

Crops

Baseline projections are made in a setting of the market oriented agricultural policy of the 1996 Farm Act. In the initial years of the baseline, many crops are adjusting to a combination of weak demand due in part to the Asia financial crisis and large global supplies, before moving back towards longer term trends with more robust growth. World demand is reduced for many U.S. crops over the first few years of the baseline, 1999/2000 to 2001/02. In the longer run, more favorable global economic growth supports increases in trade and U.S. agricultural exports, although gains are somewhat muted by continued strong export competition and only moderate growth in import demand in some markets, such as for grains to China.

The 1996 Farm Act provides producers nearly full planting flexibility to adjust supply in response to changes in market returns. However, marketing loan benefits also enter into acreage response decisions, especially for soybeans in the baseline projections. Marketing loan provisions of the 1996 Farm Act provide a minimum revenue per unit of production when market prices are below the loan rate (see box, page 25). Consequently, these provisions affect acreage planting decisions when market prices are near or below market assistance loan rates.

Production flexibility contract payments decline over the next 4 years, 1999 through 2002, and then are assumed in the baseline to remain constant for each contract crop. However, since these payments are unrelated to production levels, they are not a significant consideration in supply response decisions.

Land Use

Changes in land use in the baseline reflect nearly complete planting flexibility of the 1996 Farm Act, without governmental supply management programs of previous farm law. This flexibility allows producers to respond to market prices and returns, augmented by marketing loan benefits in low price years.

Area planted to the eight major U.S. field crops (corn, sorghum, barley, oats, wheat, rice, upland cotton, and soybeans) expands to 265.2 million acres in 2008 (table 7), exceeding the recent high level of plantings for these crops attained 1996. However, reflecting low prices for many crops due to weak demand and large global supplies, aggregate area planted to these crops declines somewhat through 2001 before turning upward again in 2002. Reductions in soybean and corn area account for most of the drop in aggregate area over the next few years. Total area then rises through 2008, with wheat, corn, and soybeans accounting for most of the growth. Harvested acreage for the major crops mirrors total area planted, generally declining in the next few years before rising for the rest of the baseline.

Total feed grain area increases over the projection period, mostly due to gains for corn and sorghum. Corn plantings initially decline in response to continued low prices, reflecting strong foreign competition and weak exports due in part to the Asia financial crisis. Soybean planted area also declines in the next few years and, although it rises after 2002, does not return to the level of 72.5 million acres projected in the baseline for 1999, because most of the growth in demand is met by gains in yields. Wheat plantings, after declining in 1999, increase each year

during the remainder of the baseline because demand growth exceeds gains in yields. Rice area is projected at 3.2 million acres throughout the baseline, as larger production, due to yield gains, and rising imports nearly match increases in domestic demand. Rising yields for upland cotton keep production gains similar to demand increases with acreage remaining near 13 million acres through the baseline.

Area devoted to the Conservation Reserve Program (CRP) is projected to reach 36.4 million acres, the maximum specified by the 1996 Farm Act (see CRP discussion, page 28, and table 6). The CRP is expected to increase from 30.3 million acres in 1998 to its maximum in 2002. About half of this increase comes from land with a cropping history of being planted to wheat.

Crop Supply and Demand Overview

During the first 3 years of the baseline, many of the major crops adjust to a near-term weak price outlook. Initially, cropland plantings decline in response to low producer returns, which reflect large global supplies and strong foreign competition for many crops along with weak global demand due in part to the Asia financial crisis. Later in the projection period, acreage returns to production in response to growing world demand. However, with strong export competition and moderate import demand growth in some markets tempering trade pressures, yield gains for many crops are sufficient to provide much of the needed production growth, thereby mitigating pressure on total land use.

Projected consumption increases of U.S. soybeans, barley, and rice are primarily driven by domestic demand. Domestic use for these crops registers larger absolute increases and growth rates than exports. Increases in corn use also are larger in the domestic market than in trade, although corn exports have a higher growth rate. In contrast, disappearance gains for U.S. wheat, sorghum, and cotton are driven by exports, with U.S. trade showing larger absolute gains and growth rates than domestic demand. Stocks-to-use ratios decline for corn, wheat, and soybeans, with nominal prices rising. Rice stocks-to-use ratios change little in the baseline, with relatively smaller increases in nominal prices. Stocks-to-use ratios for cotton also change little in the baseline.

Low feed grain prices are projected for the initial baseline years, 1999/2000 and 2000/01, due to abundant feed grain supplies relative to use. Although domestic use continues to grow, exports recover slowly in the early years from recent low levels. In the later years of the baseline, additional feed grain area is needed for growth in exports, combined with steady gains in the domestic market. Larger livestock and poultry inventories boost feed use, while food, seed, and industrial (FSI) use increases mainly due to higher corn sweetener and ethanol use. Feed grain exports are strengthened by recovering global incomes. By the end of the baseline, feed grain acreage is about equal to the recent peak reached in 1996.

Lower soybean farm prices in crop years 1999 and 2000 are projected to reduce loan rates and potential marketing loan benefits starting in crop year 2001. Combined with an increasing corn prices, this leads to projected cuts in U.S. soybean plantings through crop year 2002. Thereafter, soybean area planted is expected to increase in tandem with demand growth, and prices are expected to rise above \$6.10 per bushel by baseline end because of more normal stocks relative

to use. Ample soybean supplies are projected to contribute to increased soybean crushing during crop years 1999 to 2000. Thereafter, the world demand for soymeal and livestock products will determine the rate of soybean crush. During the period of declining soybean prices, meal exports are projected to rise relative to foreign competition, but beyond 2002 U.S. export potential is expected to be curtailed, due to growth in U.S. meal consumption, moderating supplies, and increasing foreign production.

Wheat production drops in 1999 but then expands during the remainder of the baseline period in response to increased demand and higher prices. Wheat acreage is expected to rise to 73 million acres by 2008. Wheat prices increase at a faster rate than for other crops, in part because of slower yield growth. Total demand for U.S. wheat rises throughout the projection period. Per capita food use continues to rise, but at a declining rate. Feed and residual use decreases through crop year 2001 and then stabilizes for the remainder of the baseline period, as wheat prices rise relative to other feed grain prices. U.S. wheat exports rise steadily over the projection period but face greater competition from the European Union (EU) starting in 2002/03, as stronger international wheat prices and lower internal EU prices allow the EU to export wheat without subsidies. Consequently, EU wheat exports exceed quantity limits on subsidized wheat exports in the UR agreement.

Moderate gains in U.S. rice prices are expected to maintain rice plantings through the baseline. Steady growth in domestic use of rice is projected in the baseline, although gains will be substantially slower than in recent years. Strong competition from low-cost Asian exporters in some international rice markets and a growing differential between domestic and world rice prices result in only slight gains in U.S. rice exports in the baseline. U.S. world market share drops to under 9 percent of global trade by 2008/09. Slow, but steady growth in the domestic market with modest expansion in production causes the U.S. farm price for rice to rise from \$9.00 per hundredweight in 1999/2000 to \$10.37 per hundredweight in 2008/09.

Upland cotton area is projected to fluctuate around 13 million acres and production is expected to rise in response to increases in domestic mill use and export demand. Domestic mill use rises slightly over 1 percent annually despite the easing of restrictions on textile import quotas and greater competition from man-made fibers. Cotton exports are expected to increase 2 percent annually after 2001/02, gaining market share of global cotton trade as Step 2 payments resume in 2002/03 (see Cotton User Marketing Payments, page 26, and Step 2 box, page 43). Ending stocks of upland cotton rise slightly during the last half of the baseline, keeping the stocks-to-use ratio fairly stable.

Feed Grains

Feed grain production increases in 2000/01 through the remainder of the baseline. Yield gains account for most the increase, particularly in the early years. Corn is expected to continue increasing its share of total feed grain production and use. After initially declining, corn acres slowly increase over the remainder of the projection period. However, no significant turnaround in plantings of the other feed grains is foreseen and no major improvement in their net returns is projected.

Despite growth over the entire period, feed grain exports are not expected to be that strong by historical measures. It is only at the end of the baseline that exports surpass the previous record. In addition to sluggish growth in global imports over the first half of the baseline, the United States is projected to face strong competition throughout. Given the strength of domestic demand, however, total feed grain use is projected to be record high over the entire baseline.

U.S. ending stocks are projected to rise to more than 50 million tons early in the baseline before dropping to around 35 million tons. This is slightly below the average ending stocks of the 1990s, but less than half of the 1980s when much higher stockholding was common due to government programs. Although the decline in stocks relative to use will provide support to prices, the price increase over the baseline is moderate. Without a major shock from exports, increases in productivity are expected to nearly keep pace with demand growth and only a modest increase in plantings will be required.

