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Cover Photo: Hog and cattle farm, Pennsylvania. Grant Heilman Photography

Farm Sector Outlook for 1997 . . . & USDA's Baseline Scenario for 1997-2005

U.S. Agricultural Outlook in 1997

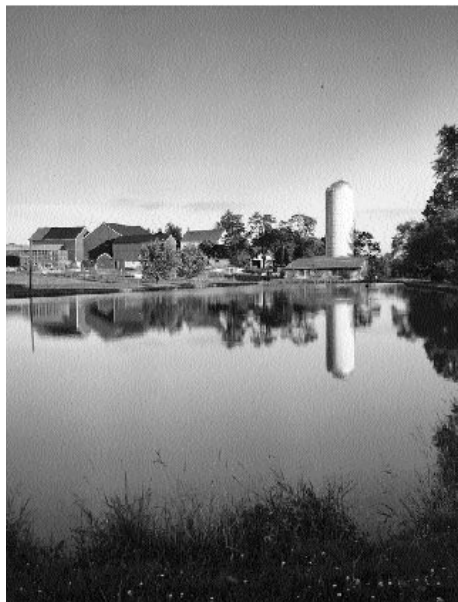
The U.S. agricultural economy is in a relatively strong position following record farm cash receipts of nearly \$200 billion in 1996. Positive macroeconomic conditions continue to provide a supportive backdrop in 1997. The farm sector balance sheet is expected to improve again in 1997, as asset values rise more than debt increases. Total receipts are likely to decline slightly from last year's record, and overall production expenses, while held in check by lower feed costs, will rise modestly. Consequently, net cash farm income is forecast to decline to about halfway between the \$57 billion of 1996 and the \$49 billion of 1995.

Fast Forward to 2005—Globally . . .

Robust growth in global import demand for agricultural products will be the major force in international commodity markets through 2005. In USDA's global baseline analysis, U.S. high-value exports, including meats and horticultural products, will continue to show strong growth, generally outpacing bulk exports and accounting for a growing share of U.S. farm exports. Strong U.S. export growth is also projected for bulk commodities in these years, particularly feed grains and wheat, driven largely by growth prospects in developing countries. International bulk commodity supplies will tighten, slowing the long-term downward trend in inflation-adjusted prices. The extent to which global supplies will respond in an environment of firmer prices is a key uncertainty in the outlook.

. . . and Domestically

As the world's leading grain exporter and a significant meat exporter, the U.S. stands to benefit from projected gains in international grain demand and higher commodity prices through 2005. And greater market orientation in the domestic agricultural sector under the new farm legislation puts U.S. farmers in a favorable position to compete in the global marketplace. As a result, the positive



international outlook is echoed, for the most part, in the U.S. farm sector.

U.S. net farm income, in nominal terms, falls for 2 years from recent highs in 1996, then rises through 2005. The agricultural sector relies increasingly on the marketplace for its income, as direct government payments fall through 2002 and represent less than 3 percent of gross cash income beyond 2000. Four principal assumptions support the optimistic baseline scenario: strong growth in demand; continuation of current domestic policy; multilateral and unilateral trade policy reform in other countries; and structural change in U.S. agriculture.

Food CPI to Climb 2.5-3 Percent

The Consumer Price Index (CPI) for food in 1997 is forecast to rise 2.5-3 percent, down from last year's 3.3-percent gain. Overall inflation (measured by changes in the all-items CPI) is forecast to increase just over 3 percent. This should keep a lid on costs of food production and marketing—e.g., labor, packaging, transportation, and advertising—which account for about 75 percent of retail food costs. The away-from-home CPI is forecast to rise 2-3 percent in

1997, with the at-home component up 2.5-3.5 percent.

5th Year of Rising Farm Credit Use

Demand for farm credit is expected to increase again in 1997 after growing since 1992. Total farm business debt—real estate and nonreal estate loans—is forecast to reach about \$160 billion by the end of 1997, up about 2.7 percent from 1996 and the highest since 1985. Continued economic growth, relatively strong field crop prices, and increased farm incomes in 1996 are behind much of this year's expected expansion.

Credit availability should be ample for agriculture and rural business borrowers in 1997, while general interest rates may rise slightly by the second half of 1997. Commercial banks in the first quarter have continued to ease credit standards for lending to businesses, including small firms. The easing of credit standards and the desire to expand business lending has led to a narrowing of business lending spreads (the difference between the loan rate charged by the bank and the bank's cost of funds) as well as greater availability of funds for business lending.

Exporters Target U.S. Asparagus Market

The U.S. is one of the world's largest producers and consumers of fresh asparagus. In the past, fresh asparagus was consumed in the U.S. only in the first half of the year, when domestic product was available. Thanks to soaring imports (mostly from Mexico and Peru)—up 74 percent in the 1990's—fresh asparagus is now available year-round. But imports arrive not only during the off-season. They also come in during the U.S. season beginning in January, reducing the early-season price premium. U.S. asparagus production has declined since 1989 but is expected to increase in 1997, boosting supply in the next few years. Under these conditions, U.S. producers should expect downward pressure on prices.

Agricultural Economy



Bolzer, Inc.

U.S. Agricultural Outlook For 1997

Well into 1997, the U.S. agricultural economy is in a relatively strong position. Farm cash receipts set a record of nearly \$200 billion in 1996, with crop receipts rising substantially above the average of the 1990's and livestock receipts close to the average. This year, total receipts are likely to decline slightly from the record, as lower grain receipts reduce the total return to crops. But livestock receipts will rise as cattle more than offset the decline in dairy.

Overall production expenses, while held in check by lower feed costs, will rise a little. Consequently, net cash farm income is forecast to decline to about halfway between the \$57 billion of 1996 and the \$49 billion of 1995, making it about equal to the average of the 1990's. Areas of concern continue to be those farming regions affected by bad weather, and the financial pressures on cattle and dairy producers who have had to reduce cash balances or incur debt in 1996.

The farm sector balance sheet is expected to improve again in 1997 as asset values rise more than debt increases. Farm real

estate values have risen every year since the mid-1980's, and a 5-percent increase is expected in 1997. Farmers will take on more debt for the fifth year in a row, but the overall debt-to-asset ratio is expected to decline to a healthy range of 14.5-15 percent.

Taxpayers will see stability in farm program costs, with direct government payments forecast at \$7.6 billion for 1997, which would account for only 3.5 percent of gross farm income. By the time the 1996 Farm Act expires in 2002, government payments are expected to drop to 2.6 percent of gross farm income.

Consumers will see a year of modest food price increases in 1997. Meat and dairy product prices will restrain food price increases, keeping them in the range of 2.5-3 percent. In 1996, food prices rose 3.3 percent above the 1995 level but below what many expected given the record-high levels of grain and milk prices.

Macroeconomy Bodes Well For Agriculture

One can go a long way in assessing the prospects for agricultural markets by knowing how strong world food demand will be and how global crop yields will turn out. Although little is known yet about 1997 crop yields, it is possible to learn something about underlying demand by looking at its two major determining factors: global incomes and prices.

The projections and discussion in this article are drawn from a presentation at USDA's 1997 Agricultural Outlook Forum held in Washington, D.C. on February 24-25, 1997. Near-term numbers reflect official USDA data as of February 24, 1997, the date of presentation at the Forum. Long-term numbers were prepared in October through December 1996 and are published in USDA's *Agricultural Baseline Projections to 2005, Reflecting the 1996 Farm Act*, released in February 1997.

Global incomes appear to support strong food demand in 1997, which is good news for food exporting nations such as the U.S. Real global Gross Domestic Product is expected to grow nearly 3 percent—roughly the same as last year's 2.9 percent, but up sharply from the 1.9-percent annual growth during 1990-95. This should help to keep global food demand strong despite high commodity prices.

Almost every major country in the world is expected to have positive real growth in 1997. Each of the 28 OECD economies is expected to grow for the first time in 10 years. The only drag continues to be the Newly Independent States of the former Soviet Union and the Baltics, where positive growth is still a couple of years away.

From a consumer's viewpoint, global commodity prices also look favorable. U.S. farm product export prices have fallen substantially from their second-quarter (1996) peaks and should continue to do so as grain supplies rebuild in 1997.

One price factor to watch in 1997 is exchange rates. The dollar is now about 20 percent stronger against the yen than in 1995. That has the effect of raising U.S. export prices and will partly offset some of the U.S. crop price declines in 1997. It will especially hurt meat and other high-value exports whose prices are not dropping in 1997. The stronger dollar will also add to the overall U.S. trade deficit, which will be a restraining factor in U.S. economic growth. Even so, the U.S. economy is expected to grow at about 2.5 percent during 1997.

Some positive news for U.S. exporters is that, although the dollar is strengthening generally, its real value—in agricultural trade-weighted terms—is now only moderately above the level of the past 2 years when measured against West European and Asian currencies, excluding Japan. And the Mexican peso continues to show stability at about 7.9 pesos per dollar.

Two key factors influencing farmers' costs are energy prices and interest rates. Farmers faced 11-percent-higher fuel costs in 1996, spending a total of \$6.3 billion as crude oil prices rose from \$17 a

Agricultural Economy

Economic Indicators Point to a Healthy U.S. Farm Sector

	Average 1990-94	1995	1996	1997
<i>\$ billion</i>				
Farm receipts ¹	182	186	200	194
Agricultural exports	41	55	60	57
CCC outlays ²	11	6	5	8
Government payments	10	7	8	8
Balance sheet aggregates				
Assets	880	978	1,035	1,094
Liabilities	141	151	155	159
Equity	739	827	880	935
<i>\$/acre</i>				
Farm real estate	723	832	890	N/A ³
Returns by commodity ⁴				
Corn	167	192	203	197
Wheat	88	98	115	80
Soybeans	133	163	185	175
Cotton	224	150	286	226
<i>\$/cow</i>				
Cow/calf	86.3	-17.7	-39.0	-27.2
<i>\$/cwt</i>				
Hogs	7.0	5.4	11.0	13.5
Chickens	4.8	7.6	4.4	4.6
<i>\$/cwt of milk</i>				
Dairy	2.3	2.2	2.3	2.0

1996 forecast; 1997 projected. Dairy data are on a marketing-year basis; all other data are on a calendar-year basis unless otherwise indicated.

1. Includes farm-related income. 2. Fiscal year. 3. Not available. 4. For **crops**: returns over variable costs for program participants and soybean producers for crop years; for **cow/calf**, **hogs (farrow-to-finish)**, and **dairy**: returns over cash costs; for **chickens**: returns over total costs.

Office of the Chief Economist, USDA

barrel in 1995 to more than \$22 in late 1996. Fuel spending will be up a little in 1997, but crude oil prices are expected to drop back down toward \$20 as the year unfolds.

Interest rates could be slightly higher in 1997, reflecting the above-trend growth in the U.S. Gross Domestic Product of the past few quarters and the tighter labor market. However, the outcome will depend on the Federal Reserve Board, which will be considering the offsetting effects of lower expected food and energy price increases and lower prices for imports due to the strength of the dollar.

Farmers' total interest expenses will likely be a little over \$13 billion, about the same as in the past 2 years.

Behind the aggregate farm-sector numbers are varying circumstances across commodities that shape near-term conditions in agricultural markets and the U.S. farm economy. In addition, the pieces of several remaining puzzles must come together before this outlook becomes a certainty. These involve grain prices, planting flexibility, ethanol production, the cattle cycle, and price volatility.

Crop Market Developments

A year ago, this forum was deeply concerned about the looming shortage of grains and the prospect of a major disruption of livestock production and escalating consumer food prices. Corn, wheat, and soybean prices had seen a 10-16-month runup, and further price increases were anticipated. Grains did turn out to be in short supply, and prices soared to

levels not predicted at this Forum or anywhere else, as grain stocks reached record or near-record lows and domestic and export demand was strong.

A year later, the moderating effect of larger 1996 crops is evident. Monthly average farm-level wheat prices fell steadily from last May's record high to below \$4 per bushel in January—a 31-percent drop. Corn prices declined by about 41 percent from the record high last July, leveling out to \$2.63 per bushel in December and January. In contrast, soybean prices, while they declined 12 percent through November from their August peak, have increased since then to \$7.16 per bushel in January.

Wheat prices are expected to remain under considerable pressure as U.S. and global carryover stocks rise, although not to high levels by historical standards. Last year's high wheat prices caused foreign wheat acreage to expand by 5 percent, resulting in a harvest of record or near-record crops. That was the largest annual increase in foreign wheat area recorded in the USDA database, which starts in 1960.

Outlook Puzzle Number 1: How Low Will Wheat Prices Go?

Averaged over the 1980-95 period, farm prices for wheat bottom out in July at about 94 percent of the season average and peak in May at 106 percent. Based on the forecast season-average price for wheat of \$3.45 per bushel for 1997/98, monthly prices would reach a low of \$3.25 per bushel in July and rise to \$3.65 by May 1998.

However, in years of significant stock growth since 1980—when stocks rose 20 percent or more from the previous year—wheat prices exhibited a different pattern. Starting higher and declining earlier in the crop year, prices reached a trough in late summer before generally rising through early May, but remained below the price-pattern average across all years. Under this stocks-growth pattern, 1997/98 wheat prices would bottom out at about \$3.35 in September, rising to \$3.55 in May 1998.

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Outlook Puzzle Number 2: Will Ethanol Perform?

High corn costs led corn used in ethanol to fall to 396 million bushels in 1995/96, down 26 percent from a year earlier. Corn costs will be lower this year and gasoline prices a little higher than in recent years, so a recovery to 440 million bushels is expected for 1996/97. Further gains are expected in 1997/98, but it will likely be at least another year before corn use for ethanol reaches 1994/95's 533 million.

The peak ethanol production period is in the fall and early winter when high-fructose corn syrup (HFCS) production is down and the winter oxygenate program is in effect. But ethanol production this past fall did not snap back sharply, limiting this season's prospects, although year-over-year production increases are likely as the year progresses. While corn used in ethanol between 1994/95 and 1996/97 is expected to drop by about 90 million bushels, corn for HFCS and beverage alcohol is expected to rise about 60 million. Increasing HFCS and beverage alcohol exports will help support corn industrial use while ethanol recovers.

Outlook Puzzle Number 3: What Will Farmers Plant This Spring?

In 1996, 335 million acres was planted to principal crops, the highest level since 1986 and up nearly 17 million acres from 1995. With producers responding to rising prices, corn and wheat acreage accounted for 90 percent of the increase. Sorghum and soybean acreage was also up, while rice, cotton, and minor oilseed acreage was down.

The amount of cropland available for 1997 planting to principal crops is as large as last year, and as much as 1 to 2 million acres withdrawn early from the Conservation Reserve Program (CRP) in 1996 might be planted. About 22 million acres currently enrolled in the CRP are under contracts that expire at the end of September, and some of that acreage is likely to be available for 1998 planting.

Planted acreage this year is likely to be down slightly from 1996, largely because of plantings of other crops on failed wheat acres last year. Land that is planted to wheat, then replanted to another crop such as sorghum, is counted twice in the planted acres total. Total wheat acreage is expected to be down because of the 7-percent decline in winter wheat acreage and lower price expectations than a year ago for spring wheat plantings.

Corn and soybean acreage is likely to increase, capturing some of the wheat land. Corn could total 81 million acres, near where it might have been last year had planting weather not been bad. Soybeans, with current favorable prices, could reach 64.5 million acres or even exceed 65 million, the highest since 1984. Rice acreage may increase marginally to 2.9 million with favorable prices, and cotton acreage could decline slightly to 13.8 million, as feed grains and soybeans look attractive.

Although larger stocks of wheat and corn than a year earlier will be carried into 1997/98, U.S. grain stocks are relatively tight, and soybean stocks are the lowest since 1976. With normal weather, 1997/98 could see wheat production match 1996's 2.28 billion bushels and stocks rise toward 550 million bushels. Corn production could total close to 9.6 billion bushels, the second highest ever, and stocks could rise to more than 1.2 billion bushels. Soybean production could total 2.5 billion, and with lower exports, stocks could rise to 220 million bushels. Season-average prices would be below 1996/97 and export supplies would rise. But U.S. crops will face especially strong competition, given large competitor supplies.

Reduced yields in the U.S. made it the only major wheat exporter with a decrease in wheat supplies in 1996/97. As a result, U.S. exports declined. U.S. wheat sales have plummeted in recent months as foreign exporters such as Argentina and Australia have traded aggressively. U.S. sales are expected to remain slow through this summer because of continued large exportable supplies in competing countries.

For the 1997/98 season, U.S. wheat production is expected to be similar to this year. However, smaller crops are expected in all the major exporting countries except the European Union (EU). This should provide an opportunity for a recovery in U.S. exports from the reduced level of 950 million bushels expected this season. However, the degree of recovery will depend on the size of the U.S. crop, and on whether China's wheat imports bounce back from the 4 million tons expected this season to something nearer the 10-million-ton average of the previous 5 years.

This year's *corn* prices may be relatively firmer than wheat. While corn carryover stocks are expected to more than double by September, they are still expected to be relatively tight, below 1 billion bushels. Feed and industrial uses are rising. However, exports will be down this season, as corn from Argentina, South Africa, and China, and barley from Canada and the EU, are providing increased competition. In 1997, U.S. production is forecast to rise again, but higher exports and domestic use during the 1997/98 marketing year are expected to limit the increase in carryover stocks to only about 300 million bushels by September of 1998.

Soybean stocks are declining, in contrast to wheat and corn. By this September, U.S. soybean stocks are projected to be the lowest in 20 years, which will mean an increase in farm-level soybean prices in 1996/97. What is going on?

First, Brazil had a reduced crop last year, which opened markets globally for the U.S. and even made Brazil a U.S. customer this past fall. Second, China imported record quantities in October-

December—950,000 tons of soybean meal compared with zero the year before. That is nearly 8 percent of total world trade purchased in one calendar quarter by one country.

However, China's needs appear to be met, and record soybean production in both Argentina and Brazil has started coming to market. As a result, U.S. exports are expected to slow during the March-September period. In 1997, a modest increase in U.S. production and a return to a more typical export level is expected, which should raise 1997/98 carryover stocks and reduce prices.

For *cotton*, extremely tight U.S. stocks last summer led to imports of 800,000 bales, making the U.S. a large cotton importer. However, imports have slowed to a trickle since completion of the second-largest U.S. cotton harvest ever. Stocks will rise 80 percent by August, despite larger U.S. mill use buoyed by the continuing strong economy and increased cotton textile exports.

Raw cotton exports continue to decrease in the face of 10 straight years of flat global demand and reduced imports by China. In the Western Hemisphere, cotton use continues to grow, but elsewhere in the world, growth in textile demand is increasingly being met by manmade fiber, a challenge the U.S. cotton industry must deal with if exports are to grow in the future.

The *rice* outlook has taken a surprising turn, reflecting reduced returns to planting under the 1996 Farm Act. Production and exports were down in 1996 as expected. However, late harvests in Asia and tight long grain supplies worldwide boosted international prices in December and January. As a result, U.S. rice area may actually increase in 1997.

For *sugar*, the major development is the level of imports under the tariff-rate quota in 1996/97. That level is now expected to total 2.27 million short tons, after the January tariff-rate-quota allocation of 220,000 tons was canceled because the forecast U.S. stocks-to-use ratio was above 15.5 percent. (The March allocation has been authorized.) Imports

Outlook Puzzle Number 4: What Are the Risks of the Cattle Cycle's Downhill Phase?

The 101-million-head inventory on January 1 marks the start of the downturn in the cattle cycle. Cattle cycles over the past several decades have averaged 6 years of cattle-number building, followed by 4 years of declining.

