales only, but PCE includes food produced and consumed on farms and food furnished to employees; (4) this series includes all sales of meals and snacks, while PCE includes only purchases using personal funds, excluding business travel and entertainment. For a more complete discussion of the differences, see *Developing an Integrated Information System for the Food Sector*, ERS AER-575, Aug. 1987.

Transportation

Table 37—Rail Rates; Grain & Fruit-Vegetable Shipments

	Annual			2000			2001			
	1998	1999	2000	Sep	Apr	May	Jun	Jul	Aug	Sep
Rail freight rate index ¹ (Dec. 1984=100)										
All products	113.4	113.0	114.5	114.7	115.7	115.8	116.1	116.3	116.3	116.3
Farm products	123.9	121.7	123.1	124.4	123.9	123.9	124.0	125.6	124.6	124.7
Grain food products	107.4	99.7	100.4	100.6	102.6	102.6	102.9	102.9	103.8	103.4
Grain shipments										
Rail carloadings (1,000 cars) ²	22.8	24.2	23.2	22.8	20.6	18.0	20.1	20.2	21.4	20.7
Barge shipments (mil. ton) ³	3.0	3.5	3.1	2.7	2.5	2.1	4.2	4.3	3.9	--
Fresh fruit and vegetable shipments ⁴										
Piggy back (mil. cwt)	0.9	0.7	0.8	0.8	0.7	1.1	1.0	1.0	0.7	0.7
Rail (mil. cwt)	1.2	1.1	1.4	1.2	1.1	1.7	2.2	1.2	0.9	0.9
Truck (mil. cwt)	42.2	45.2	45.0	39.4	48.2	57.4	56.8	43.9	42.5	37.1

-- = Not available. 1. Department of Labor, Bureau of Labor Statistics. 2. Weekly average; from Association of American Railroads. 3. Shipments on Illinois and Mississippi waterways, U.S. Corps of Engineers. 4. Annual data are monthly average. Agricultural Marketing Service, USDA. *Information contact: Allen Baker (202) 694-5290*

Indicators of Farm Productivity

Table 38—Indexes of Farm Production, Input Use, & Productivity¹

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
<i>1992 = 100</i>										
Farm output	88	83	89	94	94	100	94	107	101	106
All livestock products	92	93	94	95	98	100	100	108	110	109
Meat animals	95	97	97	96	99	100	100	102	103	100
Dairy products	94	96	95	98	98	100	99	114	115	115
Poultry and eggs	81	83	86	92	96	100	104	110	114	119
All crops	86	75	86	92	92	100	90	106	96	103
Feed crops	84	62	85	88	86	100	76	102	83	98
Food crops	84	76	83	107	82	100	96	97	90	93
Oil crops	88	72	88	87	94	100	85	115	99	107
Sugar	95	91	91	92	96	100	95	106	98	94
Cotton and cottonseed	92	96	75	96	109	100	100	122	110	117
Vegetables and melons	90	81	85	93	97	100	97	113	108	112
Fruit and nuts	95	102	98	97	96	100	107	111	102	102
Farm input ¹	101	100	100	101	102	100	101	102	101	100
Farm labor	101	103	104	102	106	100	96	96	92	100
Farm real estate	100	100	102	101	100	100	98	99	98	99
Durable equipment	120	113	108	105	103	100	97	94	92	89
Energy	102	102	101	100	101	100	100	103	109	104
Fertilizer	106	97	94	97	98	100	111	109	85	89
Pesticides	92	79	93	90	100	100	97	103	94	106
Feed, seed, and purchased livestock	97	96	91	99	99	100	101	102	109	95
Inventories	102	98	93	97	100	100	104	99	108	104
Farm output per unit of input	87	83	90	93	92	100	94	105	100	106
Output per unit of labor										
Farm ²	87	81	86	92	89	100	98	111	110	106
Nonfarm ³	95	95	96	96	97	100	100	101	--	--

-- = Not available. Values for latest year preliminary. 1. Includes miscellaneous items not shown separately. 2. Source: Economic Research Service.