Corn

The corn sector starts the baseline in a low price environment, reflecting large supplies relative to demand. At the onset of the baseline, domestic corn use is already at record high levels, and subsequent growth is moderate. For many importers, the favorable impact of low prices is overwhelmed by economic hardships, so a resumption of growth for U.S. exports will largely hinge on improved economic prospects and an easing of competition from other exporters.

Corn area is projected to be fairly stable in the baseline and remain relatively large. Planted area initially declines in response to continued low prices, but as demand strengthens and prices improve, corn plantings increase later in the baseline. Corn primarily competes with soybeans for land, and is also used extensively in rotations with soybeans. Relative net returns are expected to favor soybeans over corn in the early part of the baseline. Although prices for both crops are projected to be low in the next few years, the loan rate for soybeans is relatively more favorable than that of corn. Only a modest decline in total corn and soybean plantings is projected, given few practical alternatives in the Corn Belt. Most reductions in corn area are likely in more marginal producing areas, such as the South, where production risks are greater. About midway through the baseline, price movements are expected to bolster corn plantings, in part because the loan rate for soybeans falls.

Strong yield gains for corn are projected to continue over the entire period, led by more improvements in genetics as well as gains from farming practices, such as timely planting and effective input use. The widespread adoption of Bt corn and the likelihood of more innovations from biotechnology support productivity gains and could raise the yield path above the yield trend of 1.7 bushels per year used for the baseline.

Corn production is projected to increase from 1999 through the end of the baseline, breaking the old record of 10.1 billion bushels by 2003.

Feed and residual use starts at a record high level and grows throughout the projection period, reflecting record meat production and a record number of grain-consuming animal units in the U.S. livestock sector. No significant contraction is apparent as steadily increasing production of

broilers and moderate gains in hog output outweigh cyclical movements in cattle numbers. In addition, feed and residual use of the other grains, including wheat, remains low relative to earlier periods, reinforcing corn's dominant role as the leading feed grain.

Food, seed, and industrial (FSI) use of corn also starts at record highs and increases over the entire baseline, rising at an average pace of 2 percent a year. For the two largest components, high fructose corn syrup (HFCS) and ethanol, expansion is projected to be slower than in most of the previous decade. Policies remain a critical determinant for the volume of corn used for ethanol (see ethanol box, page 38). Other segments of FSI use, such as food and starch use, are fairly mature and gains are largely related to population growth.

Projected exports remain below earlier peaks until the end of the baseline. Increases in corn exports are largest early in the baseline, as they recover from recent depressed levels. Annual gains are moderate in the middle years and then increase more rapidly toward the end of the baseline as foreign incomes improve and global import demand picks up.

Ending stocks of corn gradually decline to around 1.2 billion bushels, where they remain for the last half of the period. Given rising use, this results in progressively lower stocks-to-use ratios. Prices strengthen from \$2.00 per bushel to a plateau of \$2.50 for 2003/04 to 2007/08, before starting to rise again. Market net returns for corn rise from about \$158 per acre to about \$193 per acre by 2008.

Sorghum

Sorghum production is projected to grow to 710 million by 2008. This reflects an increase in plantings from 9.8 million acres to 10.7 million acres, and trend yield growth of 0.6 bushels per year. By 2006, sorghum yields would about match the current record of 72.8 bushels per acre.

Since growth in both supply and demand are about equal, ending stocks are projected to remain about the same throughout the projection period. The largest gains occur in exports, largely fueled by projected increases in shipments to Mexico. Because of smaller increases in domestic use, exports account for a larger share over time. Only modest increases in feed and residual use are projected, keeping it lower than most earlier periods. Small increases in the industrial use of sorghum, stemming from more use for ethanol, are projected to keep this category record high. Prices for sorghum are projected to stay relatively low and in line with historical price relationships, within 90 to 95 percent of the corn price.

Barley

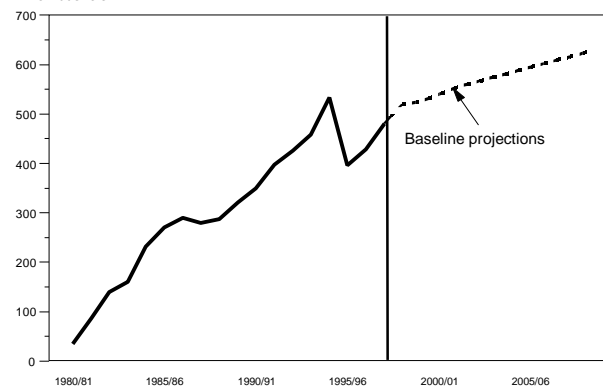
Barley production increases modestly over the baseline, reaching 435 million bushels by 2008, with higher yields accounting for nearly all of the gain. Planted acreage remains close to its historical lows, increasing just 200,000 acres, with no major turnaround in barley's ability to compete for land. In contrast to sorghum, most of the increase in barley supply goes to feed and

Future of Ethanol Tied to Policies and Technology, as Well as Market Forces

The ethanol sector has developed from virtual non-existence in the mid- to late-1970s to an industry that now produces about 1.5 billion gallons a year and uses over 500 million bushels of corn a year. This strong historical growth, as well as expected future gains for ethanol, reflects interactions of policies, technological developments, and market forces.

Ethanol production is projected to increase at an average rate of about 1.7 percent a year in the baseline (see figure 3), generally in line with growth in overall U.S. gasoline use projected by the Energy Information Administration (Department of Energy). Production gains for ethanol are stronger in the early years of the baseline and then get slower. Historically, ethanol production expanded very rapidly until 1995/96, when there was a major contraction due to tight corn supplies and record high corn prices. Since then, ethanol output has rebounded about 10 percent a year and is expected to about match the 1994/95 record in 1998/99.

Figure 3
Corn used for ethanol production
Million bushels



Corn accounts for around 90 percent of the feedstocks used to make ethanol, followed by sorghum at about 8 percent. These shares are expected to remain fairly steady through the baseline. Other feedstocks include wheat, barley, wheat gluten, and some waste products and residues from agricultural processing industries such as brewing and dairy. There is limited substitution among feedstocks, largely for technical reasons since the majority of plants use wet milling processing designed for corn. However, there are a number of dry milling ethanol plants that can switch among grains and typically use the cheapest grain available. Some of these plants routinely use sorghum as the principal feedstock but may switch to corn if sorghum supplies are tight.

In the short term, market forces are critical determinants of ethanol production. More than half of all fuel ethanol is blended into conventional gasoline as a fuel extender or octane enhancer. Prices of ethanol (including the Federal blending credit equivalent to 54 cents for every gallon of ethanol blended) relative to gasoline prices is a key component for determining how much ethanol is blended. The rest of the ethanol is used for blending into reformulated gasoline and oxygenated gasoline for the winter carbon monoxide program. While use of oxygenates basically stems from mandated clean air requirements, fuel producers can choose among competing oxygenates based on their relative prices. Some States offer incentives that also influence demand for ethanol. For instance, Illinois has a sales tax exemption for ethanol while Minnesota has mandated a year round minimum oxygen content requirement for all gasoline sold there.

Net production costs relative to ethanol prices are critical to profitability and production decisions. Net costs are determined by the cost of the corn or other feedstock adjusted for the value of co-products from ethanol production that are sold. Ethanol wet mills produce corn gluten feed, corn gluten meal, and corn oil as co-products, while dry mills produce distillers' dried grains.

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Future of Ethanol Tied to Policies and Technology, as Well as Market Forces – continued

Over the longer run, policies and technological developments also will play important roles in the supply and demand outlook for ethanol. In 1998, Congress extended the federal tax credit of 54 cents per gallon for ethanol blending past the original 2000 expiration date to 2007, but specified 1-cent reductions in 2001, 2003, and 2005 to settle at 51 cents. This credit encourages consumption and also provides incentives for building new plants or expanding old ones. Many States, most notably Minnesota and Nebraska, also provide incentives to encourage ethanol production. Most of the new ethanol plants that have opened in the last few years have been in Minnesota, which has strongly supported the industry as a way to add value to corn and aid the State's farmers. Most of these recently opened plants are relatively small and are operated by cooperatives.