So for some time into the future, fewer calves will be born, fewer heifers will be retained, fewer feeder calves will be available to feedlots, fewer steers will be fed and slaughtered, and lower retail supplies of beef will be available. This could go on for several years. In 1996, beef production was up 1.2 percent. In 1997, a slight decline is expected, and in 1998, a decline of 4 to 5 percent.

Feedlots will have to pay more for a reduced supply of feeder cattle. If corn prices come down, feedlots will want feeder cattle even more. Feeder cattle prices could become quite strong next fall and into 1998. By late 1997, fed cattle could be over \$70 per cwt, as they were this past fall, but feeder cattle could be in the mid-\$70's, compared with the mid-\$60's this past fall.

This will mean better news for cow-calf producers. After taking losses estimated at \$18 per cow in 1995 and \$39 in 1996, returns, although still negative, could improve in 1997. By 1998, returns should be strongly positive, which would provide an incentive to rebuild herds. But once that decision is made, the biological lags mean another 2-3 years before cattle inventories stop the decline.

Combine this story with the fact that grain stocks, particularly corn and soybean, remain relatively low. A bad weather year in 1997 could again cause high feed prices, resume the heavy herd liquidation, halt rebuilding of the hog breeding inventory, and set the stage for a serious increase in retail beef and other meat prices in 1998. Because meat and poultry accounts for 15 percent of the at-home CPI for food, such a scenario would be a concern for consumers.

remain well above the legislated trigger of 1.5 million tons. Thus price support loans will continue to be nonrecourse.

Among *fruits and vegetables*, the recent Florida freeze demonstrates weather will play a critical role in production. Sharp losses of snap beans, squash, tomatoes, and peppers have boosted prices and will likely cause the consumer price index (CPI) for fresh vegetables during January to June to be more than double the pre-freeze expected increase.

Livestock & Poultry Market Developments

One of the most startling developments in the recent outlook has been in the *cattle* market. First, the cattle cycle turned, and second, the export boom went flat. Over the past year and a half, drought, record-high feed grain prices, high hay prices, low cattle prices, and adverse winter weather have persistently forced cows to

slaughter. In 1996, both calf and beef cow slaughter rose 24 percent.

Although large late-summer and fall placements into feedlots are keeping beef supplies up now, the January 1, 1997 U.S. cattle inventory showed the impact of ranchers' efforts to reduce herds. Cattle on farms and ranches totaled 101.2 million at the start of 1997, down more than 2 percent from the 103.5 million at the start of 1996 and the first decline in the U.S. cattle inventory since 1990.

Adding to the grief of ranchers, exports declined about 12 percent year-to-year during the second half of 1996 after growing a robust 20 percent above a year earlier in the first half. Exports had increased at an annual average rate of 16 percent from 1991 to 1995. In Japan, where more than half of U.S. beef exports went in 1996, concerns over *E. coli* and BSE appear to have slowed consumption. In 1997, U.S. beef exports are expected to

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Outlook Puzzle Number 5: Is Price Volatility Really More of an Issue Today?

With low and capped marketing loan rates, minimal government stocks, and the elimination of acreage reduction programs, some are concerned that agricultural commodity prices will be more volatile. This concern has been amplified by tight grain stocks and the runup and decline in grain prices over the past 2 years. This, in turn, has affected livestock, poultry, and milk markets. A common premise is that prices will be more volatile without government intervention and with privately held stocks that are smaller than past levels of stocks owned or supported by the government.

Are prices now more volatile than in the past? For corn and wheat, both farm and futures prices were more volatile in 1996 than over 1991-95. Was this volatility indicative of an inherently less stable agricultural sector structure or, instead, the result of year-specific external factors such as weather? Further, whether this is indicative of more volatile prices in the years ahead remains to be determined.

Farmers and first buyers have reason to be concerned. Greater planting flexibility, trade liberalization, and more private stockholding tend to be stabilizing forces. But several factors suggest greater variability in the future. These include smaller government stocks and greater exposure to foreign policy shifts and foreign supply shocks as trade liberalization becomes more important.

From a producer perspective, more volatile prices than in the past could signal a need for risk management tools to deal with price and income variability. Moreover, producers can no longer transfer price risks to the government through high nonrecourse loan rates and storage subsidies. Instead, they will rely on private-sector risk management mechanisms.

In 1997, U.S. agriculture will continue to adjust to the increasing risks that accompany changes in domestic farm and trade policy as well as the profusion of emerging technologies and marketing arrangements. These risk-creating changes will also provide the chance to lower costs, improve products, shift risks, and open new markets internationally.

rise, especially in the second half, particularly to countries like Mexico and South Korea and to Japan, although the rising dollar is a new factor that could limit increases.

The *hog* inventory, like cattle, is down compared with a year ago, and pork production in early 1997 will likely be below last year's level. Producers indicated plans to increase farrowings in the first quarter of 1997, then pull back during the

second. If they follow through, pork production would pick up by the third quarter, but for the year as a whole would remain about the same as in 1996. With production stable and increased exports expected, hog prices may average about \$2 per cwt over the 1996 average of about \$53.50 per cwt.

Broiler exports, fueled by economic growth around the world, have been a remarkable story in the 1990's that will


continue in 1997. Exports were equal to 6 percent of U.S. production in 1990 and over 17 percent in 1996. Record-high broiler prices in 1996, declining feed costs in 1996/97, and firm meat prices in 1997 suggest a 6-percent rise in broiler production this year. Poultry will account for all of the increase in 1997 U.S. meat production. Exports are forecast up again to major buyers—Russia, Hong Kong, China, and Japan.

Turning to the *dairy* market, U.S. farmers' milk receipts were a record \$23 billion in 1996, making milk one of agriculture's major commodities. Although many producers enjoyed record-high incomes, many did not—particularly those facing high feed costs, poor forage, and low productivity. In addition, milk prices fell sharply between September—when a record high was reached—and December. In January 1997, the all-milk price was \$13.60—40 cents below a year earlier and well below the 1995/96 record \$14.42.

The all-milk price has been declining the past couple of months. Dairy producers are expressing concern over the decline and calling for various forms of Federal action. Given underlying conditions, however, it is likely that the market will improve for dairy producers.

Milk production for calendar-year 1997 is forecast to rise only 1 percent over 1996, which was down 1 percent from 1995. So the market is in balance, with milk production rising with population, and government surplus removals on a milkfat basis are expected to be about 0.6 billion pounds, the second lowest in the last 27 years. In that environment, the all-milk price is expected to rise this spring and average \$13.70 for the calendar year, the second highest in the past 16 years.

Keith Collins

Chief Economist, USDA 

USDA's 1997 Baseline: The Global Outlook to 2005

Robust growth in global import demand for agricultural products will be the driving force in international commodity markets through 2005. In USDA's global baseline, U.S. exports of high-value products (HVP's), including meats and horticultural products, will continue to show strong growth, generally outpacing bulk exports and accounting for a growing share of U.S. farm exports. Strong export growth is also projected for bulk commodities, particularly feed grains and wheat, driven largely by prospects for solid economic growth in developing countries.

U.S. bulk commodity exports are projected to expand more rapidly than during the 1985-95 period, helping to keep U.S. farm exports on a steady path of growth. International bulk commodity supplies will tighten, slowing the long-term downward trend in real prices (measured over the 1970-2005 period). The extent to which global supplies will respond in an environment of firmer prices is a key uncertainty in the outlook.

Macro Outlook **Positive for Agriculture**

Prospects for stronger economic growth in developing and transition economies, a consistent scenario across most vendors of global macroeconomic forecasts, are a key driver of USDA projections. Economic growth rates in Asia, the largest global and U.S. market for agricultural commodities, are expected to continue to lead the world through 2005. China and Southeast Asia are likely to remain the fastest growing areas of the world, fueling sustained rapid expansion of per capita incomes, food demand, and diet diversification. Although growth is likely to slow somewhat in East Asia—Hong

Kong, Japan, South Korea, and Taiwan—it will remain sufficient to yield steady gains in demand for an increasingly diverse diet.

While strong Asian growth is not new to the outlook, the substantially improved economic prospects in other developing areas sets the 1997-2005 outlook apart from projections of the past 10-15 years. Significantly faster income growth is anticipated in Latin America (including Mexico), North Africa, and the Middle East during 1997-2005. This favorable outlook is supported by progress made in implementing and sustaining economic and institutional reforms in many countries across these regions. At the same time, it is heavily dependent on the continuation of reforms. For the Middle East and parts of North Africa, improved prospects are also linked to the forecast of strengthening real petroleum prices.

Another important factor distinguishing the next 10 years from the last is the restoration of positive rates of economic growth in the transition economies of the Newly Independent States (NIS)—the 12 republics of the former Soviet Union—and the Baltic states, and, particularly, Central and Eastern Europe (CEE). The variability and eventual collapse of effective demand in these countries was a key influence on global markets during the last 10 years. Restoration of positive, if slow, rates of income growth should halt the declines in food demand and stabilize trade. And especially in the NIS and Baltics, increased market orientation and constrained budgets should reduce volatility in both economic growth and food trade.

Developing Countries **Shape Ag Demand Prospects**

The relationship between per capita income growth and the pattern of consumer demand in developing countries is the most critical demand relationship influencing the long-term food outlook. Particularly important is the relatively strong growth in meat and feed demand that typically occurs in developing countries with per capita incomes of \$500-\$5,000—e.g., Brazil, China, Malaysia,

Mexico, and Thailand. The sustained rapid economic growth projected in Asia, combined with improved growth in Latin America, North Africa, the Middle East, and CEE, will lead to robust expansion of per capita meat consumption and demand for feeds.

Since most countries, and particularly developing countries, tend to produce meat domestically rather than import it, most of the trade impact of this feed-livestock expansion will be in energy and protein feeds. Also, many of these countries are at the stage of economic growth where food demand for wheat and vegetable oils tends to increase most rapidly.

Developing countries play a key role in boosting longer term prospects for agricultural commodity demand. Developing countries' demand growth will exceed world demand growth for all major commodities except rice. Demand growth in developing countries is highest in feeds, meats, and vegetable oils. Compared with growth in developed countries, demand growth in developing countries is sharply higher for feed grains and meals.

A key uncertainty in the global food outlook is China's large and dynamic economy, specifically its future demand (and supply) prospects. With its large population, dynamic growth, uncertain future policies, weak data, and diverse food sector, China's long-term outlook is likely to remain uncertain.

The projections and discussion in this article are drawn from a presentation at USDA's 1997 Agricultural Outlook Forum held in Washington, D.C. on February 24-25, 1997. Long-term numbers were prepared in October through December 1996 and are published in USDA's *Agricultural Baseline Projections to 2005, Reflecting the 1996 Farm Act*, released in February 1997. A companion report, *International Agricultural Baseline Projections to 2005*, providing country-by-country details of USDA baseline trade data, is forthcoming.

Agricultural Economy

What is USDA's Baseline?

Simply stated, USDA's annual baseline is a set of longrun, policy-dependent projections. The 10-year baseline is not a "forecast" in the traditional sense of the word. Few analysts, particularly those who worked on this baseline, would say with great confidence that wheat prices 9 years from now will average \$4.80 per bushel, a number in the baseline. Rather, baseline projections are intended to outline the path the agricultural sector will take under a given set of assumptions.

The baseline provides a neutral backdrop, a reference scenario for assessing impacts of alternative developments. Baseline projections reflect current law, a specific set of macroeconomic assumptions, a continuation of current agricultural policy, and "normal" weather—no shocks to the system are assumed. From a traditional forecasting perspective, it is this "no shocks" assumption which most differentiates the baseline from a forecast. Most analysts would accept the notion that unforeseen changes will occur sometime during the baseline period.

A USDA interagency product, the baseline is a tool for departmental decision making regarding long-term budget estimates, agricultural policy implementation, alternative policy scenarios, and other agricultural issues. It allows for performance of sensitive policy analysis—e.g., what is the impact of an expanded European Union? or what is the impact of rapid economic growth in China?
Gerald A. Bange, Chairperson, World Agricultural Outlook Board, USDA

However, China provides a dramatic example of the pattern of food demand growth that occurs at a certain stage in developing countries. Food grain demand has shown little growth in per capita terms since the mid-1970's, while per capita demand for meats, feeds, and vegetable oils has soared. This pattern is expected to continue through 2005, with slower but still rapid growth in per capita meat and feed demand and little or no growth in per capita food use of wheat or rice.

Grain Area Up, Yield Trends Uncertain

Firmer prices and supportive policies are expected to lead to a recovery in global grain area during 1997-2005. In developed countries, the decline in grain area during 1980-95 was associated with sluggish global demand and supply management policies, primarily in the U.S. and the European Union (EU). During 1997-2005, grain area in developed countries is projected to rise with market incentives, increased planting in the U.S., and reduced land set-asides in the EU.

The transition economies—NIS and Baltics, and CEE—saw the largest declines in grain area during 1980-95. In these countries, grain area stabilizes and grows moderately during 1997-2005, predicated primarily on recovery of domestic, rather than foreign, demand. In general, the recovery in crop area is consistent with the pace of institutional and policy reform and occurs fastest in the Visegrad countries—Poland, Hungary, Czech Republic, Slovakia—and to a lesser extent, Russia.

In developing countries, the expansion of grain area slowed during 1980-95, but did not show the decline evident in other regions. Cropped area in developing countries is likely to continue to expand in areas where climate and water availability support additional intensive cultivation. Firmer prices are expected to contribute to grain area increases in both importing and exporting developing countries.

By commodity, the global crop area projections reflect the pattern of demand, with the strongest increases in coarse grain and wheat area. Rice area continues to reflect the slow upward trend in rice demand. Oilseed area growth is

projected to slow as strengthening grain prices increase competition for land, slowing growth in soybean area and pulling some area out of rapeseed and other oilseeds.

Future trends in crop yields are probably the major uncertainty in the long-term outlook. Global yield growth appears to have slowed, although performance has varied by region, commodity, and time period. But how will investment in both variable and fixed inputs respond and raise yields in the longer term as prices strengthen?

The impact of increasingly market-oriented farm policies in the U.S., other developed countries, and developing countries is unclear. In Latin America and other developing regions, it is unclear how the improving macroeconomic climate will affect agricultural investment and productivity. Further, it is increasingly difficult to predict the pace of development and adoption of biotechnology-related advances that will be coming into use in the future.

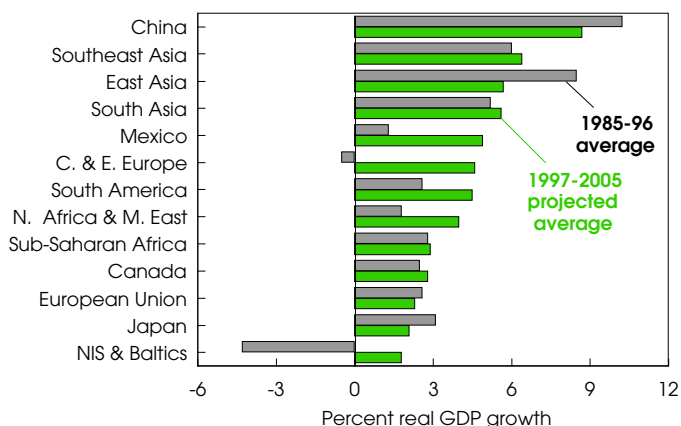
Qualified by these uncertainties, the NIS and Baltics, and CEE, are assumed to undergo a significant recovery in yields for major crops. Somewhat slower aggregate yield growth occurs in both developed and developing regions. Globally, wheat yield growth is projected to match the 1985-95 performance, and corn yield growth is projected faster, but these results are predicated largely on the anticipated, but highly uncertain, rebound in the transition economies. However, yield projections for the NIS and Baltics, and CEE, remain cautiously below historical highs, due in large part to uncertainty about the pace of reforms and prospects for productivity gains.

China is also expected to experience important yield growth. Official Chinese data indicate that yields for many crops, including wheat and corn, are high by world standards and suggest limited potential for future growth. However, there is also evidence to suggest that yields calculated from official data are biased upward because area harvested is significantly underestimated. The bias is judged to be particularly large for corn.

Strong Income Growth and Rising Demand for Meat Support Baseline Projections

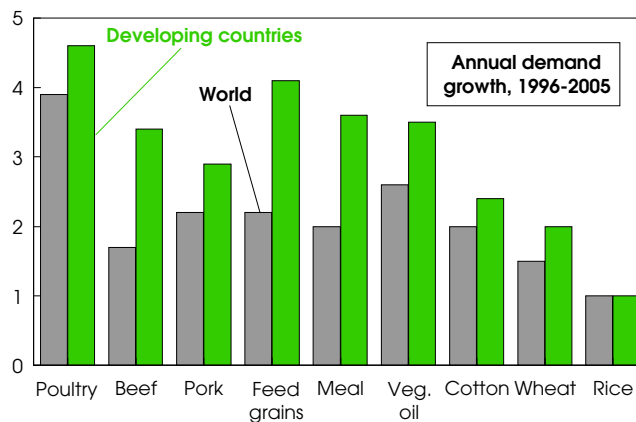
Global Economic Growth Continues Strong Through 2005

Major regions/countries



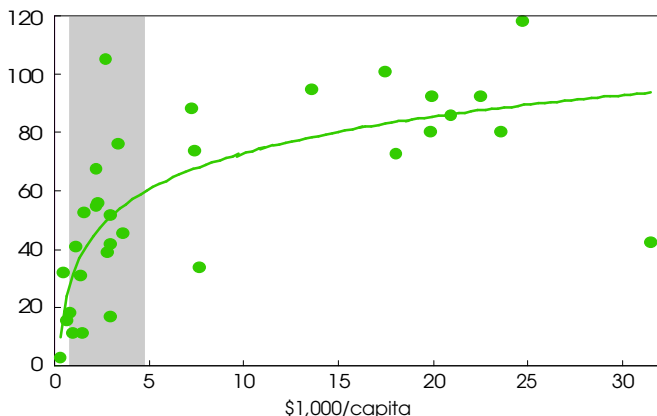
Developing Countries Lead Global Demand Growth

Percent

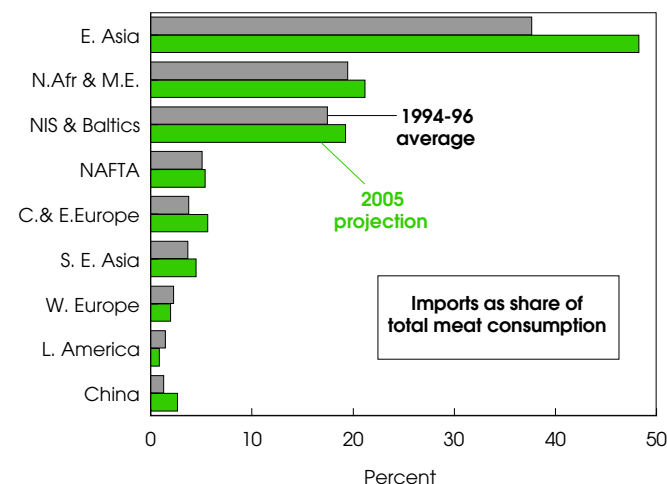


Meat Consumption Grows As Income Increases, Especially in Low-Income Countries

Kg/capita

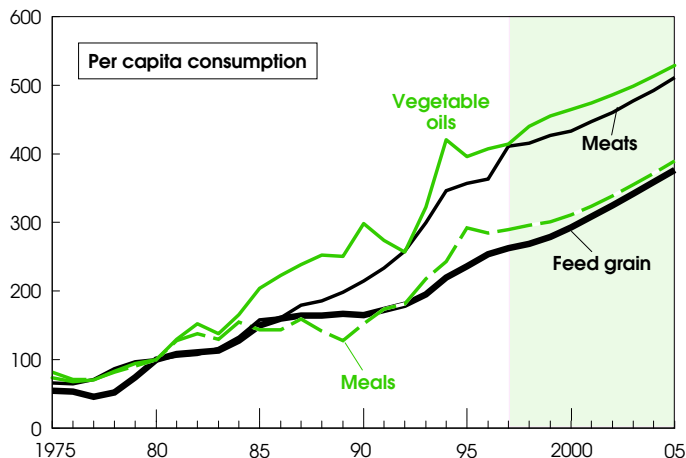


Most Countries Produce Their Meat Domestically



China's Demand for Meat, Feed, and Oils to Grow . . .