3. Source: Bureau of Labor Statistics. *Information contact: John Jones (202) 694-5614*

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Food Supply & Use

Table 39—Per Capita Consumption of Major Food Commodities¹

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
	Lbs.									
Red meats ^{2,3,4}	112.3	111.9	114.0	112.1	114.7	115.1	112.8	111.0	115.6	117.7
Beef	63.9	63.1	62.8	61.5	63.6	64.4	65.0	63.8	64.9	65.8
Veal	0.9	0.8	0.8	0.8	0.8	0.8	1.0	0.9	0.7	0.6
Lamb & mutton	1.0	1.0	1.0	1.0	0.9	0.9	0.8	0.8	0.9	0.9
Pork	46.4	46.9	49.4	48.9	49.5	49.0	45.9	45.5	49.2	50.5
Poultry ^{2,3,4}	56.3	58.3	60.8	62.5	63.3	62.9	64.1	64.2	65.0	68.3
Chicken	42.4	44.2	46.7	48.5	49.3	48.8	49.5	50.3	50.8	54.2
Turkey	13.8	14.1	14.1	14.0	14.1	14.1	14.6	13.9	14.2	14.1
Fish and shellfish ³	15.0	14.8	14.7	14.9	15.1	14.9	14.7	14.5	14.8	15.2
Eggs ⁴	30.2	30.1	30.3	30.4	30.6	30.2	30.4	30.7	31.8	32.8
Dairy products										
Cheese (excluding cottage) ^{2,5}	24.6	25.0	26.0	26.2	26.8	27.3	27.7	28.0	28.3	29.8
American	11.1	11.1	11.3	11.4	11.5	11.8	12.0	12.0	12.2	13.0
Italian	9.0	9.4	10.0	9.8	10.3	10.4	10.8	11.0	11.3	11.8
Other cheeses ⁶	4.5	4.6	4.7	5.0	5.0	5.0	5.0	5.0	4.8	5.0
Cottage cheese	3.4	3.3	3.1	2.9	2.8	2.7	2.6	2.7	2.7	2.7
Beverage milks ²	221.8	221.1	218.2	213.4	213.6	209.8	210.0	206.8	204.6	203.8
Fluid whole milk ⁷	90.4	87.3	84.0	80.1	78.8	75.3	74.6	72.7	71.6	72.4
Fluid lower fat milk ⁸	108.5	109.9	109.2	106.6	106.0	102.6	101.7	99.8	98.6	98.2
Fluid skim milk	22.9	23.9	25.0	26.7	28.8	31.9	33.7	34.3	34.4	33.2
Fluid cream products ⁹	7.6	7.7	8.0	8.0	8.1	8.4	8.7	9.0	9.2	9.7
Yogurt (excluding frozen)	4.0	4.2	4.2	4.3	4.7	5.1	4.8	5.1	5.1	4.9
Ice cream	15.8	16.3	16.3	16.1	16.1	15.7	15.9	16.4	16.6	16.8
Lowfat ice cream ¹⁰	7.7	7.4	7.1	6.9	7.6	7.5	7.6	7.9	8.3	7.9
Frozen yogurt	2.8	3.5	3.1	3.5	3.5	3.5	2.6	2.1	2.2	2.1
All dairy products, milk equivalent, milkfat basis ¹¹	568.3	565.6	565.8	574.1	585.9	583.8	574.6	577.6	581.7	597.9
Fats and oils--total fat content	63.0	64.8	66.8	69.7	68.0	66.3	65.3	64.9	65.6	68.5
Butter and margarine (product weight)	15.3	15.0	15.4	15.8	14.7	13.7	13.5	12.8	12.8	12.9
Shortening	22.2	22.4	22.4	25.1	24.1	22.5	22.3	20.9	21.0	21.6
Lard and edible tallow (direct use)	2.2	1.8	3.5	3.4	4.2	4.3	4.8	4.1	5.2	5.7
Salad and cooking oils	25.3	26.4	27.2	26.9	26.2	26.9	26.1	28.6	27.9	29.4
Fruits and vegetables ¹²	656.0	650.2	677.5	691.4	705.6	694.3	710.8	717.9	702.4	719.0
Fruit	272.6	255.3	283.7	283.2	290.9	284.9	290.2	296.9	284.4	297.9