Because of improvements in technology, newer ethanol plants are more efficient and have lower costs than the older plants. If costs were to come down more, this would tend to make ethanol more competitive. No significant technological changes are assumed in the baseline. However, much research is underway to broaden the range of feedstocks used to make ethanol, particularly by turning cellulose into alcohol and using "biomass" materials, such as grasses, fast growing trees, crop residues, agricultural processing wastes, and other materials that are cheaper than crops. Although promising, these alternatives are not yet cost effective.

Clean air policies are very critical for the demand side of ethanol. Some metropolitan areas are required to use reformulated gasoline (RFG), which contain ethanol blends, to reduce ozone pollution, and a few areas opt in voluntarily. To meet carbon monoxide (CO) standards, many cities choose to use oxygenated fuels. These may contain ethanol or other oxygenates, mainly ethyl tertiary butyl ether (ETBE), an ethanol-based fuel additive, or methyl tertiary butyl ether (MTBE), a petroleum-based additive. A number of cities have met or will soon meet CO attainment standards and can discontinue use of oxygenated fuels.

The choice of strategies employed to meet clean air objectives can vary by State or locality. California is the largest fuel consuming State and it has very stringent clean air measures for fuels, but it currently uses very little ethanol. Instead, it relies on special formulations of gasoline and widespread use of MTBE. Recent concerns in California about ground water contamination from leaks of MTBE might lead to future restrictions on MTBE use and a potential boost to ethanol or other alternative means of meeting mandated standards. California has asked EPA to remove the oxygen minimum specification for RFG but that would require a congressional action.

Future policy changes on a national or local level could also affect ethanol use in the next decade. One change that will be required under Federal legislation (RFG Phase II) beginning in 2000 is a tightening of fuel standards for ozone control, lowering the required Reid Vapor Pressure (RVP) of fuel to less than 7 pounds per square inch. This will dampen demand for ethanol for blending because of its relatively high blending RVP. On the other hand, Tier II emissions standards are being considered that would reduce the sulfur content of fuel. This would tend to push ethanol demand higher since the loss of sulfur could lower the gasoline octane pool, which would require additional octane boosters such as ethanol. Finally, although not assumed in the baseline, even broader changes in fuel and ethanol markets could be set in motion under the Kyoto Protocol which would mandate sharp reductions in greenhouse gas emissions.

residual use. Food and industrial use, dominated by malting for brewing beer, is expected to show no growth. Barley exports are projected at a relatively high 70 million bushels per year, around the maximum quantity of subsidized feed grain exports permitted under the UR agreement. Imports are expected to remain constant at 55 million bushels. The average barley price is projected to rise throughout the baseline, from \$1.90 per bushel to \$2.35.

Oats

The long-term downward trend in oat acreage is projected to bottom out early in the baseline, with oat acreage then stabilizing. The crop will remain important in some rotations, and as a cover crop. Production is projected to range from 155 to 165 million bushels over most of the period, while total use stays about 270 million bushels. Imports of 100 million bushels a year make up the difference, contributing particularly to food and specialty feed use. Food use grows very slowly in line with population increases, and total feed and residual use is flat. Again, reflecting the general level of corn prices, oat prices begin the projection period at \$1.15 per bushel, which are historically low, and increase to only \$1.50 by 2008/09.

Wheat

For most of the baseline, growth of wheat demand is greater than gains in yields, requiring additional area to be planted. Prices strengthen as the stocks-to-use ratio gradually declines. Farmers respond to increasing prices by moving more land into wheat production. Acreage seeded to wheat is projected to increase to 73 million acres by 2008.

Domestic use of wheat is projected to decline through 2001/02, and then begin to increase during the remainder of the baseline period. Feed and residual use declines steadily through 2001/02 as wheat prices rise compared with feed grains, and then is projected to stabilize at 225 million bushels annually. Food use of wheat is projected to grow about 10 million bushels a year during the baseline. This growth reflects increasing population as well as gains in per capita consumption of wheat products as personal incomes rise in the future.

U.S. wheat exports rise in the baseline as global imports expand. However, growth in world wheat trade will be hindered by weak economic conditions in Asian importing nations, especially over the next few years. Early in the baseline, reduced competition from the EU, which faces limits on the amount of subsidized wheat it can export, increases marketing opportunities for the United States. By 2002/03, however, the combination of higher global wheat prices and declining internal EU prices will allow the EU to export wheat without subsidies. This, together with tighter supplies and strengthening prices, will limit growth in U.S. exports in the later years of the baseline.

Under the 1996 Farm Act, production flexibility contract payments decline each year from crop years 1998 to 2002, and then are assumed to remain constant through 2008. Strengthening prices will result in market net returns for wheat producers rising through the baseline.

Rice

Moderate gains in domestic and world rice prices are expected to maintain U.S. rice acreage through the baseline. Domestic price gains are due to continued growth in domestic use as well as strong international demand for both rough rice and high-quality milled rice. Rising international prices are the result of a greater level of world rice trade than previously experienced and expectations that the global stocks-to-use ratio will remain tight. However, weak demand across much of Asia will continue to limit growth in international rice prices during the early part of the baseline.

Steady U.S. rice area coupled with small increases in yields will pull rice production up slightly in the baseline. U.S. yield growth is projected to increase about 0.5 percent annually due to better farm management practices and some improvements in rice varieties. This growth is less than achieved in the 1980s and early 1990s.

U.S. rice imports are projected to expand 2.5 percent annually in the baseline, reaching 12.8 million cwt by 2008/09. This is a significant slowdown from growth rates of the 1980s and early 1990s. A major factor limiting the expansion of imports is that most internationally traded rice is of lower quality than demanded domestically. U.S. rice imports are predominantly high quality, specialty varieties--mostly Thai Jasmine as well as Basmati from India and Pakistan.

Small annual increases in domestic demand will capture nearly all of the gains in U.S. rice production, with exports projected to increase only marginally through 2008/09. Total domestic use is projected to rise about 1 percent a year and reach almost 120 million hundredweight by 2008/09, up more than 10 percent from 1998/99. Food use will account for virtually all of the growth in domestic use, reaching nearly 95 million hundredweight by 2008/09. A growing share of the U.S. population from Asia and Latin America and a greater emphasis on healthier life styles account for most of the expansion in domestic food use of rice.

The pace of food use expansion will be much slower than the nearly 4 percent annual growth achieved during the 1980s and the first half of the 1990s. Fewer home cooked meals, increasing popularity of precooked meals, a premium on minimal preparation time, strong competition from other side dishes at restaurants, and the growing popularity of meals that can be eaten on-the-run are behind the slowdown in expansion in food use of rice. In addition, higher prices slow growth of rice in some processed uses, such as pet foods which expanded rapidly in the 1980s and early 1990s when rice prices were lower. While food use is expected to expand at a slower rate than in recent decades, per capita use will still rise.

Brewers' use of rice, which has been virtually stagnant since the late 1980s, is projected to remain at 15.4 million cwt from 1998/99 to 2008/09. No growth in per capita beer consumption and the greater popularity of light beers--which use less rice than regular beers--prevent any expansion in brewers' use of rice. Seed use, essentially a function of planted area, will remain at 4 million hundredweight.

U.S. rice exports are projected to be relatively stable in the baseline, between 87 and 88 million hundredweight from 2000/01 to 2008/09, up slightly from the start of the projection period. U.S.

prices rise faster than world prices, making U.S. rice exports less competitive in some international markets and thereby preventing any significant expansion of U.S. rice exports in the baseline. The United States exports mostly to high-quality markets, rarely competing with the low cost Asian exporters in low-quality milled rice markets. Thailand is the principle competitor of the United States in certain high quality markets such as the Middle East and South Africa. In addition, rough rice--mostly going to Latin America--accounts for 20 to 30 percent of U.S. rice exports. Asian countries do not export rough rice.

With the domestic market projected to expand modestly each year, the near-stagnant level of exports means that the international market will account for a declining share of U.S. rice use. The export share of total use is projected to drop from over 44 percent in 1998/99 to 42 percent in 2008/09.

Ending stocks grow slowly to just over 29 million hundredweight in 2008/09, maintaining a stocks-to-use ratio of 14 percent for the baseline, nearly equal to the past 5-year average but low by historical standards.

Steady demand growth in the domestic market with very modest expansion in production will cause season-average U.S. farm prices for rice to rise annually, from \$9.00 per hundredweight projected for 1999/2000 to \$10.37 per hundredweight in 2008/09, well above levels during most of the 1980s and early 1990s. Market returns to rice producers rise 15 percent from crop year 1998/99 to 2008/09, growing to \$192 per acre by the end of the baseline. These gains from the marketplace help to offset declining production flexibility contract payments.