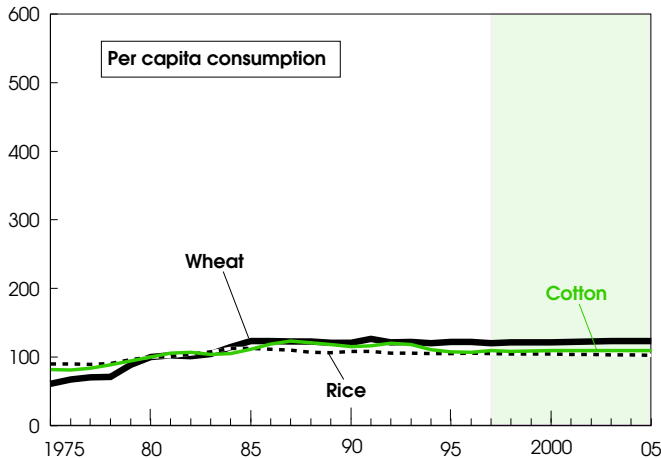
1980=100



1997 forecast; 1998-2005 projected.
Economic Research Service, USDA

. . . and Food Grains and Cotton Demand Are Stable

1980=100



Agricultural Economy

As a result, USDA projections allow for substantial future yield growth from a lower level than indicated by official data. Results from China's agricultural census, currently underway, should help to clarify this issue.

Trade Prospects By Commodity

A summary of historical and projected growth rates in global imports shows that although growth is projected slower for several commodities, particularly some meats, projected demand remains strong for meats generally, and for feeds and wheat. Particularly important to the U.S. trade outlook is the stronger expected growth in import demand for coarse grain, wheat, and to a lesser extent, cotton.

Coarse grains. Broad-based growth in coarse grain import demand will support the expanding feed-livestock sectors across developing regions, including China, South and Southeast Asia, Latin America, North Africa, and the Middle East. China's coarse grain imports are projected to rise more than 10 percent annually, and South and Southeast Asian imports, about 9 percent annually.

Annual growth in other developing regions is expected to be more modest, in the 3-4-percent range. East Asia, by far the largest regional feed grain market, is expected to show very little growth, as trade reforms make local meat production uncompetitive and a rising share of meat consumption is imported. EU imports are also likely to remain relatively flat, due to sluggish growth in domestic meat demand and to export constraints imposed by Uruguay Round (UR) export subsidy limits.

The NIS and Baltics, a key source of instability in global coarse grain trade during the 1980's and early 1990's, are expected to be a small player in the market during 1997-2005. Meat demand and production recovers slowly, and domestically produced meat remains uncompetitive with imported meats in key markets. With a smaller market presence and severe financial constraints, the NIS and Baltics are unlikely to be as large a

source of instability in global coarse grain markets during the projection period.

The U.S. is expected to maintain its dominant two-thirds share of the global coarse grain market. EU competition, primarily barley, is likely to be constrained by the UR export subsidy limits throughout the projection period. While Argentina is expected to boost its corn exports, other traditional competitors are expected to be restrained by competition for cropland. The transition economies, primarily in CEE, are expected to be emerging competitors after 2000 when gains in U.S. corn area slow and prices strengthen.

Soybeans and meal. The long-term expansion of feed-livestock sectors in developing Asia, Latin America, North Africa, and the Middle East is expected to drive steady, robust growth in demand for soybeans and meal. Developing Asia, particularly China and Southeast Asia, is expected to be the fastest growing market, with imports expanding about 8 percent annually. Gains in these developing regions are projected to more than offset sluggish growth in feed demand in East Asia and the EU-15.

As was the case during the early 1990's, U.S. soybeans and meal are expected to maintain market share against South American competitors, with the U.S. share averaging 43-44 percent. Large gains in U.S. soybean yields relative to Argentina and Brazil are expected to continue to underpin U.S. supplies and competitiveness, particularly during the next 5 years.

Wheat. As with feeds, income gains in developing countries are expected to drive stronger growth in wheat trade during 1997-2005. In many developing countries, per capita wheat consumption remains responsive to rising incomes and urbanization, while capacity to produce wheat efficiently is limited.

In China, although per capita wheat consumption is not expected to grow, imports are expected to expand about 4 percent annually as water shortages continue to inhibit yield gains. The North Africa and Middle East market, also expected to sustain 4-percent annual import growth, is

another key to wheat trade prospects. Wheat demand will respond to faster income growth in most of North Africa and the Middle East.

Limited production gains are expected in some countries because of limited potential for area or yield gains, and because market-oriented reforms are reducing government support. As with coarse grains, the NIS and Baltics will be a relatively small player in the global wheat market during 1997-2005.

The U.S. wheat market share will recover from its 1996 decline and remain near its recent average of 34 percent through 2005. Prospects for U.S. wheat market share are closely linked to EU policy developments. EU market share is expected to drop until about 2001, as its exports are constrained by UR export subsidy limits, but then rise when world prices are high enough to permit unsubsidized exports.

Gains in EU market share after 2000 are expected to come at the expense of less competitive emerging exporters, rather than U.S. sales. This scenario assumes a 12-percent EU land set-aside for 1998-2005, moderate appreciation of the European Currency Unit against the dollar, and limited changes to the administration of existing EU wheat intervention policies to permit internal market prices to drift below the intervention price (EU farm support price).

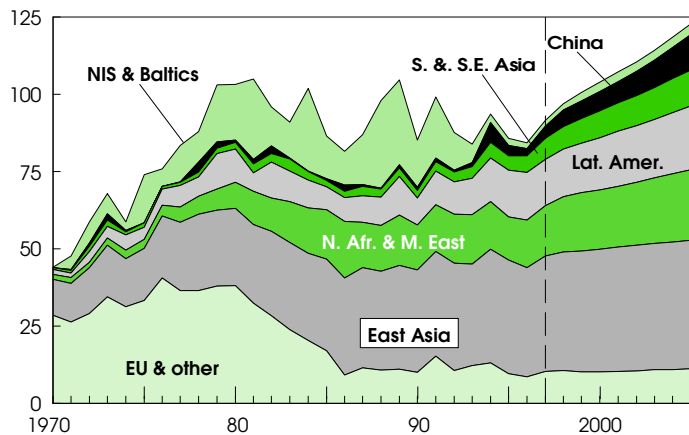
A smaller EU set-aside could increase its competitiveness after 2001, but would likely lead to rising supplies of barley that would be uncompetitive with wheat for domestic feed use and not exportable under UR export subsidy limits. A change in the EU Common Agricultural Policy to reduce the wheat intervention price would also increase EU competitiveness, but is considered unlikely outside of a formal enlargement agreement with CEE countries.

Rice. World rice trade expanded sharply during the early 1990's, in part because Japan and South Korea began importing rice under the terms of the UR agreement, and also because two large markets—China and Indonesia—increased their

Global Import Demand Projected to Grow For Most Ag Commodities

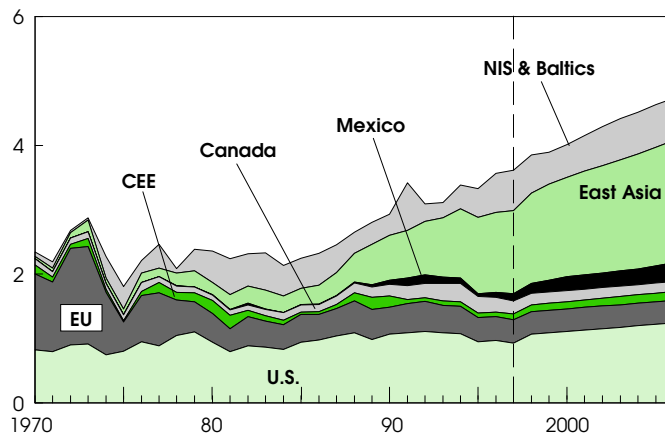
Coarse Grains

Million tons



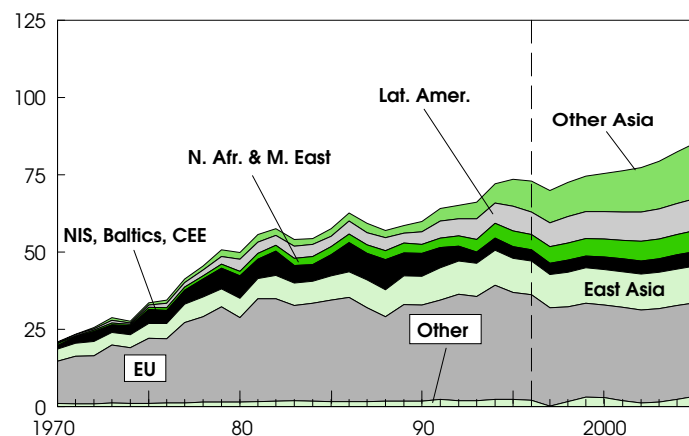
Beef

Million tons



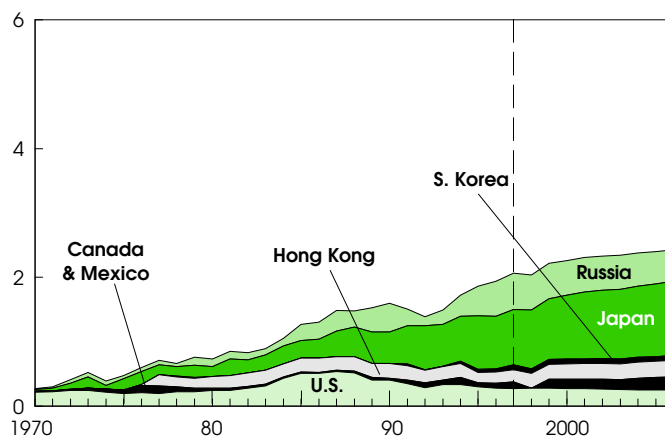
Soybeans and Meal

Million tons



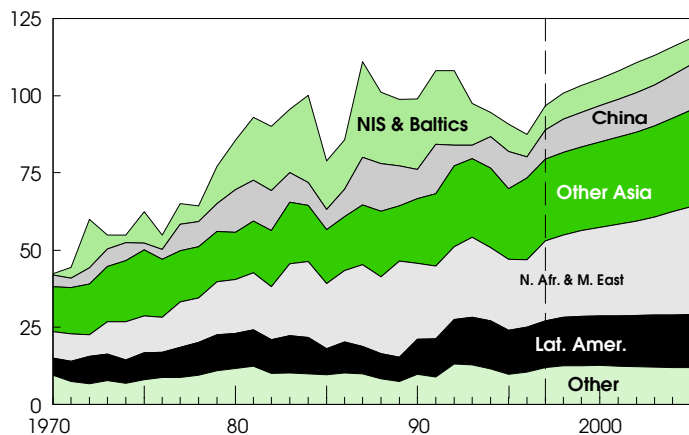
Pork

Million tons



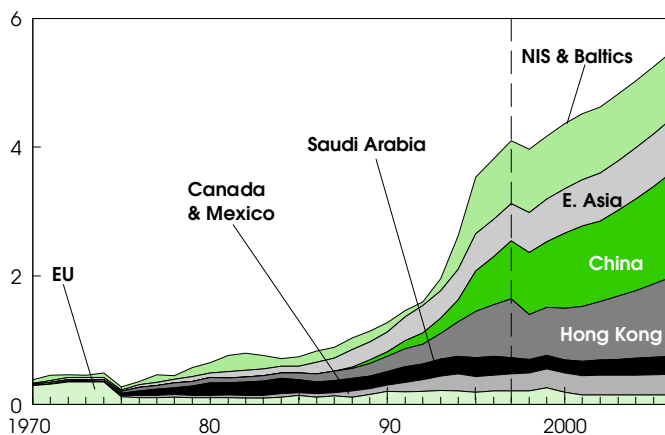
Wheat

Million tons



Poultry

Million tons

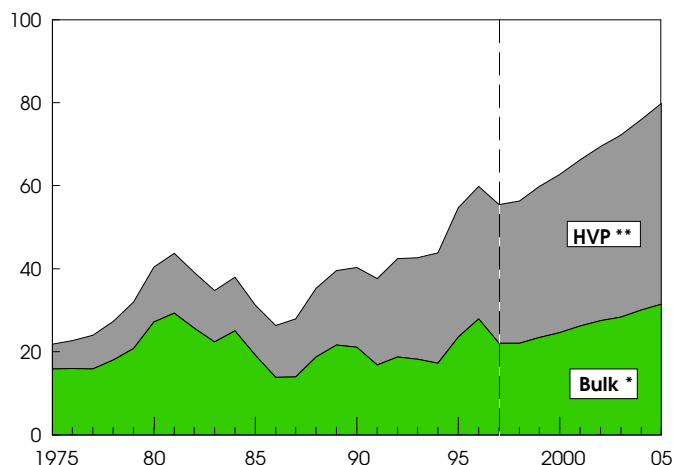


Agricultural Economy

Value of U.S. Agricultural Exports To Grow

Total Ag Export Value Approaches \$80 Billion by 2005

\$ billion

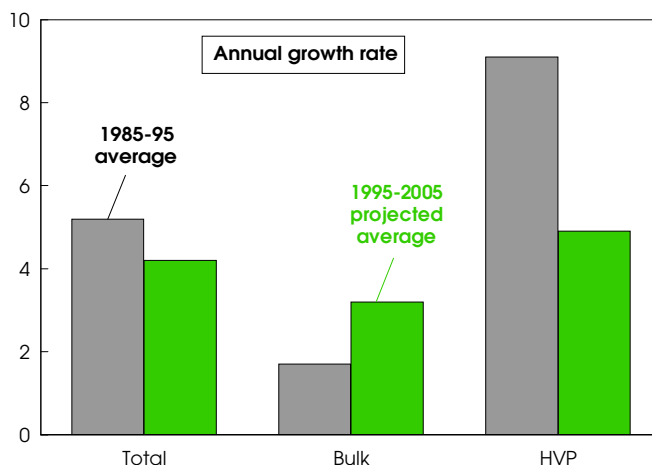


1997 forecast; 1998-2005 projected.

*Wheat, rice, feed grains, soybeans, cotton, and tobacco. ** Primarily livestock and meat, fruits and vegetables, processed foods, juices, and feeds and fodder.

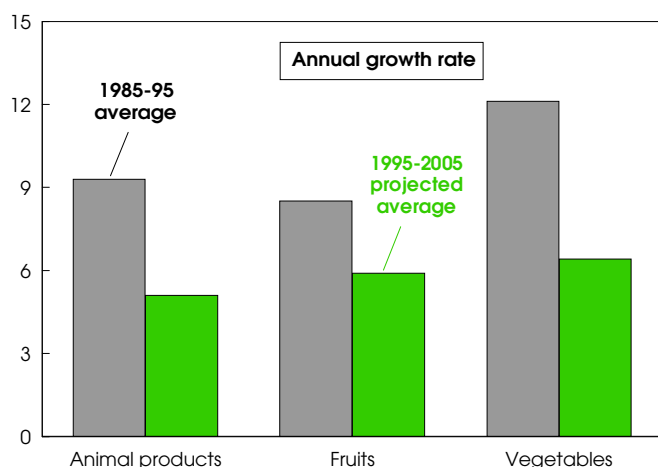
High-Value Exports to Outpace Bulk Commodities

Percent



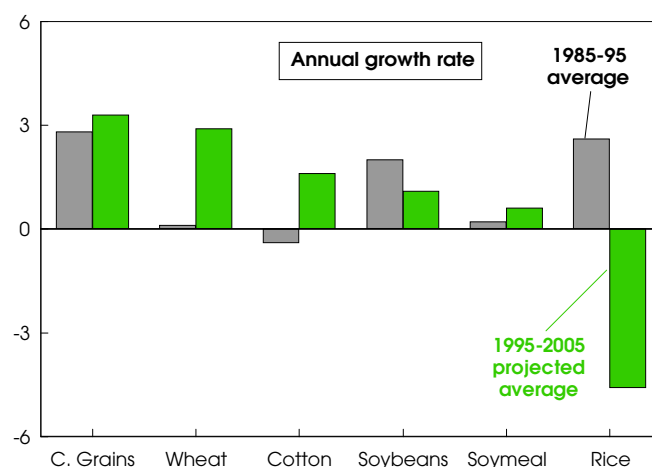
Vegetables and Fruit to Lead HVP Export Growth

Percent



Coarse Grains and Wheat to Set Pace for Bulk Exports

Percent



Economic Research Service, USDA

purchases. These markets will grow slowly from their new levels. In addition, import demand in Latin America, and particularly North Africa and the Middle East, will also respond to stronger income growth.

The higher level of rice trade during the early 1990's was supplied, to a large

extent, by uncharacteristically large exports from Vietnam and India. Both of these countries, along with Burma, will sustain their higher market shares through 2005. U.S. market share is expected to decline because of rising domestic consumption and lower planted area expected under the 1996 Farm Act.

Meats. The long-term outlook for global beef, pork, and poultry trade is largely dependent on developments in three large markets: East Asia, the NIS and Baltics, and for poultry, China. East Asian meat imports, dominated by Japan (beef, pork, and poultry) and South Korea (beef), expanded rapidly during the 1980's in response to strong consumer demand and negotiated increases in market access.

Based on already ratified multilateral trade agreements, East Asian meat import demand will grow steadily, as imports continue to substitute for relatively high-cost local production. However, import growth will remain slower than during the 1980's and early 1990's unless additional market access is negotiated.

Large imports by the NIS and Baltics, principally Russia, were also a significant feature of world meat markets during the 1980's. The collapse of inefficient domestic production, combined with the availability of credits and subsidies for imports from the EU and the U.S. was the key factor in this trade. For 1997-2005, NIS and Baltics import demand will grow steadily, based on very modest growth in consumer demand combined with very slow progress in the development of beef, pork, or poultry sectors that can compete effectively with imports. A decline in the availability of subsidized meat exports from the EU will be a significant constraint on growth in NIS and Baltics pork and beef imports.

Imports by China, both direct and via Hong Kong, have been a source of rapid poultry trade expansion during the early 1990's. The rate of future growth in this trade is very unclear, in part because of uncertainty about how Hong Kong's accession to China will affect the administration of trade via Hong Kong. It is also possible that limitations imposed by inadequate refrigerated transport and storage may eventually slow trade growth. China's poultry imports slow from recent rates, but continue to show strong (10-percent) annual growth.

U.S. beef, pork, and especially, poultry have been very competitive in world markets, capitalizing on new market opportunities to grow more than 20 percent annually in volume during 1985-95. U.S. meat products are expected to remain highly competitive during 1997-2005. But given the outlook for slower growth in imports by East Asia, the NIS and Baltics, and China, and the baseline assumption of no new market access agreements, U.S. meat export growth is projected to slow significantly. U.S. meat export volume grows about 6 percent annually, with value growing somewhat more slowly, as lower quality products continue to account for a growing share of U.S. exports.

Cotton. After showing little growth from 1985 to 1995, world cotton trade is projected to expand about 1.2 percent annually during 1997-2005, the result of strengthening developing-country demand and prospects for slow production growth in the NIS and Baltics, and China. Import demand in more developed regions, including East Asia, will continue to slide, as spinning moves to lower cost regions. These declines are expected to be more than offset by rising imports in Southeast Asia, Latin America, and China. Slow growth in both imports and exports is expected for the NIS and Baltics, as demand gradually strengthens and only limited production gains are achieved.