Fresh fruits	116.3	113.0	123.5	124.5	126.3	124.1	128.1	131.9	131.3	132.5
Canned fruit	21.0	19.8	22.9	20.7	21.0	17.5	18.8	20.4	17.4	19.6
Dried fruit	12.1	12.3	10.8	12.6	12.8	12.8	11.3	10.8	12.4	10.5
Frozen fruit	3.8	3.8	3.9	3.7	3.8	4.2	4.0	3.7	4.2	3.7
Selected fruit juices	119.0	106.0	121.9	121.3	126.6	125.9	127.8	129.3	118.8	131.0
Vegetables	383.5	394.9	393.9	408.2	414.6	409.4	420.6	421.0	418.0	421.2
Fresh	167.1	167.4	171.1	178.1	184.5	179.1	184.1	188.9	185.5	192.1
Canning	111.5	114.3	112.2	112.8	112.3	110.8	109.5	107.8	109.3	105.7
Freezing	66.8	72.6	70.9	76.0	78.4	79.9	84.6	83.0	81.8	82.5
Dehydrated and chips	31.0	32.8	31.5	33.6	31.0	31.3	34.5	33.3	33.4	32.3
Pulses	7.1	7.8	8.1	7.7	8.4	8.4	8.0	8.1	7.9	8.6
Peanuts (shelled)	6.0	6.5	6.2	6.1	5.8	5.7	5.7	5.9	5.9	6.4
Tree nuts (shelled)	2.4	2.2	2.2	2.4	2.3	1.9	2.0	2.1	2.3	2.7
Flour and cereal products ¹³	181.0	182.7	185.7	190.7	194.0	192.8	199.2	200.9	198.4	201.9
Wheat flour	136.0	137.0	138.9	143.3	144.5	141.8	148.7	149.5	146.0	148.4
Rice (milled basis)	15.8	16.2	16.7	16.7	18.1	18.9	17.8	18.4	18.9	19.4
Caloric sweeteners ¹⁴	136.9	137.9	141.2	144.5	147.4	149.8	150.7	154.0	155.1	158.4
Coffee (green bean equiv.)	10.3	10.3	10.0	9.1	8.2	8.0	8.9	9.3	9.5	10.0
Cocoa (chocolate liquor equiv.)	4.3	4.6	4.6	4.3	3.9	3.6	4.2	4.1	4.4	4.6

1. In pounds, retail weight unless otherwise stated. Consumption normally represents total supply minus exports, nonfood use, and ending stocks. Calendar-year data, except fresh citrus fruits, peanuts, tree nuts, and rice, which are on crop-year basis. 2. Totals may not add due to rounding. 3. Boneless, trimmed weight. Chicken series revised to exclude amount of ready-to-cook chicken going to pet food as well as some water leakage that occurs when chicken is cut up before packaging. 4. Excludes shipments to the U.S. territories. 5. Whole and part-skim milk cheese. Natural equivalent of cheese and cheese products. 6. Includes Swiss, Brick, Muenster, cream, Neufchatel, Blue, Gorgonzola, Edam, and Gouda. 7. Plain and flavored. 8. Plain and flavored, and buttermilk. 9. Heavy cream, light cream, half and half, eggnog, sour cream, and dip. 10. Formerly known as ice milk. 11. Includes condensed and evaporated milk and dry milk products. 12. Farm weight. 13. Includes rye, corn, oats, and barley products. Excludes quantities used in alcoholic beverages, corn sweeteners, and fuel. 14. Dry weight equivalent.

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