Strong U.S. rough rice exports and steady growth in domestic use will continue to put upward pressure on nominal rice prices through the baseline. In addition, greater demand for higher quality rices will provide some upward price pressure. For example, brewers now use mostly whole grain rice with high quality standards instead of the lower priced brewers' rice used prior to the early 1990s. In addition, U.S. food aid shipments, which are typically the lower quality portion of U.S. rice, are a much smaller share of U.S. exports than in previous years.

Upland Cotton

With the continuation of planting flexibility as established in the 1996 farm legislation, upland cotton area will remain responsive to its own price, competing crop prices, and other market signals. In 1999, upland planted area is expected to rise 5 percent in response to cotton's relative price strength compared with other commodities. Production is expected to reach 17-18 million bales, assuming a yield of 680 pounds per harvested acre and a normal acreage abandonment. Stocks rebuild as production would more than offset expected demand.

Demand for upland cotton in 1999/2000 is expected to rebound somewhat as the effects of the world financial crisis diminish and demand for raw cotton and cotton textile products improves. U.S. upland cotton demand is projected to rise to about 16 million bales, but remains well below the quantity demanded during the mid-1990s.

Step 2 Payments Affect Upland Cotton Baseline

The 1996 Farm Act capped total expenditures for cotton user marketing certificates (Step 2 payments) during fiscal years 1996-2002 at \$701 million, but funding for the program was exhausted by the end of calendar year 1998. However, the cotton user marketing certificate program is authorized in the 1996 Farm Act through July 31, 2003, 10 months beyond the period covered by the program's expenditure cap. Thus, for fiscal years 2003 and later, the baseline assumes that funding for this program is no longer capped. As a result, annual Step 2 expenditures near \$150 million are assumed in the baseline for crop years 2002/03 through 2008/09.

The cotton user marketing certificate program was established under the 1990 Farm Act with the purpose of keeping U.S. upland cotton competitive, particularly when U.S. and world prices diverged. The Step 2 payments are made after certain price and time conditions are met, and are made to both domestic users and exporters of U.S. upland cotton. When in effect, these payments boost the competitiveness of U.S. cotton as intended. However, several concurrent developments in 1998 led to the early depletion of the program's funding set forth in the 1996 Farm Act.

The impact of the loss of Step 2 funding during 1998/99 is twofold. First, U.S. cotton exports are expected to suffer as U.S. prices will be less competitive with foreign growths. Second, the depletion of Step 2 funds has increased the potential for triggering import quotas under Step 3. Step 3 special import quotas are put into effect depending on the difference between the U.S. and the world price, and may be announced beginning in early March 1999. Once triggered, weekly Step 3 quotas of approximately 200,000 bales could be announced until U.S. prices became "competitive" once again.

The impact of the elimination of Step 2 funding during 1999/2000 through 2001/02 is likely to result in slightly lower exports and domestic mill use than would be achieved if Step 2 funding continued. Analysis of Step 2 spending through 1997/98--incorporating assumptions about the transmission of spending to price adjustments and assumptions about the responsiveness of exports and domestic mill use to these price adjustments--suggests exports could be 100,000 to 200,000 bales lower and mill use less than 100,000 bales lower. Revisions to the program during 1998/99 add uncertainty to estimating future impacts based on historical evidence.

The assumed resumption of the Step 2 program in marketing years 2002/03 through 2008/09 would--all other things being equal--increase U.S. exports, world market share, domestic mill consumption, and U.S. cotton prices. These effects are included in the cotton baseline projections.

Ending stocks for upland cotton in 1999/2000 are projected to rise dramatically from the low beginning level. Market returns over variable costs are expected to be above those for 1998/99, but will be below those of the previous two seasons.

For crop years 2000 through 2008, upland area is projected to fluctuate around the 13-million-acre level as increases in productivity are expected to nearly keep pace with growth in use. This acreage incorporates average abandonment of 7 percent and trend yield increases of 9 pounds per year. Record yields for upland cotton would begin in 2002, reaching 761 pounds per harvested acre by 2008. As a result of rising yields, projected production during crop years 2000 through 2008 ranges from 17.2 to 18.9 million bales. Growth in production and demand are projected to about offset each other, keeping the stocks-to-use ratio relatively stable.

Between 2000/01 and 2008/09, demand for U.S. cotton is projected to rise about 1 percent annually from 17.5 million bales to 18.7 million by the end of the baseline period. Upland mill use is expected to grow steadily from 11 million bales in 2000/01 to 11.5 million by 2005/06. After 2005/06, further easing of the restrictions on cotton textile import quotas are likely to result in larger textile imports, primarily apparel. Upland mill use stabilizes during this period because trade agreements like NAFTA and the Caribbean Basin Initiative encourage larger cotton textile imports that more than offset larger textile exports.

Exports of cotton, on the other hand, are projected to range between 6.3 and 7.2 million bales over the 2000/01 to 2008/09 period. After a small decline in 2001/02, exports increase an average of 2 percent annually through 2008/09, similar to the long-term growth expected for foreign consumption. World trade is projected to expand 1 to 2 percent annually. U.S. market share rises from 21 percent in 1999/2000 to an average of 25 percent for the second half of the baseline. Step 2 payments, which are assumed in the baseline to resume in 2002/03, aid the increase in U.S. cotton exports starting in 2002/03 and beyond (see Cotton User Marketing Payments, page 26, and Step 2 box, page 43).

Ending stocks of upland cotton are relatively stable but rise slightly during the last half of the baseline. As a result, ending stocks range from 3.6 million to 4.1 million bales during the 2000/01 through 2008/09 period. The implied stocks-to-use ratio over this time period is 20 to 22 percent. Returns over variable costs rise throughout the baseline. Between 2000/01 and 2008/09, the market returns are estimated to range between \$192 and \$221 per acre.

Soybeans

U.S. soybean planted area in 1999 is expected to remain near 1998 levels. Despite a soybean farm price that is expected to drop sharply, the marketing loan for soybeans will support farm returns at \$5.26 through 2000/01. This would generate a soybean net return per acre that would still be comparatively better than other commodities. However, the marketing loan, which is based on the 5-year olympic average farm price, is projected in the baseline to fall to the statutory minimum of \$4.92 in 2001/02 and stay at this level through 2007/08. This lower loan rate, strengthening corn prices, and larger CRP enrollment would ultimately cut U.S. soybean plantings by 2001 and 2002. Such a reduction would return the stocks-to-use balance to a more

normal level, allowing for subsequent increases in area planted consistent with demand growth. By 2008, soybean production is expected to exceed 3.1 billion bushels on 70.7 million acres harvested.

Projected declines in soybean prices through 2000/01 assume normal trend growth in soybean yields by U.S. and foreign producers. Total demand would not increase enough to prevent stocks accumulation to near 490 million bushels. After falling to a low around \$4.55 per bushel in 2000/01, U.S. soybean farm prices are projected to rise above \$6.00 by the end of the baseline as supplies come into closer balance with demand. For the next few years, loan deficiency payments or marketing loan gains (which cover the deficit between the farm sales price and the CCC loan rate) will supplement farm marketings. However, soybean net returns do not match the 1997/98 level again until late in the baseline.

Lower market prices increase projected soybean exports early in the baseline and help the United States capture a larger share of the world soybean market in 1999/2000 and 2000/01. Foreign soybean production should resume growth following this period, resulting in flat U.S. exports until world demand strengthens again around 2005/06.

Similarly, ample soybean supplies substantially accelerate domestic crushing in 1999/2000 and 2000/01. Subsequent yearly increases are expected to moderate. The crush pace will be largely determined by world demand for soybean meal and livestock products. The average price for soybean meal is projected to decline in 1999/2000 and remain low for 2000/01. Consequently, U.S. soybean meal exports should gain at the expense of foreign competition, climbing to about 9.7 million short tons by 2001/02. But rising prices, due to continued growth in domestic soybean meal consumption (spurred particularly by increasing poultry production) and slowing supply growth, and a rebound in foreign production curtail U.S. export potential in 2002/03 and beyond.

Soybean prices are pressured during 1999/2000 to 2001/02 by relatively weaker values for soybean oil. U.S. oil prices are anticipated to decline early in the baseline and then gradually increase above 30 cents by 2008/09. Domestic disappearance of soybean oil is expected to rise at a relatively steady rate, reaching approximately 18.5 billion pounds by 2008/09. U.S. exports of soybean oil will rise to a peak near 3.8 billion pounds in 2003/04. However, foreign trade slips in later years as world palm oil production regains strength, and moderating crush and domestic needs begin to tighten U.S. soybean oil supplies available for export.