The U.S. is projected to remain the largest exporter of raw cotton, maintaining roughly a 25-percent market share, while many competitors reduce raw cotton exports and channel supplies into consumption or exports of textiles and value-added products.


U.S. Export Outlook Remains Robust

The nominal value of U.S. farm exports grows at a robust 4-percent annual rate during 1995-2005, reaching nearly \$80 billion by 2005. High-value products (HVP's) continue to lead the growth in U.S. agricultural exports, expanding about 5 percent annually. U.S. bulk commodity exports are also projected to show strong gains—more than 3 percent per year.

Each of the major categories of U.S. HVP exports—meats, fruits, and vegetables—is expected to show strong, steady annual growth of 5-7 percent in value terms. These U.S. products are expected to remain highly competitive in their major markets, primarily East Asia, Canada, and Mexico. However, U.S. exports of these products are unlikely to sustain the rapid pace of the past 10 years, particularly since no new market access agreements are assumed to occur. During 1985-95, market opening agreements with East Asian countries and NAFTA partners made these markets the key sources of U.S. HVP export growth.

Significantly stronger annual growth in the value of bulk commodity exports is expected to be a key source of strength in the U.S. trade outlook, and in the rural economy. Faster growth and firmer prices than during the last 10 years are projected for U.S. exports of most bulk commodities, particularly coarse grains, wheat, and cotton. However, unlike HVP exports, which generally depend on the more stable income and food demand growth of higher income markets, bulk commodity demand and prices will be closely linked to the more fragile prospects for economic growth in developing and transition economies.

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Agricultural Economy

USDA's Agricultural Baseline: The Assumptions

USDA's 10-year baseline projections cover agricultural commodities, agricultural trade, and aggregate indicators such as farm income and food prices. The projections in the current report, *Agricultural Baseline Projections to 2005, Reflecting the 1996 Farm Act*, were completed in December 1996 and reflect a composite of model results and judgmental analysis of the agricultural sector through the year 2005. The projections reflect major agricultural policy decisions made through mid-November 1996 and include short-term projections from the November 1996 *World Agricultural Supply and Demand Estimates*.

The baseline projections incorporate provisions of the 1996 Farm Act and assume the new law is extended through the end of the baseline in 2005. These projections provide a starting point for discussion of alternative farm policies. The categories of critical long-term assumptions in the baseline include: U.S. and international macroeconomic conditions; U.S. agricultural and trade policies; funding for U.S. agricultural export programs; foreign economic, agricultural, and trade policies; growth rates of U.S. and foreign agricultural productivity; and normal (average) weather.

Changes in any of these assumptions can significantly alter the projections, and actual conditions that emerge will alter the outcomes. Among the more critical assumptions are those involving agricultural policy and macroeconomic conditions.

The Conservation Reserve Program (CRP), reauthorized in the 1996 Farm Act, sets maximum CRP area at 36.4 million acres. The new law permits the Secretary of Agriculture to re-enroll current land at contract expiration and to enroll new land to replace acreage leaving the CRP through expired contracts or early termination.

Over 20 million acres of CRP contracts expire in 1997. Enrollments in 1997 are assumed to keep the CRP from falling below 30 million acres. Enrollments in subsequent years are assumed to gradually increase the CRP to over 36 million acres by 2001.

The baseline assumes full compliance with all bilateral and multilateral agreements affecting agriculture and agricultural trade. Projections assume full compliance with the internal support, market access, and export subsidy provisions of the Uruguay Round GATT Agreement. The baseline assumes no accession to the World Trade Organization by the Newly Independent States (NIS) of the former Soviet Union, the Baltics, China, or Taiwan; no enlargement of the European Union (EU) beyond its current 15 members; and no expansion of the North American Free Trade Agreement.

Agricultural and trade policies in individual foreign countries are assumed to continue to evolve along their current paths.

The baseline assumes that no new bilateral or multilateral agreements occur during the 1997-2005 period. Although a number of such agreements could emerge, given the World Trade Organization (WTO) mini-round scheduled for 1999 and potential agreements on WTO accession and EU-15 enlargement, the provisions and timing of potential agreements are uncertain.

Annual quantity and expenditure levels for the Export Enhancement Program (EEP) are assumed to be in compliance with GATT reductions, which require that by 2000, subsidized exports be reduced by 21 percent in volume and by 36 percent in budget outlays from 1986-90 levels. However, the 1996 Farm Act reduced total EEP funding during fiscal years 1996-99 from the maximum levels permitted under the GATT agreement. The 1997 Agriculture Appropriations Act further lowered the fiscal 1997 EEP level.

The 1996 Farm Act authorizes P.L. 480-Title I agreements with private entities in addition to foreign governments and broadens the range of commodities available for P.L. 480 programs. Total P.L. 480 program levels are assumed constant in the baseline for fiscal 1998 and later years. Program levels for other trade promotion and credit programs, including the Market Access Program and the GSM-102 and GSM-103 credit guarantee programs, are assumed constant in the baseline.

Domestic macroeconomic assumptions include deficit reduction that balances the Federal budget by 2002. This results in lower interest rates, higher productivity, and stronger growth in Gross Domestic Product. Baseline global economic growth averages about 3 percent annually over the next decade, well above growth during the first half of the 1990's. Macroeconomic growth in developed countries averages about 2.5 percent through 2005 as these economies rebound from growth slowdowns in the mid-1990's.

Market reforms lead to projected economic growth for the NIS and Baltics, and for the countries in Central and Eastern Europe, following years of economic decline during the transition from centrally planned economies. Aggregate growth for developing countries over the next 10 years is projected to average about 5.5 percent, somewhat faster than over the past decade.

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Agricultural Economy

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USDA's 1997 Baseline: The Domestic Outlook to 2005

Strong U.S. export growth is the principal impetus for relative prosperity projected for the U.S. crop and livestock sectors from 1997 to 2005. World economic growth and trade liberalization provide increased opportunities for U.S. exports during this period.

In USDA's 1997 baseline, U.S. exports rise from this year's forecast of \$56 billion to \$80 billion by 2005. Exports of high-value products increase faster than bulk exports and account for a growing share of U.S. farm exports. In particular, meat and horticultural export values rise significantly through 2005.

Strong export growth is also projected for bulk commodities, particularly feed grains and wheat. U.S. bulk commodity exports expand more rapidly than during the 1985-95 period, helping to propel total U.S. farm exports to an average annual growth rate of about 4 percent through 2005. The export share of U.S. farm-product use grows significantly for corn, grows slightly for wheat and soybeans, and drops for rice and cotton, which experience rapidly growing domestic demand in the face of only marginal area gains.

Since the U.S. is the world's leading grain exporter and an important meat exporter, it stands to benefit from projected gains in international grain demand and higher commodity prices. And greater market orientation in the domestic agricultural sector under the new farm legislation puts U.S. farmers in a favorable position to compete in the global marketplace. As a result, the positive international outlook is echoed, for the most part, by the U.S. agricultural sector.

U.S. Demand to Rise For Major Crops

Strong growth in U.S. grain use leads to rising prices and greater acreage planted to most major field crops. Except for rice, exports are the major factor in this growth.

Productive capacity for U.S. crops is projected to rise due to increases in resource and input use and in productivity. Planted area for major crops rises 10-15 million acres above average plantings of the past 5 years. The increased area is drawn into crop production, based on market incentives, from acreage that producers previously chose to idle. For most crops, yields are projected to rise at or near their long-term trends. These gains in part reflect the acquisition of some agricultural land by larger, generally more efficient farms, continuing a long-term trend.

Conservation Reserve Program (CRP) acreage drops temporarily from the recent level of 33 million acres to about 30 million as land enrollment falls short of contract expirations, but then rebounds to over 36 million acres by 2001. However, with the CRP remaining above 30 million acres, the balance between productive capacity and projected demand tightens significantly as the land base is pressured. Most land enrolled in the CRP is in areas traditionally planted to major field crops, thus limiting the response of planted acreage to rising prices and net returns. This, together with strong world demand, pushes grain prices up.

In the near term, food and feed grain prices drop from the abnormal highs of recent months, but the outlook over the longer term is for a slow rise in prices. Big productivity gains occur for U.S. soybeans and other oilseed crops, maintaining a U.S. edge over other major producing countries. Gains in productivity and efficiency lead to lower production costs, leaving the U.S. well positioned to meet the strong growth in demand projected for the oilseed sector.

For U.S. cotton, yield and acreage gains will provide the production needed to meet the strong growth in demand—particularly domestic demand—over the next decade. For cotton to compete successfully with other crops for more acreage, prices will have to follow those of grain and oilseeds. The U.S. specialty crops sectors also thrive, and the U.S. becomes a net exporter of fruits by 2000.

Domestic demand for most crops is projected to grow slightly faster than population. Notably stronger growth in domestic use of rice reflects a greater emphasis on dietary concerns as well as the increasing numbers of Americans of Asian and Latin American origins.

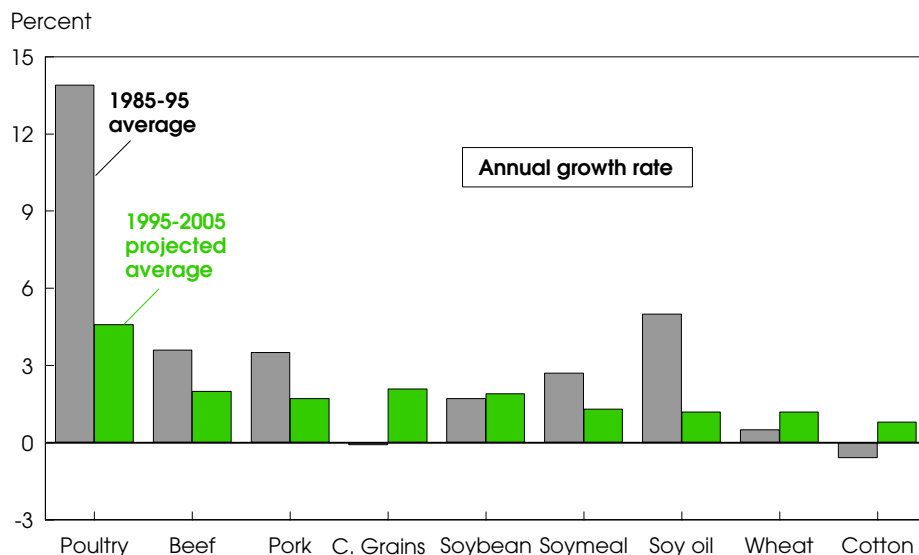
Livestock Stabilizes, Poultry Booms

U.S. livestock production will continue to undergo adjustments over the next few years in response to recently high feed costs, although differences in biological production lags among livestock sectors affect the pace of these adjustments. Nonetheless, the outlook for lower feed prices than in 1995/96, replenishment of forage supplies, continued low inflation, and domestic and export demand strength point to positive producer returns, encouraging increasing red meat and poultry supplies. However, as feed costs accelerate after 2000, gains in meat production slow, particularly red meats.

The projections and discussion presented in this article are drawn from a presentation at USDA's 1997 Agricultural Outlook Forum held in Washington, D.C. on February 24-25, 1997. Long-term numbers were prepared in October through December 1996 and were published in USDA's *Agricultural Baseline Projections to 2005, Reflecting the 1996 Farm Act*, released in February 1997. USDA's 1997 baseline estimates are also fully accessible via the Internet at: <http://www.mannlib.cornell.edu/data-sets/farm/94005>

Agricultural Economy

Global Import Demand for Ag Commodities Continues Growing



Economic Research Service, USDA

Cattle herds will likely stabilize beyond the year 2000 at about 97 million head, although shifts toward a breeding herd of larger cattle and heavy slaughter weights partially offset the need for expanding cattle inventories to previous levels. Beef production continues to be dominated by fed beef, to satisfy domestic and foreign demand for higher quality beef.

The U.S. pork sector will continue to evolve into a more vertically coordinated industry. Larger, more efficient pork producers will market a greater percentage of the hogs over the next 10 years. Pork production grows slowly from just under 18 billion pounds in 1995 to nearly 20 billion by 2005. However, accelerating feed grain prices beyond 2000 reduce producer returns and curb gains in hog inventories and production. The U.S. becomes an increasingly important net pork exporter over this period.

U.S. poultry production continues to expand as broiler meats gain an increasing share of total meat consumption. Poultry meat will be less expensive than other meats, so consumers can purchase more poultry meat per dollar. Production gains for turkey follow projected growth in the domestic and export market for processed products. Continued competition in the world poultry meat market holds U.S. exports to moderate gains.

The price situation for meats and livestock is similar to that of crops—moderate growth in nominal terms but with real prices dropping. Over the longer term, feed prices will rise at rates similar to the general inflation rate. As a result, livestock producers do not experience any real (inflation-adjusted) increase in feed prices. At the same time, increases in feed efficiency, coupled with other production and marketing efficiency gains, push down real livestock production costs. The net result is that efficiency gains offset real farm-price declines for livestock, benefiting livestock producers.

Record total meat supplies are projected through 2005, although red meat produc-

tion gains are small. Consumers purchase more meat, but a larger proportion is poultry, as per capita consumption of red meats falls. Declining real meat prices, along with increases in real disposable income, allow consumers to buy more total meat with a smaller proportion of disposable income.

U.S. Farm Income Stabilizes

In light of the commodity-specific highlights, the U.S. farm income outlook is quite optimistic. Net farm income, in nominal terms, falls from recent highs to \$36 billion in 1998, then rises through 2005. This implies a steady real farm income outlook—a definite change from recent trends. The agricultural sector increasingly relies on the marketplace for its income, as direct government payments fall through 2002 and represent less than 3 percent of gross cash income beyond 2000.

Both crop and livestock receipts are up, due to larger production and higher prices. However, production expenses also rise, with expenses for nonfarm-origin inputs rising faster than expenses for farm-origin inputs.

Farm asset values increase less rapidly than in the early 1990's, mainly because of slowing gains in agricultural land values. Increases in farm debt are not beyond the ability of farmers to service the debt. Farm lenders have largely recovered from the problems of the 1980's, so the availability of credit will not be a major concern. Debt-to-asset

Exports Spur Growth in Demand for U.S. Agricultural Commodities

Commodity	Annual demand growth 1995* - 2005		Export share of total use	
	Domestic	Exports	1995*	2005
	Percent		Percent	
Wheat	0.9	1.5	52	53
Corn	1.5	4.1	21	27
Soybeans	1.3	2.0	34	36
Rice	2.2	-1.9	45	33
Cotton	2.0	0.3	40	35
Beef	-0.2	16.1	6	11
Pork	0.7	9.2	3	7
Poultry	3.5	10.0	10	19

*Represents average of 4-year period 1991-95.
Economic Research Service, USDA

ratios remain flat at close to 15 percent, well below levels of the mid-1980's. With asset values increasing more than debt, farm equity rises slowly.

After declining from recent high levels, increasing nominal farm income, combined with rising farm equity, means relative stability in the financial condition of the farm sector. However, the sector will be highly competitive, and the trend toward fewer but larger farms continues.

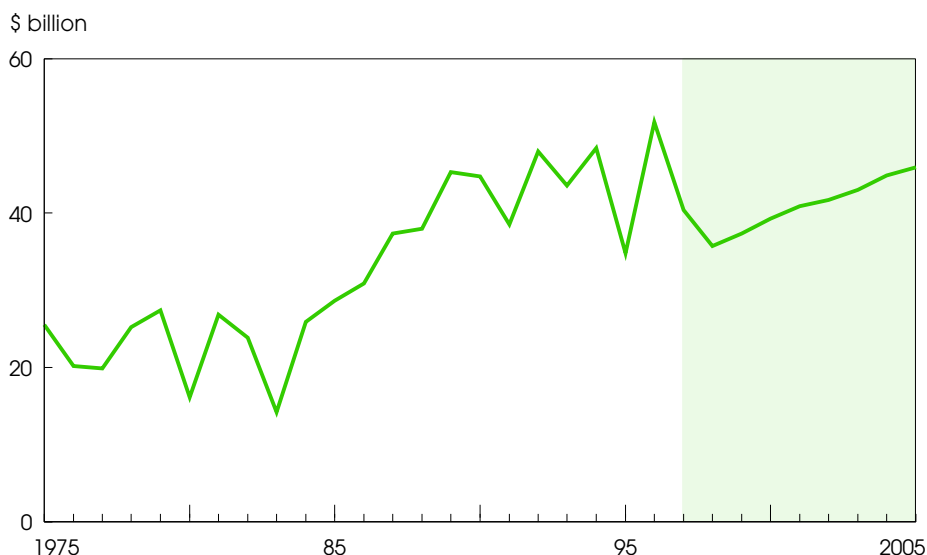
Consumers benefit as food inflation grows more slowly than general inflation (continuing a long-term trend), even though disposable income spent on food is influenced by a continued trend of substantial purchases of food away from home. By 2005, expenditures for meals eaten away from home account for almost half of total food spending.

Behind the Projections

The outlook's general picture of growing international demand and strengthening global prices in the 1997-2005 period has direct implications for the welfare of the whole range of stakeholders in the domestic agricultural sector. Because of the diversity and interdependence of different players in U.S. agriculture, it is rare that an outlook scenario suggests that producers of both crops and livestock, as well as consumers, are well off or better off. Typically, for example, if grain prices are high (a good outlook for grain producers), livestock producers are likely to be hurt. Or if prices received by farmers for livestock products are high, consumers pay higher prices at the retail level.

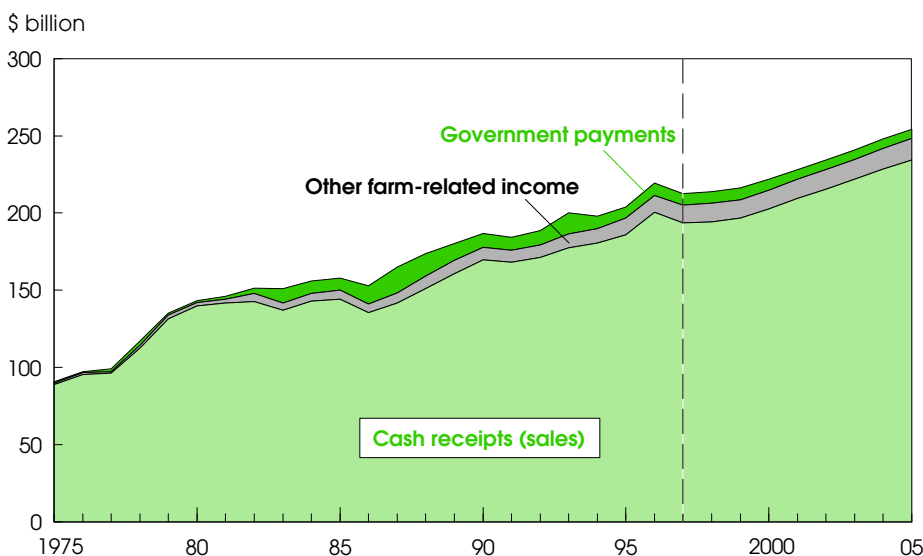
Tradeoffs across subsectors and market participants are the rule. However, this year's domestic outlook for 1997-2005 reflects the exception to that rule. Farmers—whether crop producers or livestock producers—and consumers appear better off. Four principal factors interact to create this optimistic projection.

Nominal Net Farm Income Grows Steadily After 1998



Economic Research Service, USDA

Government Payments Decline as Share of Farm Revenue



Gross farm income. 1997 forecast; 1998-2005 projected.

Economic Research Service, USDA

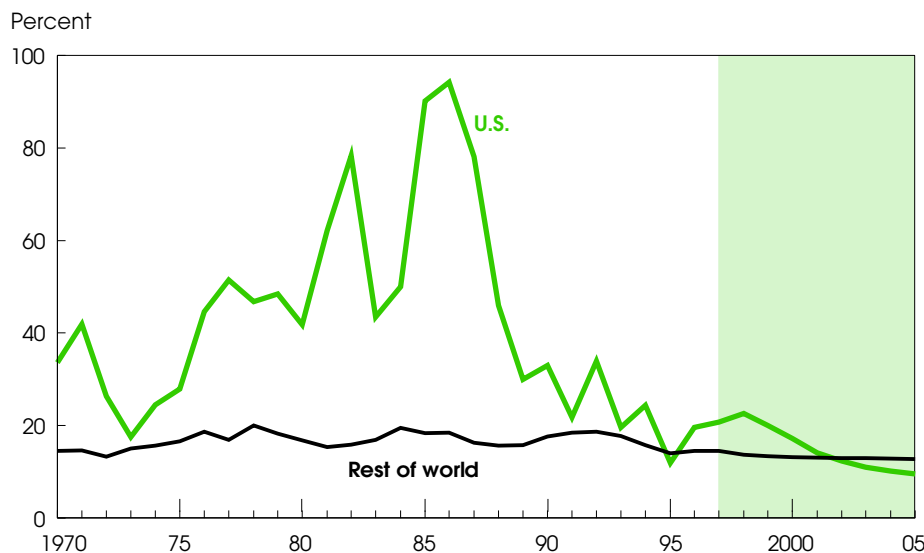
First, strong growth in export demand is the catalyst for the rapid increases in commodity use and the steady increase in nominal commodity prices. Reduced trade barriers under the GATT agreement, combined with strong global economic growth, particularly in developing coun-

tries, are behind the rise in world agricultural trade and U.S. crop exports.

Second, domestic policy and policy assumptions support a positive agricultural outlook. Planting flexibility introduced by the 1996 Farm Act facilitates the

Agricultural Economy

U.S. Grain Stocks-to-Use Ratio Shrinks



1997 forecast; 1998-2005 projected.

Economic Research Service, USDA

market's response to changing demand for U.S. agricultural commodities. In addition, USDA's baseline operates under the assumption that production flexibility contract payments (program payments) to farmers continue beyond the expiration of current legislation in 2002. This helps to explain why crop producers are better off, in the aggregate, despite lower real prices.

Third, trade agreements and unilateral trade policy reform in other countries allow U.S. farmers to better realize competitive gains from their comparative advantage in many agricultural products, while reinforcing the advantages of freedom to respond to market signals.

Fourth, structural change in U.S. agriculture continues, via consolidation and concentration, and provides economies of scale that increase efficiency above and beyond technological change. In addition, increases in vertical coordination of several activities in the food production and marketing chain help to explain why consumers will face lower real food prices.

What Are the Uncertainties?

In creating a baseline scenario that builds on recent trends and policy actions, USDA is not asserting that the "everyone wins" outcome will truly come to pass. The baseline is not a forecast. Any number of events might occur that could greatly alter the actual outcome. For example, the assumption that production flexibility contract payments continue is not a forecast that they will. Since future policy is unknown, the baseline assumes no change, as a simplification. By keeping assumptions clear and straightforward, baseline users can easily adjust the projections to fit different versions of the underlying assumptions, which is particularly useful in areas of strong uncertainty.

Weather, as always, is the wild card. But several other factors play an important role in determining the direction and outcome of the U.S. agricultural sector into the next century. For example, government policy can take almost as many wild turns as weather. No change is assumed in current U.S. agricultural policy beyond 2002.

Unilateral foreign policy change is another big source of policy uncertainty. For example, the European Union (EU) could establish larger cropland set-aside rates than was assumed. Such a scenario would likely reduce EU grain exports and as a result, support international grain prices and improve U.S. competitiveness in international grain markets.

Multilateral or regional trade agreements could determine future directions for agriculture. Whether this would bode well or poorly for various U.S. stakeholders depends on the nature of any agreement's development. For example, EU enlargement *could* significantly decrease export demand for some U.S. agricultural commodities and food products. But accession of a few major countries, such as China, to the World Trade Organization could expand U.S. market access by increasing the number of countries playing by the same international trade "rules" as the U.S.

Strong income growth in developing economies is a major reason for the optimistic scenario outlined by the international baseline. Weaker growth would mean lower global trade, lower U.S. exports, and lower agricultural commodity prices.

Supply response, both domestic and international, determines the agricultural sector's performance in responding to market signals. Yield assumptions do not explicitly account for changes that could occur as a result of biotechnological breakthroughs. In addition, potential productivity changes that may result from the 1996 Farm Act are excluded, principally because a good deal of uncertainty remains about how domestic supply is going to respond in the absence of acreage reduction programs and deficiency payments. There is even greater uncertainty about the nature of foreign supply response. Experience in the recent past suggests that foreign supply can be highly responsive to price signals and can adjust very rapidly.

Energy prices and their stability over time are a perennial concern. However, there is no empirical basis for assuming a new energy crisis or anything other than a trend extension for energy prices. If energy price instability occurs, it could have a big impact on the outlook.

Agricultural Economy

The prospect of declining *U.S. and global grain stocks* has generated considerable uncertainty, particularly since enactment of the 1996 Farm Act. Following several years of adjustments from recent unusually tight market conditions and high prices for many crops, long-term trends in supply and demand balances imply tightening stocks-to-use ratios and strengthening nominal prices for crops, especially beyond 2000. In particular, U.S. and global grain stocks-to-use ratios tighten relative to historical standards, as budgetary pressures and a continued commitment to market forces encourage governments to refrain from financing large grain stocks.

What this means for the outlook with respect to price volatility and food security remains uncertain. On the one hand, a range of factors—e.g., globalization of markets, trade and agricultural policy liberalization, and advances in telecommunications that allow electronic trade and link foreign and domestic futures markets—suggests that stocks have become less important to price stability. On the other hand, price levels are inversely related to stock levels, and as stocks

decline, higher prices might make food security harder to assure in low-income countries.

In addition to the above uncertainties, a variety of issues that are currently central to the domestic agricultural economy—e.g., income risk management and sustainability—are not addressed in the baseline. The 1996 Farm Act's removal of traditional income safety-net mechanisms effectively transfers income variability risk from the government to farmers. Although baseline projections assume no shocks, normal variations in supply and demand will occur in the future. U.S. farmers will have to make strategic use of risk management alternatives to buffer a portion of this potentially greater income volatility.

Some farmers will expand their use of futures and options markets, possibly using new instruments such as yield contracts. Many producers continue to use crop insurance for yield protection and may expand coverage using revenue insurance now available in some areas.

Other alternatives to manage risk include diversification of production, contracting in advance for the future sale of the commodity, integrated ownership, and involvement with more value-added processing beyond the farm gate. The baseline does not address which risk management mechanisms farmers will adopt or what their adoption will mean for production or average income levels.

The economic, ecological, and social conditions underlying the baseline analysis, or implied by the resultant outlook, may or may not continue. This consideration introduces more uncertainty about whether pathways suggested by the current outlook can be maintained over time.

In summary, the baseline is a "conditional scenario analysis," designed for comparative purposes. Whether or not an individual agrees with the underlying assumptions, the baseline serves as a clear reference tool from which alternate outcomes may be derived by changing those assumptions.

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Commodity Spotlight



Washington Asparagus Commission

Exporters Target U.S. Asparagus Market

The U.S. is one of the world's largest producers and consumers of fresh asparagus. In the past, fresh asparagus was consumed in the U.S. only in the first half of the year when U.S. product was available. Now, thanks to soaring imports—up 74 percent in the 1990's—fresh asparagus is available year-round.

But imports arrive not only during the off-season. They also come in during the U.S. season beginning in January, reducing the early-season price premium. Because U.S. demand is flat, the growth of fresh and processed asparagus imports poses serious challenges to the U.S. industry. Total per capita asparagus consumption has been nearly constant in the 1990's at 1 pound—0.6 pound fresh consumption.

In 1980, the U.S. imported just 8 percent of the fresh asparagus supply, but by 1996 that share had increased to 40 percent. Mexico has always been the largest source of U.S. imports, but many new

countries are entering the market. Asparagus is a labor-intensive, high-value crop that is very attractive to countries with ample labor supplies and the appropriate growing conditions. Peru, in particular, has become one of the world's largest producers and exporters of asparagus. Recent investment in China hints at considerable growth potential there too.

U.S. asparagus production has declined since 1989, due in part to some California producers switching to more profitable annual crops. U.S. production is expected to increase in 1997, however, following poor weather in 1995 and 1996 which reduced production in California. Also, recent plantings in California are starting to mature, further boosting supply in the next few years. Under these conditions, U.S. producers should expect downward pressure on prices. With the rapid growth of asparagus imports from other countries, off-season suppliers may also experience downward price pressure.

U.S. Output Trending Lower

In 1996, U.S. asparagus production was nearly 200 million pounds, 20 percent below the record 250 million in 1989. About 56 percent of U.S. asparagus production was marketed in fresh form last year, compared with only 37 percent from 1975 to 1979. During the 1990's, the relative shares of processed and fresh production have remained fairly constant.

California has traditionally been the largest U.S. asparagus producer, but weather problems over the last 2 years allowed Washington to surpass it as the nation's leading producer. In 1996, Washington accounted for 42 percent of total production compared with California's 38 percent. Michigan's share was 15 percent. New Jersey, Illinois, Indiana, Maryland, Minnesota, and Oregon accounted for a combined 6 percent of production.

With the exception of 1992, U.S. asparagus production has declined steadily from 1989 to 1996, due mostly to lower output in California. Acreage in California's Imperial County, with the earliest U.S. asparagus production, declined as produc-

tion grew in the neighboring Mexican state of Sonora, which has an overlapping shipping season (January to March). Between 1989 and 1996, imports during the month of January almost doubled, lowering early-season prices and putting competitive pressure on producers.

The Imperial County industry appears to have stabilized, however, with acreage virtually unchanged in the last 3 years. In the Salinas area, asparagus acreage has declined as farmers switched to more profitable annual crops.

The Stockton-Delta area, with 57 percent of the state's expected harvested acres in 1997, is expected to remain the leading growing region in California, due to lower production costs relative to the Salinas area and Imperial County. Recent plantings in the Stockton-Delta area could raise total California harvested area to about 34,000 acres in 1998 (when current plantings mature), up 18 percent from 1996.

California is the most important state for fresh production, with virtually the entire crop sold in the fresh market, accounting for two-thirds of total U.S. fresh production in 1996. Washington accounted for almost one-fourth of fresh production, while New Jersey and Michigan each accounted for about 3 percent.

The bulk of California's crop is shipped to the fresh market from late February through May, with the largest shipments in March and April. Small amounts of asparagus are available beginning in January from Imperial County. California producers receive higher returns than those of other states because they sell more to the fresh market and are the earliest domestic producers.

Processed output includes canned (35 percent of total production) and frozen (9 percent). Washington State is the largest producer of asparagus for the processed market, with 64 percent of the total processed asparagus pack in 1996. Michigan accounted for most of the rest.

Agronomic conditions for asparagus are very good in Washington, and average state yields are high. Producers depend

Commodity Spotlight

on high yields rather than on the early season that gives their Californian counterparts an edge in the fresh market. About 55 percent of Washington's crop is canned, and less than 10 percent is frozen. Washington specializes in whole spears, which command a higher value in the marketplace but are more labor-intensive than other processed products.

Most Michigan production is processed, with about two-thirds of the processed asparagus canned and one-third frozen. Michigan is second to Washington in canned production, but recently surpassed it as the largest producer of frozen asparagus. Unlike Washington's processed asparagus, most of Michigan's asparagus is processed into cuts and tips, which are lower value and less labor-intensive products.

Higher Fresh Imports Keep Consumption Steady

With the exception of 1984 and 1994, U.S. imports of fresh asparagus have grown each year since 1980, turning the U.S. from a net exporter up through 1982 to a net importer by 1990. Since the late 1980's, increasing imports of fresh asparagus have offset declining U.S. fresh-market production, while exports have been flat.

Domestic consumption of fresh asparagus has been fairly constant, fluctuating between 148 and 153 million pounds. The rise in consumption that occurred in the off-season merely offset the decline in consumption during the traditional spring season. Seasonal demand has flattened somewhat in recent years, but consumption still peaks in the spring. If California output rebounds in future years, prices will be lower and spring consumption may return closer to the 1990 level.

Imports usually peak in February, when the supply from Mexico is at its highest level. Imports drop sharply during the spring as U.S. production picks up, then begin increasing again in July when most U.S. supplies dry up. Shipments from the Bajío region of Mexico's state of Guanajuato are at peak levels in late summer. Imports from Peru are strongest from September through December, but continue into the new year. Imports from Chile peak in October.

Traditionally, most fresh asparagus imports come from Mexico. In 1980, almost all imports came from Mexico, but its share has trended downward, sinking to 53 percent in 1996 as Peru and Chile began filling the off-season void. Most of Mexico's export production is shipped

from the northwestern state of Sonora from December through early April.

In 1996, just over half of Mexico's fresh asparagus exports to the U.S. were in February and March. Once the Stockton Delta area of California reaches full production and U.S. prices fall, Mexican exports decrease drastically.

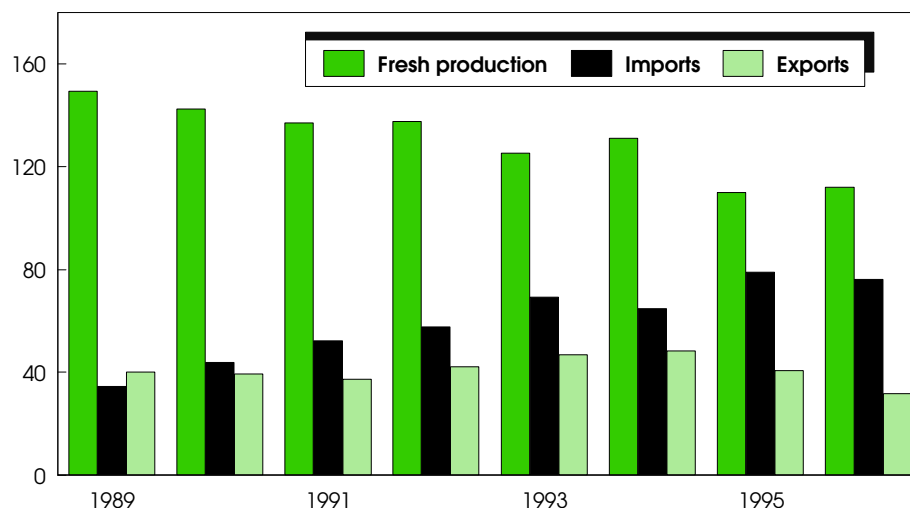
U.S. fresh asparagus imports from Mexico have varied over the last few years. In 1994, imports from Mexico fell as disease problems in the Bajío curbed output and an overvalued currency raised prices to U.S. buyers. With the peso devaluation in late 1994, exports increased in 1995 but fell again in 1996 due to the Bajío's chronic disease problems.

Mexico's sizable shipments to the U.S. occur despite relatively high U.S. tariffs. The North American Free Trade Agreement (NAFTA) should improve Mexico's position as a source of U.S. imports. Before implementation of NAFTA, the U.S. assessed a 25-percent tariff on fresh green asparagus imports from Mexico. Now the tariff schedule varies by time of year. For the month of January, the tariff was reduced immediately in 1994 to 17.5 percent from 25 percent and is being phased out over 15 years. For February 1 to June 30, the most sensitive period for U.S. producers, the 25-percent tariff declines to zero over a 15-year period. From July 1 to December 31, the 25-percent tariff is being phased out over 5 years.

Mexico has a transportation advantage over other countries and will eventually be on the same tariff footing as most other foreign competitors who pay no duty (i.e., countries benefitting from the Caribbean Basin Initiative and Andean Trade Preference Act). Chile and Argentina are the only other Latin American asparagus exporters that still pay duties. In 1996, the duty on asparagus from these countries was 23.8 percent during most of the year. The only exception was a 5-percent duty assessed on asparagus arriving by air between September 15 and November 15.

Fresh Asparagus Imports Have Increased While U.S. Output Declined Since 1989

Million lbs.



Commodity Spotlight

Peru is the second-largest foreign supplier of fresh-market asparagus to the U.S. Between 1989 and 1996, U.S. imports of fresh asparagus from Peru grew from 2 million pounds to 23 million, reaching 31 percent of total U.S. fresh asparagus imports. Three-quarters of Peru's fresh exports to the U.S. are shipped during September through December when there is very little U.S. production.

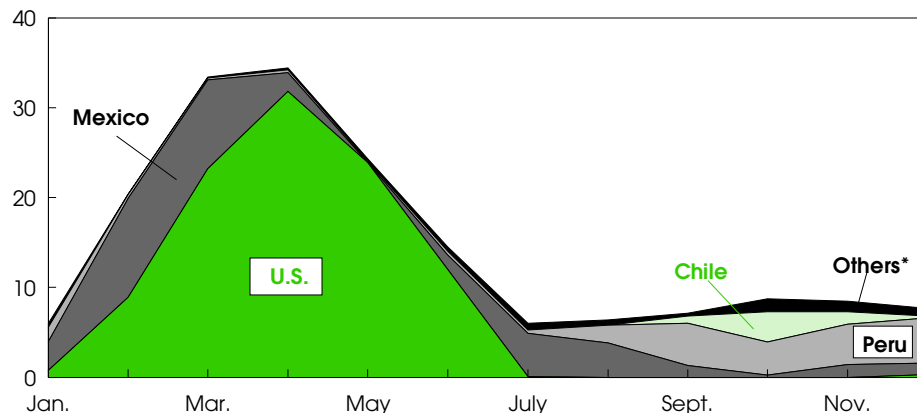
Peru has rapidly emerged as one of the world's largest producers and exporters, aided by climatic conditions permitting year-round asparagus production. Peru also enjoys duty-free access to the U.S. market through U.S. trade concessions under the Andean Trade Preference Act, which was implemented for Peru in 1993. Total Peruvian asparagus exports to all countries grew from 10 million pounds in 1980 to 187 million in 1996. Export growth is expected to slow now that there are more competitors for the maturing U.S. off-season market.

Peru's green asparagus dominates production in the Ica region south of Lima, while white asparagus predominates in La Libertad on the northern coast. ("White" asparagus is produced by covering the plant with soil, preventing sunlight from reaching it.) Most of Peru's asparagus production is exported—primarily canned white asparagus packed in glass, sold mainly to the European market. Fresh green exports have grown rapidly, destined mainly for the U.S. and representing 18 percent of Peru's total asparagus export volume in 1996. The frozen industry is also growing rapidly, with more green frozen product being shipped to the U.S. market.

Chile is the third-largest supplier to the U.S. In 1989 Chile provided 12 percent of U.S. fresh asparagus imports, slipping to just 8 percent in 1996. Chile's competitiveness declined due to rising labor costs and the appreciation of its currency relative to the dollar. Furthermore, among the major suppliers only Chile is still subject to the full duty during most of the year. In 1996, 87 percent of Chile's asparagus shipments to the U.S. arrived during the September 15–November 15 period when the duty is only 5 percent.

Latin American Fresh Asparagus Complements and Competes with U.S. Output . . .

Million lbs.