Sugar

Moderate beet acreage expansion is projected until FY 2004. There is expansion of beet processing capacity in the Upper Great Plains and room for additional acreage expansion in Washington State to take advantage of the new processing facility that opened in FY 1998. The rate of acreage expansion after FY 2004 is expected to decrease and stabilize at 1.541 million acres by FY 2007. Technological improvements in harvesting and refining are projected to increase national sugar yield per harvested acre by 0.015 tons a year over the projection period. Sugar produced from the desugaring of molasses is projected at 258,000 short tons, raw value,

(STRV) in FY 2000, and is expected to increase 12,000-15,000 STRV each year up to a total of 375,000 STRV in FY 2009.

Florida acreage harvested for sugar is projected to hold steady at 430,000 acres over the projection period. Acreage withdrawals associated with Everglades restoration are projected to be matched by acreage expansion onto less environmentally-sensitive sandy soils. Historical yearly cane yield growth of 0.25 tons per acre is projected to tail off by FY 2002. The projected cane yield for Florida is about 36.3 tons per acre from FY 2002 to the end of the projection period. Nonetheless, refinements in harvesting and milling technology are expected to increase sugar yield per acre at historical levels of 0.029 tons a year throughout the projection period.

Westward expansion in Louisiana acreage harvested for sugar is projected to increase until FY 2002 and stabilize at 420,000 acres. At the same time, continued adoption of high-yielding cane varieties is projected to increase the state-average cane yield per acre to about 31.5 tons. Continued improvements in harvesting and manufacturing increase projected growth in sugar yield per acre of 0.024 tons a year throughout the projection period.

Texas cane for sugar acreage is projected to increase to 35,000 acres in FY 2001 and remain at that level. Sugar yield per acre is projected to continue to grow at a trend of 0.029 tons a year. Hawaii acreage is projected to remain steady at 30,000 acres. Sugar yield per acre in Hawaii is projected at a constant 11.0 tons throughout the baseline, reflecting a lack of a measurable historical trend. Sugar production in Puerto Rico is projected at 20,000 tons over the projection period.

The projected rate of increase in consumption through FY 2009 is 156,000 tons a year, 90 percent of the rate for FY 1992-98. Over the period FY 1992-98, sugar consumption grew at a high yearly rate of 174,000 tons. The rate of increase after FY 1999 is projected to decrease to levels more consistent with analysis over a longer time period. Sugar consumption per capita grows from a projected 67.5 pounds in FY 1999 to 73.0 pounds in FY 2009.

The FY 1999 tariff-rate quotas (TRQs) for raw, refined, and specialty sugars were announced on September 17, 1998. The raw sugar TRQ was established by the U.S. Department of Agriculture (USDA) at 1,780,164 STRV, and 1,284,123 tons were allocated by the U.S. Trade Representative. TRQ tranches of 165,347 STRV will be allocated in January, March, and May if the ending fiscal year stocks-to-use ratio projection, as published in the USDA's *World Agricultural Supply and Demand Estimates (WASDE)* report, in those same months is equal to or below 15.5 percent. If the stocks-to-use ratio projection exceeds 15.5 percent, the tranche will be canceled. The refined sugar TRQ was established at 55,116 STRV. Non-TRQ imports are projected at 445,000 STRV in FY 1999.

Until FY 2007, the combined sugar TRQs less expected shortfall are projected to be at a level that results in an ending stocks-to-use ratio of 14.5 percent. In FY 2000 sugar imported under the TRQ is projected at 1.45 million STRV. This amount plus an expected shortfall of 50,000 tons STRV would leave the announced TRQ at 1.50 million, the level at which the sugar loan program becomes recourse. For FY 2001 through 2007, sugar imported under the TRQ is projected well above the levels at which the sugar loan program becomes recourse. Starting in FY 2005, non-quota imports from Mexico are projected to enter the U.S. sugar market in

significant quantities. The initial level is projected at 50,000 STRV. It grows to 100,000 STRV in FY 2006 and 300,000 STRV in FY 2007. These non-TRQ imports reduce the projected levels of the corresponding TRQs on a one-to-one basis.

Under the terms of the side letter agreement of the North American Free Trade Agreement (NAFTA), Mexican sugar exports to the U.S. market will be duty free with no quantitative restrictions starting in FY 2008. It is currently projected that the level of imports from Mexico in FY 2008 and 2009 will reach 1.5 million STRV, reducing the TRQ to the UR minimum of 1.256 million STRV under USDA's current administrative approach. At this level of imports, the stocks-to-use ratio is projected to increase to 19.2 percent in FY 2008 and to 23.0 percent in FY 2009.

Domestic sugar prices are projected to be flat through FY 2007. The raw sugar price (New York No.14 contract) averaged 22.09 cents a pound through FY 1998, and is projected to average 22.00 cents through FY 2007. Falling domestic sugar prices are projected to accompany the increase in the projected stocks-to-use ratio starting in FY 2008. The projected FY 2008 price is 20.29 cents a pound and the projected FY 2009 price is 18.93 cents a pound.

Grower prices for sugar beets derive from the wholesale refined beet sugar price, and grower prices for sugarcane derive from the raw cane sugar price. The sugar beet price is projected at \$40.00 a ton through FY 2007, and the sugarcane price is projected at \$30.00 a ton for the same time period. In FY 2008 projected grower prices decrease to \$36.89 a ton for sugar beets and to \$27.67 a ton for sugarcane. The prices are projected to drop more in FY 2009 as projected raw sugar prices decrease: to \$34.41 a ton for beets and to \$25.81 a ton for sugarcane.

Tobacco

In November 1998 cigarette manufacturers entered into a long-term agreement with 46 States, the District of Columbia, and various territories (4 States settled previously). Goals of the new agreement are reimbursing States for smoking-related health costs under Medicaid, reducing underage smoking, and ending the uncertainty of continuing lawsuits for cigarette manufacturers. The baseline includes an initial assessment of the effects of this agreement.

Key elements of the pact are:

- C \$206 billion to be paid to States over 25 years, including \$300 million annually to fund research into reducing youth smoking and support other anti-smoking measures,
- C Limitations on advertising,
- C Ban on cartoon characters in advertising,
- C Ban on "branded" merchandise,
- C Limitations on sporting event sponsorship, and
- C Disbands tobacco trade organizations.

Following the agreement, two major cigarette companies raised the wholesale price of their cigarettes by 45 cents per pack, the largest increase in history. Other manufacturers followed. While the entire increase is not likely to reach retail levels, cigarette prices will increase

substantially and it is apparent that most of the settlement's cost will be passed on to consumers. The tobacco baseline reflects this price increase.

Higher cigarette prices could cause U.S. cigarette consumption to slide as much as 25 percent in 10 years, compared with a 17-percent estimate before the settlement. Lower cigarette consumption will dampen demand for tobacco leaf.

Tobacco leaf grown in the United States is primarily used both for domestic manufacture of cigarettes and exported for cigarette production in other countries. U.S. cigarette consumption is declining due to higher prices, taxes, greater awareness of the health effects of smoking, and increasing restrictions on where people can smoke. Prospects for lower U.S. cigarette production, reduced cigarette exports, and uncertain prospects for U.S. leaf exports are expected to contribute to declining demand for U.S. tobacco leaf. In addition, use of imported tobacco leaf in U.S. cigarette production could compound the erosion in demand for U.S. tobacco.

Flue-cured production fell in 1998 after reaching over 1 billion pounds in 1997. Production is expected to continue trending downward as lower cigarette output reduces demand for flue-cured by domestic manufacturers. Export demand is also expected to fall over time as foreign users lower consumption and switch to more economical sources of leaf. Flue-cured marketings are limited by a quota, based on a formula which includes domestic and export demand, and stock levels. Lower cigarette output will have a dampening effect on the quota through 2008. Domestic supplies of flue-cured will likewise trend downward. Higher world supply and increasing leaf quality in countries such as Brazil and Zimbabwe will constrain U.S. exports and make foreign-grown leaf more attractive to domestic cigarette manufacturers, further dampening demand.

Burley production trends mirror flue-cured since both are used primarily in cigarette production. Production peaked in 1997 and marketings peaked a year later in 1998. Declining domestic demand for cigarettes is the major cause of expected declines in burley tobacco use through 2008. Domestic burley use is expected to decline about 100 million pounds over the next decade. Exports are also expected to decline during this period due to lower cigarette production in Japan and in the European Union, and increased price competitiveness of burley leaf produced in Malawi and other countries. Marketing quotas will reflect declining domestic use and lower exports. Foreign supplies are currently at high levels but should more closely approach demand over the next few years.