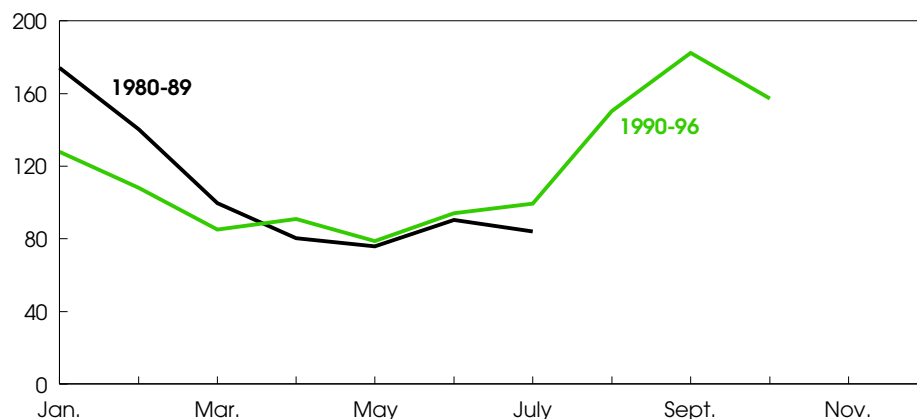


1996 shipments.

* All other importing countries.

. . . and Imports Have Reduced Early-Season U.S. Grower Prices

\$/cwt



1992 dollars. From 1980 to 1989, U.S. asparagus shipments after July were insufficient to establish a price. From 1990 to 1996, shipments during August–October were very small.

Economic Research Service, USDA

After a reduction in Chile's asparagus acreage earlier in the 1990's, acreage is expanding again, in part because asparagus complements the labor-use patterns of fruit producers and because its relative profitability is now higher. If NAFTA were extended to Chile, the change in tariff regime would improve Chile's competitive position.

Other Latin American countries such as Colombia, Guatemala, Ecuador, Argentina, and Costa Rica have also increased

exports to the U.S. Colombian exports of fresh asparagus to the U.S. grew from 8,800 pounds in 1990 to 2.7 million in 1996. Despite rapid growth in these countries, their shares of the market remain very small. Collectively they accounted for only 8 percent of imports in 1996.

Most South and Central American fresh asparagus enters the U.S. through Miami. Season-average wholesale prices in Miami dropped from \$21.87 per box in

Commodity Spotlight

1991/92 to \$18.49 during the 1995/96 season. At this level, most exporters are reportedly barely breaking even. When the U.S. tariff (during July 1-December 31) on Mexican imports is removed in 1998, South and Central American exporters will likely face additional competitive pressures.

While the U.S. fresh asparagus import profile has changed dramatically in recent years, the export market has seen less change. After rapid export growth in the 1980's, U.S. fresh asparagus exports showed modest increases from 1991 to 1994 but dipped in the last 2 years as California production declined. Japan and Canada are the most important markets, accounting for 44 and 32 percent of U.S. exports.

Peru & China Vie for Processed Markets

Only 9 percent of the U.S. asparagus crop was frozen in 1996. While production declined from an average of 23 million pounds in the 1980's to 20 million in the 1990's, average imports increased from 1.2 million to nearly 4 million pounds, keeping consumption relatively constant at 0.1 pound per person. Imports accounted for 25 percent of domestic consumption in 1996, compared with an import share in the 1980's averaging only 5 percent.

U.S. frozen asparagus imports totaled 3 million pounds in 1996, with Peru the dominant supplier at 61 percent of total imports. During the 1990's, Peru rapidly developed as a major player in the global frozen green asparagus industry. Since Peru's green asparagus industry is a dual usage industry, firms can divert product from the fresh to frozen market when fresh-market prices are low. Washington State has become uncompetitive relative to Peru in the production of frozen whole spears. Michigan may soon face similar competition from Peru, eroding the position of the entire U.S. frozen industry.

Peru's position in frozen green asparagus strengthened in the 1990's at the expense of Mexico (now at 10 percent of total imports) and Chile (6 percent). On the other hand, China, which accounted for 23 percent of U.S. imports in 1996, looms on the horizon with great potential. Japanese investment in China's asparagus sector is providing an infusion of new technology and capital for both canned and frozen product, which may have important competitive implications for the global processed asparagus market by the turn of the century. In addition, many industry observers feel China has the potential to develop a fresh green asparagus export industry.

U.S. exports of frozen asparagus, which totaled 0.5 million pounds in 1996, are destined primarily for Canada (88 percent of total exports). Other markets include Sweden, Australia, Japan, and South Korea. The U.S. has become less competitive in the Japanese market as Peru's frozen asparagus exports have soared.

Just over one-third of U.S. asparagus was used for canning in 1996. Canned production has trended up slightly from an average of 68 million pounds in the 1980's to 73 million in the 1990's. During this period, lower imports and higher exports offset gains in U.S. production, with domestic consumption marginally lower. Per capita consumption of canned asparagus has remained relatively constant during the 1990's at an average of 0.3 pounds.

The U.S. is a net exporter of canned asparagus, all green, while canned imports are primarily white (white asparagus is more labor-intensive). U.S. trade in canned asparagus is relatively small. In the 1990's, only 4 percent of canned asparagus consumption was imported, down from 8 percent during the 1980's. China is the primary source of U.S. canned asparagus imports, with a 57-percent share in 1996 compared with Peru's 19 percent. Canada and New Zealand were the third- and fourth-largest sources of imports, with shares of 7 and 4 percent.

Canned exports have increased from 5 percent of total U.S. canned supply in the 1980's to 7 percent in the 1990's. In 1996, U.S. exports totaled 7 million pounds, the highest level of canned asparagus exports since 1970. During the 1990's, Australia developed into the largest market for U.S. canned asparagus exports, absorbing 33 percent of the total in 1996, while England moved into second place. Other markets include Japan (9 percent of total exports), Iceland (8 percent), and Canada (4 percent).

Outlook for The U.S. Industry

The U.S. asparagus industry faces a mature domestic market and a global industry with strong competitors in fresh and frozen product and potential competitors in canned product. The U.S. industry's share of global production declined in the 1990's, due to an acreage decline and weather problems in California. An expected acreage increase this year, combined with a return to more normal weather patterns, should help California production rebound in the near term. However, increased volume should generate lower prices, which may cause acreage to decline again.

Given the proliferation in fresh produce items now available to consumers—the average U.S. supermarket handles 340 fresh produce items—increased investment in promotion and product innovation may be essential to stimulate demand for fresh asparagus relative to the attractive substitutes. Promotion and product innovation are complicated, however, when there are several domestic and foreign suppliers to a market. When one producing group invests to expand consumer demand, all suppliers, including importers, may benefit.

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Food & Marketing



Jack Harrison

Food Prices Forecast Up 2.5-3 Percent In 1997

The Consumer Price Index (CPI) for food in 1997 is forecast to rise 2.5-3.3 percent, down from last year's 3.3-percent gain. The 1996 increase was the largest since 1990 when food was up 5.8 percent, and was slightly above the 2.9-percent increase for all goods and services.

The away-from-home component of the CPI is expected to increase 2-3 percent in 1997, compared with 2.5 percent in 1996. The higher Federal minimum wage, which went into effect in fall 1996, had minimal impact on the away-from-home index that year. While some upward pressure on the away-from-home index was expected, competition among restaurants and fast-food establishments remained strong and prevented the pass-through of higher wage and raw material costs to consumers. The at-home component of the CPI is expected to increase 2.5-3.5 percent in 1997, down from the 3.7-percent rise in 1996.

In spite of high grain prices last year, four major factors prevented a large runup in food prices in 1996 and should keep a lid on the impact of any commodity price advances this year. First, overall inflation (as measured by changes in the all-items CPI) remained stable at 2.9 percent in 1996 and is forecast to increase just above 3 percent in 1997. This means that costs related to food production and marketing—e.g., labor, packaging, transportation, and advertising—which account for about 75 percent of retail food costs, are not expected to increase substantially.

Second, the farm-value proportion of the U.S. food dollar, which has been on a declining trend and which stood at 22 cents in 1995, is expected to be about the same in 1996 and 1997. With a lower farm-value proportion (compared with 37 cents in 1973), retail food prices are determined less by farm commodity prices and more by market conditions for labor, packaging, and advertising, as well as by competition among firms.

Third, the trend of increasing economies of size in the agricultural sector is expected to continue. In particular, larger and more specialized pork, poultry, and beef (feedlot) operations have led to slower rising per-unit production costs.

Fourth, the away-from-home food sector, primarily restaurants and fast-food establishments, is much larger than two decades ago. Purchases of food away from home accounted for 47 percent of total food dollars spent in 1995, up from about a third in 1973, and are expected to be about the same in 1996 and 1997. A large away-from-home sector lessens the impact of rises in grain or other farm commodity prices on the overall food price index.

Changes in prices for away-from-home items are influenced more by developments in the nonfarm markets and by competition among restaurants and fast-food establishments, than by increases in farm commodity prices. The away-from-home food market has been very competitive since the recession of the early 1990's.

Rising grain prices from late 1995 through summer 1996 affected feed costs as well as retail prices for beef, pork, poultry, eggs, dairy products, and cereal and bakery products. Because these food categories account for over a third of the at-home food dollar, price changes for these items can have a significant impact on the at-home CPI, which measures prices of purchases primarily from grocery stores and supermarkets. Although retail prices increased for most food categories in 1996, prices actually fell for three food categories—beef and veal, fresh vegetables, and nonalcoholic beverages.

Large beef supplies along with weakened export demand provided U.S. consumers with plentiful supplies, leading to the beef and veal CPI falling 0.3 percent in 1996. Beef production is expected to be about the same in 1997, which should push up the CPI for beef and veal by 1-3 percent.

Retail *pork* prices increased nearly 10 percent in 1996, due to lower pork output, fast-paced exports in the first half of the year, and brisk demand for bacon in the fast-food industry. With 1997 pork production likely to remain near 1996 levels and export demand strong, the CPI for pork is expected to increase 3-5 percent in 1997.

Prices for *other meats* increased 3.6 percent in 1996 and are expected up 1-3 percent in 1997. Other meats include highly processed food items, with prices influenced more by the general inflation rate than by the cost of the meat inputs.

Continued strength in domestic and export demand along with higher feed prices boosted *poultry* prices 6.2 percent in 1996. Slower production increases in 1997 for broilers and turkeys, and lower production for total red meat during first-quarter 1997, should contribute to higher broiler prices. The CPI for poultry is expected to increase by 2 percent in 1997.

In 1996, prices for the major *fish* items (i.e., tuna, salmon, and shrimp) remained flat, and the CPI for fish and seafood went up 0.9 percent. It is expected to rise 2-4 percent in 1997 due to increased

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restrictions on foreign fish harvesting, and disease problems with foreign farm-raised shrimp. Imports account for about 40 percent of U.S. fish consumption.

Egg prices were sharply higher in 1996, jumping almost 18 percent. Strong domestic demand, especially from the fast-food industry, and foreign demand, especially for egg products, kept retail prices higher throughout the year. Continued increases in production during fourth-quarter 1996 and into 1997 should result in average 1997 prices below the high levels of 1996. The CPI for eggs should be level or decline slightly in 1997.

Strong domestic and export demand for dairy products, coupled with lower out-

put, increased the milk products CPI by 7 percent in 1996. Milk production in 1996 was restrained by high feed prices and forage quality problems. Production in 1997 is forecast to increase fractionally. The modest gain, along with the possibility of lingering damage from winter storms in the western states of California, Washington, Idaho, and Oregon, is expected to lead to a 2-4-percent rise in the CPI for dairy products in 1997.

Retail prices for *fats and oils* increased 2.4 percent in 1996 and are expected to repeat this rise in 1997. Price changes for these highly processed food items are influenced more by the general inflation rate than by the cost of the raw commodities, which include soybeans, corn, and canola.

Weather and growing conditions in the major *fresh vegetable* growing areas, especially California, Florida, Arizona, and Texas, were nearly perfect during most of 1996. The result was minimal disruption in the fresh vegetable market, with the CPI falling 2 percent in 1996. This year started out differently, however, with a severe Florida freeze in January damaging several fresh-market vegetables—squash, snap beans, bell peppers, eggplant, and tomatoes.

The impact on retail prices for these items will likely last through April. The bulk of most other fresh-market vegetables is grown in other states and was not affected by the freeze (AO March 1997). Although the fresh-vegetable CPI is expected to increase 6-7 percent the first 6 months of 1997, the annual increase should return to trend levels, at 3-5 percent.

Large supplies of oranges and western U.S. apples should moderate *fresh fruit* prices in first-half 1997. The fresh-fruit CPI is expected to rise 3-5 percent in 1997, after posting a 7-percent increase last year.

Domestic *sugar* production declined about 7 percent in 1996, as high prices for alternative crops and lower grower returns caused some producers to reduce sugar beet plantings. Along with lower sugar output, price increases for high-fructose corn syrup contributed to higher retail prices for selected sugar-related food items in 1996, boosting the CPI for sugar and sweets by 4.5 percent. With total sugar supplies expected up slightly in 1997, the CPI for sugar and sweets is expected to increase 2-4 percent in 1997.

Cereal and bakery products account for a large portion of the at-home food CPI—almost 15 percent. While higher grain prices helped push up retail prices for selected bakery products, retail price reductions for breakfast cereals tempered gains in the cereal-and-bakery CPI to just 3.9 percent in 1996. The CPI for cereal and bakery products is expected to rise 3-5 percent in 1997.

Modest Gains in Meat and Dairy Product Prices Foreseen for 1997

Consumer Price Indexes	Relative weights*	1994	1995	1996	Forecast 1997
	— Percent —	— Percent change from previous year —			
All items		2.6	2.8	2.9	3.2
All food	100.0	2.4	2.8	3.3	2.5 to 3
Food away from home	37.3	1.7	2.3	2.5	2 to 3
Food at home	62.7	100.0	2.9	3.3	3.7
Meats	12.2	19.5	0.5	0.1	3.5
Beef and veal	6.2	9.8	-0.8	-0.8	-0.3
Pork	3.4	5.8	1.7	0.7	9.9
Other meats	2.5	4.0	2.4	1.5	3.6
Poultry	2.7	4.4	3.4	1.4	6.2
Fish and seafood	2.4	3.9	4.5	4.8	0.9
Eggs	1.0	1.9	-2.4	5.4	17.9
Dairy products	7.4	11.8	1.8	0.8	7.0
Fats and oils	1.6	2.5	2.7	2.8	2.3
Fruits and vegetables	12.7	19.6	3.8	7.7	3.5
Fresh fruits, vegetables	8.9	13.5	4.6	10.3	2.8
Fresh fruits	4.5	7.4	6.6	8.8	7.0
Fresh vegetables	4.5	6.2	2.3	12.1	-2.0
Processed fruits, vegetables	3.8	6.1	2.2	2.2	5.0
Processed fruits	2.1	3.5	0.6	3.1	5.8
Processed vegetables	1.6	2.6	4.4	1.2	4.0
Sugar and sweets	2.1	3.3	1.4	1.7	4.5
Cereals and bakery products	9.2	14.9	4.1	2.8	3.9
Nonalcoholic beverages	5.0	7.7	7.5	6.9	-2.4
Other prepared food	6.5	10.4	2.6	2.4	3.4

*First column: Bureau of Labor Statistics estimated weights—expenditure shares—as share of all food. Second column: weights as share of food at home.

Sources: Historical data, Bureau of Labor Statistics; forecasts, Economic Research Service.

Economic Research Service, USDA

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How the CPI Overstates Food Price Inflation

The Advisory Commission to Study the Consumer Price Index (CPI) presented its final report to the Senate Finance Committee in December 1996. The report asserts that the overall CPI has overstated changes in the cost of living and that persistent and large overstatements have existed since the 1970's. The Commission's best estimate of the historic overstatement is 1.1 percentage points per year (adjusted for changes already made in the index), which results from four kinds of bias.

- *New product/quality improvement bias* results from a failure to account for quality improvements associated with new products. The Commission attributed somewhat more than half of the overall bias in the total CPI to new product bias, a problem that is very difficult and time-consuming to solve.
- *Formula bias* results from an inappropriate aggregation of price changes.
- *Substitution bias* results from lags in adjusting to changes in consumer expenditure patterns, particularly in response to changes in relative prices.
- *Outlet bias* results from failure to account for the price effects of changes in retailing. The CPI includes price changes only within retail outlets, not across outlets.

The bias in the food-at-home CPI is higher than for the overall CPI—probably closer to 1.9 percentage points per year—and is due primarily to the last three sources of bias. The Bureau of Labor Statistics (BLS), which publishes the CPI and has done much of the research identifying the sources of bias, is introducing changes that will have a noticeable effect on the food-at-home CPI.

In January 1995, BLS made a technical change in the way new price observations are introduced to the index. The previous method attached too much importance to items whose prices were rising and not enough importance to items whose prices were falling. The likely effect on the food-at-home CPI is to reduce its growth by 0.4 percentage points per year, starting in 1996.

BLS also began publishing experimental versions of the index, aimed at better handling other formula bias issues. The experimental indexes appear to reduce growth in the overall CPI by 0.25 percentage points per year, growth in the food-at-home CPI by 0.7 percentage points per year, and growth in the fresh fruit and vegetable index by 4.5 percentage points per year. The agency will begin publishing the experimental series in early 1997, and there is a good chance the new approach will be included in the official CPI by 1998.

Steps could be taken to handle substitution bias in the CPI, but that would require additional funding to substantially expand annual household consumption surveys. Further, the adjusted index would be published with a lag. Because of the expense and the publication time lag, such steps are less likely.

Outlet bias is estimated to have added 0.25 percentage points to the food-at-home CPI over the last decade. This estimate may decline if structural change toward larger and lower priced food stores slows.


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Only a small portion of the cost of producing cereal and bread—less than 10 percent—stems from the cost of ingredients, which include flour, sugar, and oil. Most of the cost is for processing and marketing. Competition for market share among the three leading breakfast cereal manufacturers led to retail price cuts for four consecutive months in 1996—an example of how the effect of market competition on retail prices can be stronger than commodity prices.

The CPI for *nonalcoholic beverages* fell 2.4 percent in 1996 due to retail price reductions for both coffee and carbonated beverages during part or all of the year. Coffee retail prices during the first 8 months of 1996 were down 19 percent compared with this period the year before. Competition between the leading soft drink companies during the 1996 summer Olympic games led to lower retail prices during the peak demand season, curtailing price gains for the entire year.

In 1997, however, the CPI for nonalcoholic beverages will likely increase 2-4 percent, due to higher wholesale coffee prices in the world market. The rise in wholesale prices has been triggered by a smaller-than-expected crop in Brazil and labor unrest in Colombia, the two major coffee producing countries.

Miscellaneous prepared foods are highly processed and are affected largely by changes in overall inflation. However, higher ingredient and raw material prices in 1996 did cause some manufacturing price increases in selected prepared foods, boosting the CPI for other prepared foods 3.4 percent in 1996. Competition among products should dampen further retail price increases in 1997, with the CPI for other prepared foods expected up 2-4 percent.

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Farm Finance



Farm Credit Use Up for 5th Straight Year

Market Stronger for Farm Lenders

Demand for farm credit is expected to increase again in 1997 after growing since 1992. Total farm business debt—real estate and nonreal estate loans—is forecast to reach about \$160 billion by the end of 1997, up about 2.7 percent from 1996 and the highest since 1985. This marks the seventh annual increase in the last 8 years, which followed 5 successive years of net debt retirement. Continued economic growth, relatively strong field crop prices, and increased farm incomes in 1996 are behind much of this year's expected expansion.

At the end of 1996, total farm business debt was \$155.5 billion, up 3.1 percent from a year earlier. The increase in 1996 is the second-largest annual percentage gain in outstanding loans since 1982 and pushes the debt level to about \$17.6 billion above the 1989 low. Since 1993, farm debt has expanded faster than the

rate of inflation, unlike the previous 4-year period.