Tobacco yields remain constant throughout the baseline. Poundage quotas reduce incentives to raise production per acre. Prices for U.S. grown tobacco will continue to advance, reflecting increases in support prices which are based partially on costs of production.

Horticulture

The farm value of U.S. horticultural crop production is projected to reach about \$39 billion in 1999, up an estimated 3 percent from 1998. While this growth rate is slightly higher than in 1998, it is well below the nearly 8-percent increase in 1997, mostly reflecting the expected large decline in 1999 citrus production. During 1998, large production declines both for noncitrus

fruit and nuts reduced the total value of fruit crops, but the total U.S. horticultural crop value remained above the previous year due mostly to higher prices of fresh vegetables and potatoes. For the remainder of the baseline, horticultural production is projected to increase between \$1.5 billion and \$1.7 billion annually, expanding at a rate of 3 to 4 percent each year, based on 1 to 2 percent increases in both output and price.

Export markets will continue to be vital to the success of the U.S. horticulture sector. For domestic producers, projections of slight increases in domestic fruit and vegetable consumption point to the continued importance of export demand in realizing higher prices and revenues. Export sales are projected to generate an average of 29 percent of U.S. horticultural production value during 1999-2008, up from the 1990-98 average share of 25 percent. Calendar-year exports are forecast to increase nearly 3 percent in 1999, reaching about \$10 billion. Export growth is projected to be around 5 to 6 percent per year after 1999, with fruit and vegetable exports accounting for 97 percent of total export value and the remainder accounted for by exports of greenhouse and nursery products. Based upon this trend, horticultural exports could reach \$16 billion in 2008. The United States, however, will continue to remain a net importer of horticultural products, with the total value rising 3 to 4 percent annually during 1999-2008.

World economic growth will help shape the long-term growth in U.S. horticultural exports. As countries become wealthier, their demand for high-valued commodities such as fruit and vegetables is expected to increase. In developing countries, the effect of income growth is more pronounced. Compared with developed countries, developing countries are more likely to spend larger shares of their new income on food items, including fruit and vegetable products. In addition, developing countries are also projected to experience higher than average economic growth over the baseline. Between 1990 and 1997, U.S. fruit and vegetable export share increases were only in developing countries or regions, and the largest increases in export shares were in Asia. East and Southeast Asia's combined share (including China, excluding Japan) of U.S. fruit and vegetable exports increased from 11 percent in 1990 to 17 percent in 1997. Reduced economic growth and currency devaluations in East and Southeast Asia, however, have been largely responsible for reduced U.S. exports of fruit and vegetables to these Pacific regions in 1998 and will likely continue to dim the prospects for U.S. horticultural exports to this region in the short run. When economic and financial conditions in Asia improve, U.S. fruit and vegetable exports there will likely regain strength. Another developing region where growth in U.S. fruit and vegetable exports has been strong in the 1990s is South America. Economic growth in this region is projected to remain strong, continuing to be a source of demand growth for U.S. fruit and vegetables in the baseline.

In the domestic market, demand for U.S. produced fresh-market vegetables is expected to increase slightly more than 1 percent annually during 1999-2008. Per capita consumption of fresh vegetables is projected to grow 0.4 percent annually and population growth is projected at slightly less than 1 percent. At nearly the same pace, U.S. production of fresh vegetables is projected to increase annually by 1 percent during the next 10 years. With the volume of exports projected to average about the same pace as imports, the United States will likely remain a net importer of fresh vegetables through 2008 (both in volume and value).

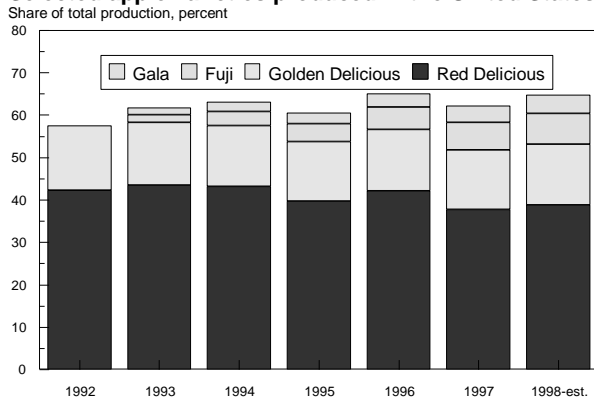
New Varieties in U.S. Apple Production

In the baseline, apples, like other horticultural products, are treated as a homogeneous product. In recent years, however, consumers around the world have been purchasing apples in a wider range of varieties. Varietal expansion, particularly in the United States, is firmly entrenched in the production and marketing strategies of the industry, shaping new trends in supply, demand, and trade for apples.

Some apple varieties are grown and consumed widely throughout the world and others are found in confined areas where a local demand exists. Apple varieties are distinguished by a range of characteristics, including color, shape, taste (sweetness and juiciness), and texture (skin and flesh); resistance to specific diseases, pests, and frost; and ability to maintain quality during storage.

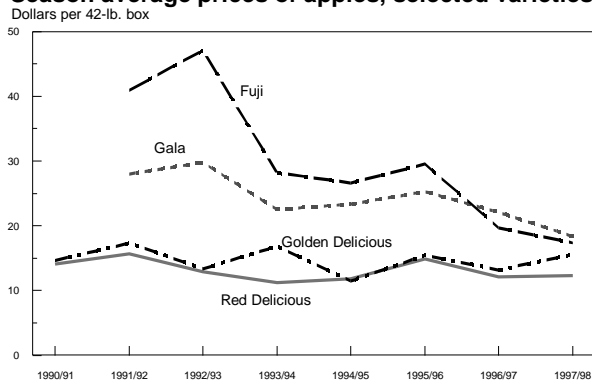
Apples are typically referred to as “traditional” varieties and “new” varieties. The major traditional varieties in the U.S. include the Red Delicious, Golden Delicious, Macintosh, Rome Beauty, Granny Smith, and Jonathan. New varieties have been known in some countries for decades (and by breeders everywhere), but these varieties are just starting to be widely adopted by producers and consumers around the world. These include Fuji, Gala, Jonagold, Empire, and Braeburn, which have been available to U.S. consumers since the early 1990s. The newest varieties, such as Pink Lady, Cameo, and Pacific Rose, are just entering the U.S. market.

Figure 4
Selected apple varieties produced in the United States



Source: U.S. Apple Association

Figure 5
Season average prices of apples, selected varieties



Source: Washington Growers Clearing House Bulletin
Marketing season: August - August

U.S. growers have adopted new apple varieties mostly by expanding acreage and also, to some extent, by replacing traditional varieties with new ones. Important plantings of Fuji and Gala have taken place starting in 1989. In response to favorable prices, plantings of new varieties continued through the mid-1990s, adding Braeburns and Jonagolds. As a result, Red Delicious, the leading variety for decades, has seen its share of total U.S. production decrease in recent years, falling from 43 percent in 1993 to 39 percent in 1998 (figure 4). During this time, the shares for Fuji and Gala production have gone from 1.9 percent and 1.7 percent, respectively, to 7.3 percent and 4.3 percent of the total volume of production in the United States.

Production of the new varieties varieties should continue to grow through the turn of the century as more trees come to bearing maturity. Fuji, Gala, Braeburn, and Jonagold together are expected to account for more than 25 percent of production in Washington State, the largest producing state, by the year 2000 (O'Rourke, 1997).

--continued

New Varieties in U.S. Apple Production -- continued

The expansion of trade, gains in the domestic market, and improvements in storage and transportation techniques and facilities have favored varietal diversification for U.S. growers. Trade incentives have played a crucial role. Fresh apple exports nearly tripled in value between 1989 and 1997, to reach more than \$395 million in 1997. The expansion of apple exports made it more critical for domestic growers to include varietal preferences of foreign customers in their planting decisions. Fuji and Gala apples are popular in East Asia, where export growth was the strongest until the Asia financial crisis occurred. U.S. fresh apple exports to East Asia, including Japan and China, declined by more than 30 percent for the first 10 months of 1998, both in volume and value. Macroeconomic assumptions in the baseline indicate a possible turnaround in the crisis for most countries of East Asia by the year 2000. Therefore, export prospects for U.S. apples to this region are projected to improve in the next few years.

New apple varieties are enjoying a growing popularity among U.S. consumers. Although data are not available for apple consumption by varieties, Fuji, Gala, Braeburn, and Jonagold account for an increasing share of U.S. domestic sales. Varietal choice has become a major promotional factor for growers' associations hoping to boost domestic sales. However, with domestic consumption of fresh apples remaining relatively constant in the U.S. in the last two decades at approximately 20 pounds per capita, new varieties are to a large extent competing with traditional varieties for market shares, both in the diets of consumers and for shelf and counter space in grocery stores.