The recent increase in farm debt is important to watch, but not a particular cause for concern, because the overall farm sector is in good financial health. On average, farmers are expected to take on just 60 percent of the debt that could be supported by projected incomes. In addition, total farm debt at the end of 1996 is still a solid 20 percent below 1984's peak. In percentage terms, increases in total farm debt in the 1990's have been well below the double-digit expansions of the 1970's.

Continued growth in loan demand contributed to the strong financial condition of most commercial agricultural lenders in 1996, and these lenders are expected to be in a strong position in 1997. However, changes in loan volume and the composition of loan portfolios vary among each of the four institutional farm lenders—commercial banks, the Farm Credit System (FCS), the Farm Service Agency (FSA), and life insurance companies.

Together, these four classes of lenders accounted for about 77 percent of all farm loans in 1996. The remaining share of farm credit comes from individuals and from nontraditional lenders, primarily input and machinery suppliers, cooperatives, and processors. Outstanding loan volume for all farm lenders increased in 1996, except for the government "farm lender of last resort"—the Farm Service Agency (FSA)—which accounted for 6 percent of all farm business loans in 1996.

Commercial banks are the largest source of farm business credit, accounting for 39 percent of all farm loans in 1996. Total outstanding farm loan volume by commercial banks reached \$61.2 billion in 1996, up \$2.5 billion, or 2 percent, from 1995. The FCS—a collection of federally chartered borrower-owned credit cooperatives that lend primarily to agriculture—held total farm business loans of \$39.9 billion at the end of 1996, up 6.8 percent from a year earlier. For life insurance companies, which are active in farm real estate mortgage lending, total farm loans rose just 0.8 percent during 1996, but are expected to grow about 2 percent in 1997.

Nonreal & Real Estate Loans Are Up

Agricultural lenders generally found the demand for farm credit strengthened across the board in 1996. Real estate, nonreal estate, and total outstanding loan volume categories each increased just over 3 percent.

Nonreal estate loan volume rose \$2.3 billion, or 3.2 percent, in 1996. Nonreal estate loans, typically used for farm inputs, equipment, and machinery, accounted for about 50 percent of the total 1996 growth in farm loan value—a change after lagging behind real estate loan growth rates in recent years. Outstanding FCS nonreal estate loan volume increased \$1.3 billion, or 10 percent, compared with \$157 million, or 0.4 percent, for commercial banks.

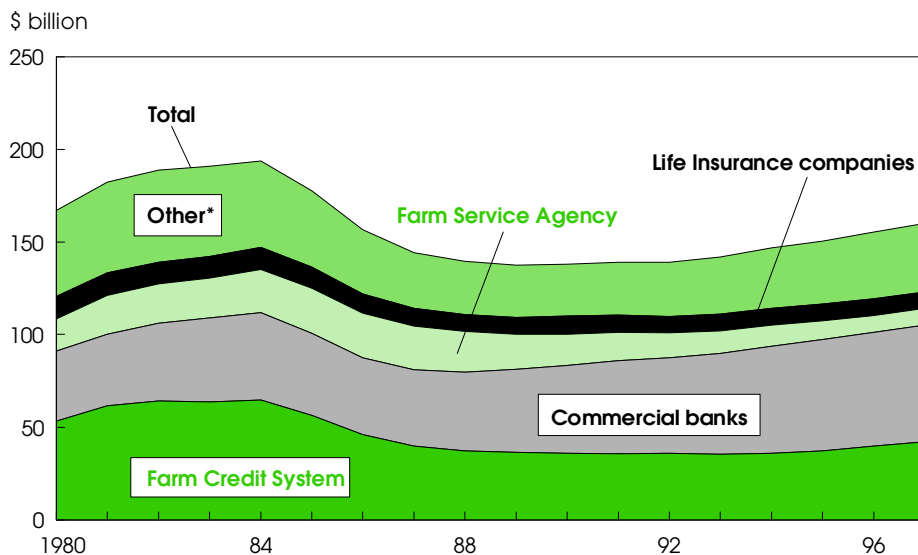
Demand for nonreal estate farm loans should increase 3-4 percent in 1997. Farmers are expected to increase expenditures on inputs—fuel and seed prices will be up from 1996. Partially offsetting is an expected decline in area planted to major crops because of lower prices at planting time. Total planted acres for the eight major crops (wheat, rice, corn, sorghum, barley, oats, soybeans, and cotton) are expected to decrease by about 5 million acres in 1997.

Strong farm machinery sales help maintain the demand for short- and intermediate-term farm loans. Sales of farm tractors, combines, and other farm machinery were strong in 1996. Tractor sales are forecast to be up again in 1997, but by a smaller margin, and overall demand for machinery is anticipated to be steady to higher. A rising share of loans for farm equipment and machinery is now met by "captive" finance companies owned by the machinery companies, rather than by traditional institutional lenders.

Farm real estate farm loan volume rose \$2.5 billion, or 3.1 percent, in 1996. Outstanding FCS real estate loans accounted for \$1.3 billion of the rise, while commercial banks gained \$1 billion. FCS long-term real estate loans increased 4.1 percent during the year ending September 30, 1996, reflecting increased

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Farm Debt to Reach \$160 Billion in 1997



*Debt to individuals and others, including merchants and dealers.

Economic Research Service, USDA

demand following a period of decline or stagnation for its mortgage credit.

Real estate loan volume should increase 2-3 percent in 1997. Brisk activity in the land market should create stable demand for mortgage loans in 1997. Per-acre U.S. farmland values increased 7 percent in 1995 and rose an estimated 6 percent in 1996. Values are expected to advance 5.5 percent in 1997, marking 11 straight years of U.S. farmland value increases.

From 1987 to 1991, growth in U.S. farmland values had lagged the rate of inflation. But since then, farmland values increased 25 percent compared with a 10-percent rise in overall prices. Moreover, the 1992-96 increases represent the strongest yearly gains, both in nominal and real terms, since the farm-sector recovery began in 1987.

FCS Market Share Has Rebounded

While farm credit has risen during most of the 1990's, substantial changes have occurred in farm business debt market shares among the four classes of institutional farm lenders, as well as in the composition of loans made by each class.

The interplay between two important lender classes—commercial banks and the FCS—is particularly notable.

The FCS has demonstrated financial strength in recent years after undergoing massive restructuring of its organization and procedures. The FCS has access to national money markets and can help provide needed farm credit at competitive rates.

Commercial banks' *total farm loan* portfolio grew 49 percent during 1987-96, while the FCS portfolio dropped 45 percent from a 1982 high to a 1993 low. The farm financial crisis of the early 1980's adversely affected the FCS, causing many farmer-borrowers to leave because of fear they could lose their stock in failed FCS units. Commercial banks also experienced financial stress but were able to compete effectively in the aftermath of the crisis to build market share.

FCS operating costs and net interest margins (i.e., the difference between rates charged to borrowers and FCS's cost of funds) have remained high compared with the pre-crisis level. But FCS market share increased both in 1995 and 1996 after trending downward since 1982.

Commercial bank share, on the other hand, declined in 1996 following a 14-year increase. During 1994-96, FCS farm lending grew 11 percent (\$4.1 billion) while commercial bank farm loans increased only 6 percent (\$3.4 billion).

For *real estate debt*, the value of outstanding loans held by commercial banks more than tripled (up \$15.7 billion) between the 1982 low and 1996. As banks required higher loan collateral in the wake of the 1980's farm financial crisis, new bank farm credit lines were backed by real estate, which shifted some production loans to the real estate category.

In contrast, FCS real estate loans decreased 47 percent (\$22 billion) from their 1984 high to a 1994 low. The FCS real estate loan portfolio has declined in 9 of the last 12 years while the FCS market share of these loans fell from 44 percent in 1984 to 31 percent in 1995. But in 1996, the FCS's real estate lending market share increased for the first time following an 11-year decline to 32 percent.

The *nonreal estate loan* portfolio of the FCS increased 57 percent (\$5 billion) from the 1988 low to 1996, and commercial banks' nonreal estate loans increased 37 percent (\$10.3 billion) from their 1987 low. This growth was the result of a recovery in demand as the farm sector grew following the farm financial crisis. In 1996, the FCS held 19 percent and commercial banks held 51 percent of total nonreal estate debt.

The FCS has shown recent gains, however, vis-a-vis the commercial banks. FCS nonreal estate market share has grown for 3 consecutive years, while commercial banks' share of the market has declined for 2 years. During 1993-96, FCS nonreal estate lending increased 30 percent (\$3.2 billion), while commercial banks' increased only 8.5 percent (\$3 billion).

In 1997, FCS total farm business debt is forecast to increase about 5.5 percent following a rise of almost 7 percent in 1996. FCS mortgage debt is expected to rise about 4 percent in 1997, the first significant gain since 1984, and FCS nonreal estate loans are forecast to rise over 8 percent in 1997.

Lenders Respond To Heightened Demand

Farm lenders have responded to the increased demand for loans that began in 1993. From year-end 1992 through year-end 1996, total farm debt grew \$16.4 billion, or 12 percent. Commercial banks led with \$9.5 billion, followed by the category of individuals and others, with \$6.6 billion, and the FCS, with \$4.1 billion.

The recent growth in farm loan demand experienced by commercial banks is reflected in their loan-to-deposit ratio, a common measure of a bank's lending capacity—the lower the ratio, the greater the bank's lending capacity. Average loan-to-deposit ratios grew to 67.4 percent for agricultural banks at the end of fiscal 1996, up from 59.7 percent 3 years earlier. Average loan-to-deposit ratios reported by the Federal Reserve System for agricultural banks increased in five of the eight reporting Federal Reserve districts. The Minneapolis and Kansas City ratios are the highest in 15 years, and the Chicago ratio is the highest since the late 1970's.

The growing demand for farm loans and increasing farm loan-to-deposit ratios at agricultural banks might appear to have taken much of the slack out of the farm lending system. But this has not generally been the case. High loan-to-deposit ratios do not necessarily constrain the origination of new loans. Commercial banks have many nondeposit sources of funds, and profitable, well-managed banks often have very high loan-to-deposit ratios.

Not all lenders will be able to expand credit to farmers in all loan categories. The FSA has authority for both direct farm lending, predominantly for operating loans, and loan guarantees. Under a guaranteed loan, FSA agrees to guarantee repayment of up to 90 percent (95 percent in some cases) of an approved loan made by a commercial lender.

FSA-guaranteed lending volume was \$1.85 billion in fiscal 1996, down 4.5 percent from 1995, and accounted for 69 percent of the agency's farm lending activity. Direct lending was \$832 million—low compared with direct loan levels before fiscal 1990. Adjusted for inflation, direct lending is now the lowest since the predecessor Farmers Home Administration was created in 1946.

The availability of direct FSA loans to family-sized farmers unable to obtain credit elsewhere continues to fall as the agency emphasizes guaranteed loans. FSA's predecessor agency began to emphasize guaranteed over direct government loans in the early 1980's. During fiscal 1995-96, outstanding direct loan volume fell by almost \$1 billion, while outstanding guaranteed volume rose by \$427 million. Direct loan authorities continue to be under added budget restraint, and the direct loan portfolio should continue to shrink for the foreseeable future.

FSA's direct lending program market share of total farm debt is now at the 1977 level. The decline in FSA's direct loan market share was largely the result of large loan writeoffs and reduced new lending activity.

FSA's loan demand in 1997 is difficult to predict because it depends in part on the extent of adverse weather as well as on economic conditions that affect the farm sector. FSA total farm loan authority is up 6.8 percent in fiscal 1997 and should be sufficient to meet demand for most programs. Guaranteed loan authority is up 22 percent to \$2.5 billion.

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As *AO* went to press, the Federal Reserve raised its key short-term interest rate by a quarter of a percentage point. This puts the Federal funds target rate for overnight loans between banks at 5.5 percent.

Ample Credit Available in 1997

Credit availability should be ample for agriculture and rural business borrowers in 1997, while interest rates may rise slightly by the second half of 1997. Farmers and other rural borrowers are benefiting from rural lenders' increased willingness to grant loans as well as a continued relatively stable interest-rate environment.

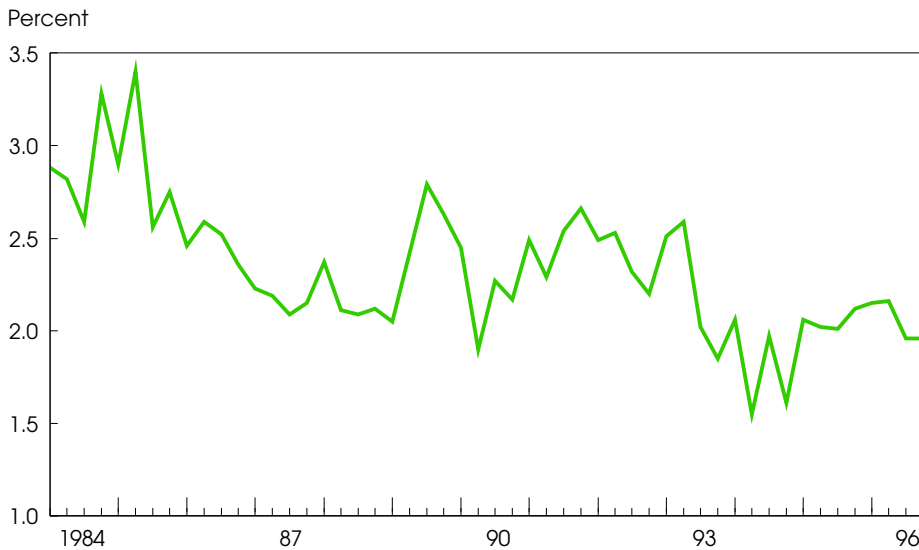
Because commercial banks are the largest category of lenders to agriculture and small businesses, the availability and cost of bank loans to agriculture and rural small businesses is an important factor in determining the near-term outlook for rural growth. The Farm Credit System also appears well capitalized and is willing to lend to creditworthy farm borrowers.

Stable interest rates and greater debt-fund availability benefits rural businesses by reducing their financial risk and cost of borrowing money. When there is uncertainty in the cost and availability of debt, business firms that borrow money are exposed to increased financial risk. As a firm's use of debt rises, overall fixed expenses increase, and when interest rates fluctuate, this leads to greater variability of net income. In the event of a sharp contraction in operating income or the ability to finance existing debt, business firms are more vulnerable to the risk of less credit availability and higher costs for obtaining and maintaining debt and equity capital.

Fortunately for agricultural and rural borrowers, credit availability has continued to improve in 1997. The Federal Reserve Senior Loan Officer Survey indicates commercial banks in the first quarter of 1997 have continued to ease credit standards for business lending, including credit standards for small firms. Likewise, for the fourth quarter of 1996, roughly half of rural banks heavily involved in agricultural lending had loan-to-deposit ratios lower than desired, according to the Federal Reserve survey of these banks.

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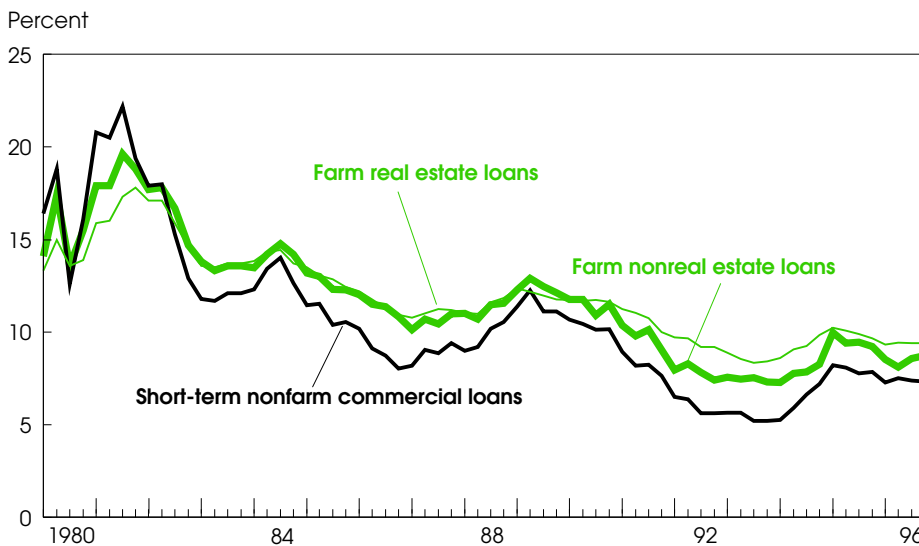
Bank Business Loan Spreads Have Narrowed in the Last Decade



The average rate for commercial and industrial loans (2-12 months maturity) charged by banks, minus the average rate for 3-month large certificates of deposit paid by commercial banks (cost of funds).

Economic Research Service, USDA

Interest Rates Have Been Less Volatile in the 1990's



Economic Research Service, USDA

The easing of credit standards and the desire to expand business lending has led to a narrowing of business lending spreads as well as greater availability of funds for business lending. Business lending spreads are measured as the difference between the loan rate charged by the bank and 1) the base lending rate the

loan is tied to (often the prime rate) or 2) a bank cost of funds (e.g., the Federal funds rate or a large certificate of deposit rate). Last year's trend toward smaller lending spreads and greater credit availability for business lending is expected to continue through 1997.

Lower lending spreads in 1997 for rural bank lending are due in part to strong profitability for agriculture and other rural industries in 1996, which strengthened business balance sheets and the value of their loan collateral. Because of stronger rural borrower balance sheets and increased bank willingness to lend, risk premiums on rural bank loans are likely to continue to fall in 1997. A continued slowdown in the growth and availability of consumer credit from commercial banks is expected, due to continued high and rising consumer debt burdens and consumer loan default rates. This should further expand bank funds available for business lending.

Lending Rate Volatility Declines in the 1990's

Agriculture lending rates from commercial banks have been less volatile in the 1990's than in the 1980's, which has been beneficial for both farm borrowers and farm lenders. Both farmers and lenders make decisions based on expected capital costs, risk, and expected levels and movements in interest rates. For farmers, such decisions include whether to invest in new farm capital now or later. For lenders, business decisions might include the amount and type of debt capital to raise. Borrowers must decide whether to finance assets primarily with long-term debt, such as long-term fixed rate loans, or with short-term or variable rate loans.

Large unanticipated movements in interest rates can have large impacts on the financial well being of borrowers and lenders. But in a relatively stable interest rate environment like the present one, movements in interest rates are likely to be relatively small, with fairly small forecasting errors that generate relatively little impact on borrowers and lenders. Furthermore, periods of stable interest rates with low inflation tend to increase the volume of long-term financing and reduce its cost.

Lenders benefit in periods of relatively stable interest rates—there is lower risk of sharp changes in the market value of existing bank assets and liabilities. Interest-rate stability also reduces the cost

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of lending in general, and farm lending in particular, by reducing the need to learn and apply complicated interest-rate-risk strategies (such as more closely matching the maturity of assets and liabilities or using derivative securities) or to engage heavily in the very inexact art of interest-rate forecasting. Because larger financial institutions are more able to afford and implement these asset and liability risk management strategies, a relatively stable interest-rate environment reduces the relative advantage large lenders have over small rural lenders.

Farm Interest Rates May Rise Slightly in 1997

Although risk premiums on agricultural and rural loans are determined primarily by profitability and risk in the agricultural sector, the sector is also influenced by the general level of interest rates. While accurate projection of interest-rate movements is extremely difficult, many analysts are forecasting a slight upward movement in the economywide interest rates in the second half of 1997. However, any increase in farm and rural lending rates at commercial banks and through the Farm Credit System is likely to be small.