The impact of improved storage and transportation techniques on varietal expansion is difficult to comprehensively assess. Some of the new varieties, such as Fuji and Braeburn, remain crisp and firm in storage and can be sold fresh later in the marketing season. Those varieties are well suited for shipping to more distant markets such as Southeast Asia where they are preferred by consumers.

Relative prices have reflected supply and demand conditions in the apple market. Data from the Washington Growers Clearing House show that new varieties initially had a large price premium over traditional varieties in the early 1990s. However, as supplies increased, price differentials have diminished (figure 5). Prices of Red Delicious and Golden Delicious have remained fairly constant, while Fuji and Gala prices have declined to near the level of traditional varieties. Prices of the new varieties may continue to fall as supplies increase with more trees coming to maturity. On the other hand, as plantings of Red and Golden Delicious have decreased significantly, production of those varieties could decline in the near future, with their price rising.

References

O'Rourke, A. D., *Trends in Production, Utilization, and Price of Washington Apples to 2005*, Impact Center Information Series #90, March 1997.

U.S. Apple Association, *Production and Utilization Analysis (1998 Edition)*, USApple: McLean Va., August 1998.

Fruit and nut production in 1999 is expected to decline almost 8 percent from the previous year due primarily to the anticipated smaller citrus crop. For the rest of the baseline, however, production is projected to expand at the rate of about 2 percent. Domestic demand for fresh fruit and nuts in the baseline will increase slightly more than the rate of population growth. Per capita consumption of bananas, which are almost all imported, is projected to increase nearly 2 percent annually during 1999-2008. Per capita consumption of nuts and other noncitrus fruit, such as apples, grapes, pears, and peaches, is projected to increase less than 1 percent, while fresh citrus consumption is projected to remain flat in the baseline. Fresh fruit exports are projected to increase between 4 and 5 percent annually after the turn of the century, faster than the increase in imports. However, the United States will likely remain a net importer of fresh fruit in the next 10 years.

The use of U.S.-produced fruits (including nuts) and vegetables for processing is projected to increase during 1999-2008, reflecting increases in both domestic and export demand. The major processed products are fruit juices and wine, tomatoes for processing, and frozen potatoes. Domestic consumption of processed fruits and vegetables is projected to increase from 438 pounds (farm-weight equivalent) per person in 1999 to 464 pounds in 2008, increasing less than 1 percent annually. The value of processed fruit and vegetable exports will continue to increase between 5 and 7 percent annually during 1999-2008, along with that of other high-value farm products.

Table 7. Planted and harvested acreage for major field crops, baseline projections

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
<i>Million acres</i>												
Planted acreage, 8 major crops												
Corn	80.2	80.8	80.0	79.0	79.0	80.0	81.0	81.5	82.0	82.0	82.0	82.0
Sorghum	10.1	9.7	9.8	10.0	10.0	10.3	10.3	10.3	10.5	10.5	10.5	10.7
Barley	6.9	6.5	6.8	6.8	6.8	6.8	6.9	7.0	7.0	7.0	7.0	7.0
Oats	5.2	4.9	4.9	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Wheat	71.0	66.2	64.0	65.0	67.0	69.0	70.0	70.5	71.0	71.5	72.0	73.0
Rice	3.1	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Upland cotton	13.6	12.6	13.3	13.0	12.7	12.9	13.0	13.0	13.0	12.9	12.8	12.8
Soybeans	70.6	72.7	72.5	71.0	69.3	68.0	68.5	69.5	70.3	70.8	71.3	71.8
Total	260.7	256.6	254.5	252.8	252.7	254.9	257.6	259.7	261.7	262.6	263.5	265.2
Harvested acreage, 8 major crops												
Corn	73.7	73.8	73.5	72.5	72.5	73.5	74.5	75.0	75.5	75.5	75.5	75.5
Sorghum	9.4	7.8	8.7	8.9	8.9	9.2	9.2	9.2	9.4	9.4	9.4	9.6
Barley	6.4	6.0	6.4	6.4	6.4	6.4	6.5	6.6	6.6	6.6	6.6	6.6
Oats	2.9	2.8	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Wheat	63.6	59.1	56.4	57.3	59.0	60.8	61.7	62.1	62.6	63.0	63.4	64.3
Rice	3.0	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
Upland cotton	13.0	10.1	12.3	12.1	11.8	12.0	12.1	12.1	12.1	12.0	11.9	11.9
Soybeans	69.6	71.6	71.4	69.9	68.2	66.9	67.4	68.4	69.2	69.7	70.2	70.7
Total	241.6	234.4	234.7	233.0	232.6	234.6	237.2	239.2	241.2	242.0	242.8	244.4

Table 8. Selected supply, use, and price variables for major field crops, baseline projections

	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Yields 1/												
Corn	127.0	133.3	131.7	133.4	135.1	136.8	138.5	140.2	141.9	143.6	145.3	147.0
Sorghum	69.5	66.5	68.7	69.3	69.9	70.5	71.1	71.7	72.3	72.9	73.5	74.1
Barley	58.3	59.9	60.6	61.2	61.8	62.4	63.0	63.6	64.2	64.8	65.4	66.0
Oats	60.5	60.5	59.6	59.9	60.2	60.5	60.8	61.1	61.4	61.7	62.0	62.3
Wheat	39.7	43.3	39.5	39.8	40.1	40.4	40.7	41.0	41.3	41.6	41.9	42.2
Rice	5,896	5,660	5,905	5,935	5,964	5,994	6,024	6,054	6,084	6,115	6,145	6,176
Upland cotton	673	606	680	689	698	707	716	725	734	743	752	761
Soybeans	38.8	38.6	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5
Production 2/												
Corn	9,366	9,836	9,680	9,670	9,795	10,055	10,320	10,515	10,715	10,840	10,970	11,100
Sorghum	653	521	600	615	620	650	655	660	680	685	690	710
Barley	374	358	390	390	395	400	410	420	425	430	430	435
Oats	176	170	165	160	155	155	160	160	160	160	160	160
Wheat	2,527	2,557	2,225	2,281	2,366	2,456	2,511	2,546	2,585	2,621	2,656	2,713
Rice	178.9	180.4	186.7	187.6	188.6	189.5	190.5	191.4	192.4	193.3	194.3	195.3
Upland cotton	18,245	12,785	17,400	17,400	17,200	17,700	18,000	18,300	18,500	18,600	18,600	18,900
Soybeans	2,703	2,763	2,855	2,830	2,795	2,775	2,830	2,905	2,975	3,030	3,085	3,145
Exports 2/												
Corn	1,504	1,675	1,775	1,925	2,000	2,050	2,150	2,225	2,300	2,375	2,425	2,500
Sorghum	212	195	225	235	240	250	255	260	270	280	290	300
Barley	74	35	70	70	70	70	70	70	70	70	70	70
Oats	2	2	2	2	2	2	2	2	2	2	2	2
Wheat	1,040	1,150	1,175	1,250	1,250	1,300	1,325	1,350	1,375	1,400	1,450	1,500
Rice	85.2	85.0	84.9	87.1	87.5	87.5	87.7	87.8	87.9	88.0	88.0	88.2
Upland cotton	7,060	4,160	5,100	6,500	6,300	6,500	6,700	6,800	6,900	7,000	7,100	7,200
Soybeans	870	840	930	965	965	955	955	965	990	1,015	1,040	1,065
Soybean meal	9,350	8,650	9,200	9,600	9,700	9,600	9,500	9,450	9,350	9,300	9,350	9,425
Ending stocks 2/												
Corn	1,308	1,779	1,859	1,659	1,389	1,239	1,189	1,194	1,234	1,234	1,224	1,174
Sorghum	49	55	55	55	50	55	55	55	60	60	50	45
Barley	120	116	119	117	115	113	116	119	117	115	113	111
Oats	74	72	74	70	70	69	72	74	75	75	74	72
Wheat	722	827	673	493	450	435	440	444	451	459	440	417
Rice	27.7	24.6	27.2	27.7	27.8	28.1	28.3	28.4	28.6	28.7	28.9	29.1
Upland cotton	3,822	2,224	3,919	3,819	3,619	3,619	3,619	3,719	3,819	3,919	3,919	4,119
Soybeans	200	365	480	490	435	350	295	275	270	265	260	255
Prices 3/												
Corn	2.43	2.00	2.00	2.10	2.30	2.45	2.50	2.50	2.50	2.50	2.50	2.55
Sorghum	2.21	1.85	1.85	1.95	2.15	2.30	2.30	2.30	2.30	2.30	2.35	2.40
Barley	2.38	1.95	1.90	2.00	2.15	2.25	2.30	2.30	2.30	2.30	2.30	2.35
Oats	1.60	1.15	1.15	1.25	1.35	1.45	1.45	1.45	1.45	1.45	1.45	1.50
Wheat	3.38	2.65	3.00	3.55	3.75	3.90	4.00	4.05	4.05	4.05	4.15	4.25
Rice	9.64	9.25	9.00	9.10	9.15	9.26	9.44	9.62	9.81	9.99	10.17	10.37
Soybeans	6.47	5.45	4.65	4.55	4.90	5.35	5.65	5.80	5.90	5.95	6.00	6.10
Soybean oil	0.258	0.268	0.255	0.245	0.243	0.253	0.270	0.288	0.303	0.310	0.308	0.303
Soybean meal	185.5	145.0	125.0	128.5	146.5	161.0	165.0	163.0	161.0	159.0	161.5	168.0

1/ Bushels per acre except for upland cotton and rice (pounds per acre).