Slower growth in credit demand in the nonfinancial sector (e.g., borrowing by consumers and by nonfinancial businesses) in the second half of 1996 should moderate upward pressures on interest rates in 1997. Nonfinancial credit grew at an annual rate of 5.8 percent in the first half of 1996 but slowed in the third quarter to 5.1 percent. Consumer credit growth slowed from 9 percent in the first half to 6.3 percent in the third quarter. Fourth-quarter nonfinancial credit grew just 4.5 percent as the growth in nonfinancial business borrowing slowed to 3.6 percent, and consumer credit growth slowed to 5.6 percent.

The direction of Federal Reserve policy is also uncertain in 1997, but Chairman Greenspan's late-February report to Congress pointed toward an increased likelihood of tightening monetary policy in 1997. The Chairman's testimony illustrated continuing Federal Reserve concerns over tight labor markets and very high stock market values that could generate increased inflationary pressures. But a substantial tightening of monetary policy is not likely in 1997 as long as economic growth slows and any increases in inflation are small.

Any increase in interest rates facing farm and rural borrowers is likely to be small in 1997 for several reasons. First, any increase in open market interest rates as a result of Fed action is likely to be small.

Second, rural banks are heavily dependent for loan funds upon consumer-type deposits, which typically adjust slowly to changes in open market interest rates. How aggressively banks compete for funds in times of rising interest rates depends upon many factors, including the strength of bank loan demand, the size of banks' surplus of loanable funds, banks' capital position, and whether the rise in open market interest rates is likely to persist.

Third, bank lending spreads are expected to continue to narrow in 1997. Fourth, the Farm Credit System has also shown a general reluctance to raise farm lending rates to match a rise in open market interest rates, especially in the short term.

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April Releases—USDA's Agricultural Statistics Board

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

April

- 2 *Broiler Hatchery*
- 3 *Dairy Products*
- 4 *Egg Products*
Poultry Slaughter
- 7 *Crop Progress (after 4 pm)*
- 9 *Broiler Hatchery*
Vegetables
- 11 *Crop Production (8:30 am)*
- 14 *Potato Stocks*
Crop Progress (after 4 pm)
- 15 *Hatchery Production, Annual*
Milk Production
Turkey Hatchery
- 16 *Broiler Hatchery*
- 17 *Agricultural Chemical Usage,*
Field Crops
- 18 *Cattle on Feed*
Cold Storage
Sheep
- 21 *Crop Progress (after 4 pm)*
- 22 *Chickens & Eggs*
- 23 *Broiler Hatchery*
- 24 *Catfish Processing*
- 25 *Dairy Products, Annual*
Floriculture Crops
Livestock Slaughter
Meat Animals—Production,
Disposition, & Income
- 28 *Crop Progress (after 4 pm)*
- 29 *Catfish Production*
Poultry—Production & Value
- 30 *Agricultural Prices*
Broiler Hatchery
Peanut Stocks & Processing

Special Article



European Community Delegation, Washington, DC

Market Stability & World Food Security

This article presents excerpts from a session at USDA's 1997 Agricultural Outlook Forum held in Washington, D.C. on February 24-25. The authors represent the World Bank, USDA, the Organization for Economic Cooperation and Development (OECD), and the International Food Policy Research Institute (IFPRI). They offer comments on several aspects of food market stability and world food security:

- *an overview of the past, present, and future of world food needs, with suggestions for continued progress;*
- *the USDA perspective, with a review of recommendations agreed to at the recent World Food Summit;*
- *the changing market picture faced by importing countries and the mutual obligations of food importers and exporters in a freer global trading system; and*
- *the case for increased support of research, particularly agricultural biotechnology, to meet the future food security needs of developing countries.*

This article represents a diversity of viewpoints and includes non-USDA as well as USDA authors. The contributions of non-USDA authors broaden the debate and provide additional perspective, but their statements do not necessarily reflect the views or projections of the Department of Agriculture.

Food Needs For The 21st Century

Ensuring food security for all is a challenge with many dimensions. Issues of food security exist at the household, national, and international levels, and the focus of policy intervention clearly changes as the time frame lengthens.

In the short term, reducing hunger clearly must focus at the household level; globally there is little to do except provide emergency food aid if it is available. In the long term, however, productivity enhancement, adequate global supplies, and a well-functioning trading system are critical.

Performance to Date (1960-96)

The world did remarkably well in expanding food production over the 30-year period 1960-90, despite periodic predictions of imminent shortages (1965-66, 1972-74, 1988). World cereal production more than doubled, per capita food production increased 37 percent, calories supplied increased 35 percent, and real food prices fell by almost 50 percent.

Regionally, average calories available per day increased significantly in the Near East and North Africa, East Asia, and Latin America, to levels of 2,700 calories per day or higher. South Asia grew more slowly, however, and still is a region with significant undernutrition, while Sub-Saharan Africa experienced a decline in per capita food availability.

The increases in production came from three sources—biological yield increases, land-use intensification (irrigated acreage in developing countries doubled), and expanded area. Between 1994 and 1996, however, world wheat, corn, and rice prices increased 70-100 percent and the stocks-to-use ratio plummeted to its historical low (13.2 percent). Concerns surfaced about whether this was the beginning of demand finally outrunning supply or simply a short-term deviation.

Those arguing the case for a prolonged period of shortages and rising prices cited declining growth rates on yields in the 1990's, losses of land from production, and water and environmental constraints as powerful indicators for the future. Others argued the market was simply overreacting to a short U.S. crop in 1995 and to policy changes in the European Union and the U.S. that lowered farm prices and reduced stocks.

A 7.5-percent increase in production globally in 1996 caused wheat and corn prices to drop sharply to pre-1994 levels by early 1997. Thus for the moment, those arguing that 1994-96 was only a spike, not a change in long-term trends, seemed to win the day.

The Future (2010-20)

Three recent simulation studies done at the International Food Policy Research Institute IFPRI, the Food and Agriculture Organization (FAO), and the World Bank have projected global cereal or food balances to 2010 and arrived at similar conclusions. They project grain yields to increase 1.5-1.7 percent per year, area harvested to increase modestly, global grain demand to grow more slowly, and trade in grains to increase. They expect real grain prices to remain constant or decline.

World food supply is expected to meet global demand, although regional food problems are expected to persist in South Asia and especially Sub-Saharan Africa. The studies identify rising yields as key to future food supplies, which will require continued investment in agriculture, including research.

IFPRI's study also made projections to 2020, which show a relatively healthy global food supply-and-demand balance that year. Real grain and meat prices are projected to continue falling (20 percent and 10 percent between 1990 and 2020). Trade is projected to expand substantially, with imports by developing countries doubling. Food problems are projected to persist in Sub-Saharan Africa, where imports are projected to triple, likely beyond the region's capacity to pay for them.

A view that contrasts with these three studies has been presented by the Worldwatch Institute, which argues that there is little backlog of unused agricultural technology, that fish production has reached its biological limits, and that rangeland carrying capacity has been exceeded. Worldwatch further argues that the demand for water is pressing hydrological limits, that fertilizer responsiveness is declining, and that much cropland (especially in China) is being lost to degradation, urbanization, and industrialization. The resulting conclusion is quite pessimistic, with the only possible solution being greatly expanded trade, which the Institute sees as doubtful.

Both sets of views agree, however, that continued investment in agricultural research should be pursued, and that farming systems must increase the efficiency of resource use and must not degrade the environment. IFPRI's study examined an alternative scenario in which investment in agricultural research is lower, and income growth slower. According to these projections, a decline in public investment in agricultural research would have severe consequences for the global food situation, causing real prices to rise and malnutrition to increase.

In the long run, food security can be achieved if we can accomplish four tasks: 1) develop sustainable production systems capable of nearly doubling output; 2) put in place domestic and international policies and institutions that do not favor industrial development over agricultural development and that provide appropriate incentive to farmers around the world; 3) continue to invest in public agricultural research through such organizations as the Consultative Group on International Agricultural Research (CGIAR); and 4) persist in removing distortions to free agricultural trade in all countries.

These are four big "ifs," but they must be met—for without them the long-term prospects are not very pleasant to contemplate.

Alex F. McCalla

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The World Bank*

World Food Security: A USDA Perspective

The challenges, concerns, and uncertainties of future world food security brought representatives from about 180 nations to the World Food Summit in Rome last November. From the U.S. point of view—a view apparently widely shared—the Summit was a good start.

It focused needed attention on those who suffer chronic hunger and malnutrition around the globe. Nations undertook a renewed commitment to alleviate hunger, setting as a goal the reduction by half of the number of people currently suffering from undernutrition, no later than the year 2015.

Equally important, the Summit Plan of Action helped define the steps needed to improve food security and reduce hunger, taking a comprehensive approach that requires actions by both developing and developed nations, as well as by the international community and multilateral institutions.

Three areas addressed in the Plan of Action deserve particular attention. First, food security can be achieved only through appropriate policies within individual countries. Food-importing developing countries can get help from outside, but their problems cannot be solved from outside. Leaders in these countries need to enact the internal policy reforms necessary to release private-sector initiative and help pull their countries out of poverty and dependence. The countries that have demonstrated the most progress in achieving economic development and food security are those that have seriously pursued market-oriented policy reform.

Second, future food security depends on continued and even stronger emphasis on agricultural research and development at the national, regional, and international levels. And this must include policies that encourage both the transfer of new technologies to developing countries and their subsequent use in those countries.

Third, trade liberalization is one of the most critical, most fundamental, keys to greater world food security. U.S. efforts helped ensure that this view was incorporated as one of the core commitments in the Summit Plan of Action. A fair, open, market-oriented trading system is the best suited to aligning supply with demand, maximizing output over time, and reducing wide swings in production.

Special Article

Freer trade provides importing countries with a wider choice of suppliers and allows them to take full advantage of the world market to make up for shortfalls in domestic production. The variability of production is almost always lower at the global level than at the country level.

Of course, freer trade involves obligations. It requires that food exporting nations remain consistent, reliable suppliers. Export embargoes and taxes undermine the foundations of an open market. But importing countries also have an obligation. If farmers in exporting countries are going to rely on market signals to determine what and how much to produce, those signals should not be interrupted or distorted. Exporters need to know the markets will be there—they need reliable buyers and buying patterns they can count on.

Nations need not fear freer trade from a food security standpoint. In a world where trade flows freely across borders, food security is not constrained by the limitations of self-sufficiency. It is not measured by food-aid budgets. It is not a function of how much each nation produces, but rather of global production, freedom of movement in products, and affordability—the ability, year after year, of developing and developed countries alike to buy the food they do not produce.

Coupled with internal policy reforms, development assistance, support for agricultural research, and food aid where needed, freer markets can contribute substantially to a more food-secure community of nations. By embracing these objectives, the World Food Summit Plan of Action provides a solid, well-balanced set of recommendations that can be useful to individual nations and the international community in addressing the problems of hunger and food security. But the Summit was only a start. The full measure of its contribution—its ultimate success—will depend on the political will that countries demonstrate, individually and in concert, in the follow-up this year and over the years to come.

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Curbing Price Swings in Global Food Markets

Importing countries in international markets share similar interests. They want assured access to supplies of grain of acceptable quality at “reasonable” prices. Being economically rational, they wish to obtain grain at the lowest possible cost. For the most part, they do not care whether this results from subsidies by exporters. However, importing countries tend to be particularly concerned about the possibility that prices will be “unreasonably” high, and especially that they may face rapid increases in prices.

The greatest change affecting the potential variability of international prices over the past few years has been the virtual elimination of public stocks of grain in OECD countries. By the end of the 1995/96 season, stocks of wheat in OECD countries had fallen to roughly 19 percent of production, compared with an average of 29 percent during the preceding 5 years.

In an era of budget restraint, governments are increasingly unwilling to fund stockholding and expect this to be undertaken by the private sector. It is difficult to determine the extent to which the reduction in the role of the public sector will be replaced by private stockholding in OECD countries, but some increase in private stocks seems likely. At the same time, stocks in the non-OECD area have largely been maintained, and consequently their share of the world total has increased.

Public stocks of grain, particularly those in major exporting countries such as the U.S., have provided an important buffer against weather-induced fluctuations in production. While the acquisition and release of public stocks in the U.S. can hardly be said to have been driven by the desire to reduce fluctuations in international prices, to a large extent the amount of stocks has varied inversely with international prices on a year-to-year basis.

The stocks-to-use ratio provides an important indicator of when the world is at risk of experiencing rapid increases in grain prices. If stocks are low relative to consumption, there is clearly a greater risk of a runup in prices when production is below average. But it is important to note that the ratio at which price spikes are likely to occur is not fixed, as is sometimes assumed. In fact, this ratio has been declining over time. The three major episodes of sharp upward price movements in wheat since 1975 occurred with substantially different stocks-to-use ratios. For example, in 1979 a runup in world wheat prices took place with a stocks-to-use ratio of 30 percent, whereas a broadly similar price runup in 1995/96 occurred when the ratio was less than 20 percent.

An explanation for this decline in the sensitivity of prices to the level of stocks is not hard to find. The last 20 years have witnessed an enormous increase in efficiency in the functioning of international grain markets. Information on availability and demand has become more accurate, and easier and faster to

obtain. Improvements in infrastructure in many countries mean that available supplies can be moved to market positions more rapidly. The revolution in communications technologies and computing has made a significant contribution to efficiency. Fewer stocks are tied up in government programs. In some cases domestic markets have become more open, allowing more of the adjustment to a short global crop to be reflected in consumption. Thus the world can expect to have less variable grain prices with lower levels of stocks. This is good news, since storage is expensive and few in the private sector are prepared to absorb the costs of holding significant grain stocks from year to year.

Further progress in reducing trade barriers, and the consequent globalization of markets, would help to increase the collective capacity to adjust to shocks. But policy reforms that do not lead to closer integration of domestic and international markets can actually increase the potential variability of international prices. What is required is a reduction in tariffs to levels that result in the effective transmission of changes in international prices to domestic markets. The resulting market integration would contribute much toward greater price stability at a global level. Until such integration occurs, it is inevitable that policies and policy interventions will continue to have a potentially destabilizing effect on international prices.

The second area in which changes could be achieved is through the growth of private-sector mechanisms for managing price variability and risk. In many countries in which domestic grain prices have largely been controlled by the government, agents (producers, intermediaries, and consumers) have limited experience with strategies for dealing with price variability. When the government guarantees prices, farmers or merchants have little need to develop a marketing plan for their grain, to decide when to sell or to store, whether to contract forward, or whether to use futures or options as part of a risk management strategy. When the government steps out of the grain marketing picture, there is a need for agents to develop such skills and to be able to take advantage of the private mechanisms that exist for risk management.

The world as a whole can best cope with unanticipated variability in prices due to the weather by working to ensure the full integration of domestic and international grain markets. This will require further reform of agricultural and trade policies to ensure true globalization and greater sharing of the burden of adjustment. Importing countries can best cope with the effects of such integration by facilitating the development of private mechanisms for risk management.

Price variability is a natural part of market adjustment and a normal feature of efficiently functioning agricultural markets. In the main, government intervention has not been particularly successful in reducing such variability, or if it has, this has come at a considerable cost to the country concerned or to others affected by the results of its actions.

Poor countries that import significant quantities of grain on commercial terms may experience economic and social problems if prices rise too sharply. Their special needs were recognized in the Uruguay Round agreement and reaffirmed at the recent Singapore summit meeting of the World Trade Organization. In the short term, the world community can use targeted assistance to best cope with the implications for poor countries of allowing prices to signal abundance or scarcity. In the longer term, the solution lies in addressing the root cause of food insecurity—poverty.

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Role of Research in the World Food Outlook

Science has made major contributions to food security in recent decades, through enhanced knowledge and improved technologies for food and agriculture. But existing technology and knowledge will not be sufficient for production of the food needed to assure a food-secure world in the years to come.

Research has a key role to play in maintaining and raising yields in the more favorable agricultural areas where significant gains have already been achieved. At the same time, the balance between these areas and less favorable areas—those with limited and unreliable rainfall and fragile soils—must be redressed.

The less favorable areas comprise much of the cultivable area in many developing countries and are home to many of the world's food-insecure and poor people. The more favorable areas will remain important sources of expanded food production in the future and, by minimizing the need to exploit new lands, will help to reduce pressures on the natural resource base. But a continuation of past low priority on the less favorable areas is inappropriate and insufficient to assure sustainable food security.

Agricultural biotechnologies such as genetic engineering are among the most promising developments in modern science for helping to meet world food security needs. Used in collaboration with traditional or conventional breeding methods, they can raise crop yields or productivity, increase resistance to pests and diseases, and enhance the durability of products during harvesting or shipping.

Yet, with the exception of a very limited amount of work by the centers of the Consultative Group on International Agricultural Research (CGIAR), little research in agricultural biotechnology is taking place in or for developing countries. Most biotechnology research is occurring in private firms in industrialized countries, focuses on the plants and animals produced in temperate climates, and aims to meet the needs of farmers and consumers in industrialized countries.

Special Article

Low-income developing countries are constrained in their pursuit of agricultural biotechnology research by limited public- and private-sector funding and by shortages of trained personnel. They can address these constraints, however, by providing incentives to the private sector to engage in such research, by collaborating with international research programs, and by seeking private- and public-sector partners in industrialized countries.

Agricultural biotechnology research that is relevant to the needs of farmers in developing countries, and to conditions in those countries, is essential, and the benefits of that research should be transmitted to small-scale farmers and consumers in those countries at affordable prices. Otherwise, developing countries will not only fail to share in the benefits of agricultural biotechnology, but will be seriously hurt as synthetic alternatives to their products are developed in industrialized countries, a situation already happening with cocoa and vanilla.

A more fundamental constraint to the use of agricultural biotechnology in and for developing countries is the attitude toward risk among the nonpoor in both industrialized and developing countries. Considerable resistance to agricultural biotechnology has arisen on the grounds that it poses significant new ecological risks and that it has unacceptable social and economic consequences. Although no ecological calamities have yet occurred, some observers fear that transgenic crops will develop troublesome new weeds or threaten crop genetic diversity.

Of course, any new products that pose such risks should be carefully evaluated before they are released for commercial development. But by raising productivity and food production, agricultural biotechnology will reduce the need to cultivate new lands and could therefore help conserve biodiversity and protect fragile ecosystems. To address concerns about ecological risks, developing countries can adopt regulations that provide a reasonable measure of biosafety without crippling the transfer of new products into the field.

As for the social and economic consequences of biotechnology, there is some concern that large-scale and higher income farmers will be favored because they will have earlier access to and derive greater benefits from agricultural biotechnology. These concerns are remarkably similar to those raised about the Green Revolution. Whatever the shortcomings, real or alleged, of the

Green Revolution, it did avert widespread starvation and helped many millions of people escape hunger once and for all. Similarly, agricultural biotechnology can contribute to feeding many more people in a sustainable way.

If we are to produce enough food to meet increasing and changing food needs, to make more efficient use of land already under cultivation, to better manage our natural resources, and to improve the capacity of hungry people to grow or purchase needed food, we must put all of the tools of modern science to work. In a world where the consequence of inaction is death for thousands of children daily and persisting hunger for millions of people, we cannot afford to be philosophical or elitist about any possible solution, including agricultural biotechnology. Modern science by itself will not assure food for all, but without it the goal of food security for all cannot be achieved.

Per Pinstrup-Andersen, Director General

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International Food Policy Research Institute **AO**

Upcoming Reports—USDA's Economic Research Service

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

April

- 14 *Cotton & Wool Outlook (4 pm)***
- Feed Outlook (4 pm)***
- Oil Crops Outlook (4 pm)***
- Rice Outlook (4 pm)***
- Wheat Outlook (4 pm)***
- 16 *Livestock, Dairy & Poultry (12 noon)*
- 17 *Tobacco**
- 21 *Agricultural Outlook**
- 22 *U.S. Agricultural Trade Update****
- 23 *Europe Update**
- 24 *Vegetables & Specialties**
- 30 *Potato Facts****

*Release of summary, 3 pm.

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