2/ Million bushels except for upland cotton (thousand bales), rice (million hundredweight), and soybean meal (thousand tons).

3/ Dollars per bushel except for soybean oil (per pound), rice (per hundredweight), and soybean meal (per ton).

Table 9. Corn baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (million acres):												
CRP acres:												
Cropping history 1/	4.7	3.9	4.0	4.4	4.5	4.5	4.4	4.4	4.4	4.4	4.4	4.4
Planted acres	80.2	80.8	80.0	79.0	79.0	80.0	81.0	81.5	82.0	82.0	82.0	82.0
Harvested acres	73.7	73.8	73.5	72.5	72.5	73.5	74.5	75.0	75.5	75.5	75.5	75.5
Yields (bushels per acre):												
Yield/harvested acre	127.0	133.3	131.7	133.4	135.1	136.8	138.5	140.2	141.9	143.6	145.3	147.0
Supply and use (million bushels):												
Beginning stocks	883	1,308	1,779	1,859	1,659	1,389	1,239	1,189	1,194	1,234	1,234	1,224
Production	9,366	9,836	9,680	9,670	9,795	10,055	10,320	10,515	10,715	10,840	10,970	11,100
Imports	9	10	10	10	10	10	10	10	10	10	10	10
Supply	10,258	11,154	11,469	11,539	11,464	11,454	11,569	11,714	11,919	12,084	12,214	12,334
Feed & residual	5,664	5,850	5,950	6,025	6,100	6,150	6,175	6,200	6,250	6,300	6,350	6,400
Food, seed, & industrial	1,782	1,850	1,885	1,930	1,975	2,015	2,055	2,095	2,135	2,175	2,215	2,260
Domestic	7,446	7,700	7,835	7,955	8,075	8,165	8,230	8,295	8,385	8,475	8,565	8,660
Exports	1,504	1,675	1,775	1,925	2,000	2,050	2,150	2,225	2,300	2,375	2,425	2,500
Total use	8,950	9,375	9,610	9,880	10,075	10,215	10,380	10,520	10,685	10,850	10,990	11,160
Ending stocks	1,308	1,779	1,859	1,659	1,389	1,239	1,189	1,194	1,234	1,234	1,224	1,174
Stocks/use ratio, percent	14.6	19.0	19.3	16.8	13.8	12.1	11.5	11.3	11.5	11.4	11.1	10.5
Prices (dollars per bushel):												
Farm price	2.43	2.00	2.00	2.10	2.30	2.45	2.50	2.50	2.50	2.50	2.50	2.55
Loan rate	1.89	1.89	1.89	1.89	1.85	1.81	1.81	1.89	1.89	1.89	1.89	1.89
Variable costs of production (dollars):												
Per acre	160.40	158.03	158.58	161.95	166.45	170.29	174.11	177.89	181.63	185.36	189.09	192.87
Per bushel	1.26	1.19	1.20	1.21	1.23	1.24	1.26	1.27	1.28	1.29	1.30	1.31
Returns over variable costs (dollars per acre):												
Market returns	148.21	108.57	104.82	118.19	144.28	164.87	172.14	172.61	173.12	173.64	174.16	181.98

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

Table 10. Sorghum baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (million acres):												
CRP acres:												
Cropping history 1/	1.1	1.2	1.3	1.4	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Planted acres	10.1	9.7	9.8	10.0	10.0	10.3	10.3	10.3	10.5	10.5	10.5	10.7
Harvested acres	9.4	7.8	8.7	8.9	8.9	9.2	9.2	9.2	9.4	9.4	9.4	9.6
Yields (bushels per acre):												
Yield/harvested acre	69.5	66.5	68.7	69.3	69.9	70.5	71.1	71.7	72.3	72.9	73.5	74.1
Supply and use (million bushels):												
Beginning stocks	47	49	55	55	55	50	55	55	55	60	60	50
Production	653	521	600	615	620	650	655	660	680	685	690	710
Imports	0	0	0	0	0	0	0	0	0	0	0	0
Supply	701	570	655	670	675	700	710	715	735	745	750	760
Feed & residual	385	275	320	320	320	330	330	330	335	335	335	340
Food, seed, & industrial	55	45	55	60	65	65	70	70	70	70	75	75
Domestic	440	320	375	380	385	395	400	400	405	405	410	415
Exports	212	195	225	235	240	250	255	260	270	280	290	300
Total use	652	515	600	615	625	645	655	660	675	685	700	715
Ending stocks	49	55	55	55	50	55	55	55	60	60	50	45
Stocks/use ratio, percent	7.5	10.7	9.2	8.9	8.0	8.5	8.4	8.3	8.9	8.8	7.1	6.3
Prices (dollars per bushel):												
Farm price	2.21	1.85	1.85	1.95	2.15	2.30	2.30	2.30	2.30	2.30	2.35	2.40
Loan rate	1.76	1.74	1.75	1.75	1.68	1.67	1.68	1.76	1.75	1.75	1.75	1.75
Variable costs of production (dollars):												
Per acre	83.33	81.50	81.78	83.63	86.04	88.07	90.06	92.04	94.00	95.95	97.91	99.89
Per bushel	1.20	1.23	1.19	1.21	1.23	1.25	1.27	1.28	1.30	1.32	1.33	1.35
Returns over variable costs (dollars per acre):												
Market returns	70.27	41.52	45.32	51.50	64.24	74.08	73.47	72.87	72.29	71.72	74.81	77.95

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

Table 11. Barley baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (million acres):												
CRP acres:												
Cropping history 1/	0.7	0.8	0.8	0.9	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Planted acres	6.9	6.5	6.8	6.8	6.8	6.8	6.9	7.0	7.0	7.0	7.0	7.0
Harvested acres	6.4	6.0	6.4	6.4	6.4	6.4	6.5	6.6	6.6	6.6	6.6	6.6
Yields (bushels per acre):												
Yield/harvested acre	58.3	59.9	60.6	61.2	61.8	62.4	63.0	63.6	64.2	64.8	65.4	66.0
Supply and use (million bushels):												
Beginning stocks	109	120	116	119	117	115	113	116	119	117	115	113
Production	374	358	390	390	395	400	410	420	425	430	430	435
Imports	40	30	40	55	55	55	55	55	55	55	55	55
Supply	524	508	546	564	567	570	578	591	599	602	600	603
Feed & residual	158	185	185	205	210	215	220	230	240	245	245	250
Food, seed, & industrial	172	172	172	172	172	172	172	172	172	172	172	172
Domestic	330	357	357	377	382	387	392	402	412	417	417	422
Exports	74	35	70	70	70	70	70	70	70	70	70	70
Total use	404	392	427	447	452	457	462	472	482	487	487	492
Ending stocks	120	116	119	117	115	113	116	119	117	115	113	111
Stocks/use ratio, percent	29.7	29.6	27.9	26.2	25.4	24.7	25.1	25.2	24.3	23.6	23.2	22.6
Prices (dollars per bushel):												
Farm price	2.38	1.95	1.90	2.00	2.15	2.25	2.30	2.30	2.30	2.30	2.30	2.35
Loan rate	1.57	1.56	1.58	1.58	1.54	1.46	1.45	1.54	1.55	1.55	1.55	1.55
Variable costs of production (dollars):												
Per acre	80.16	78.82	79.10	80.82	83.10	85.04	86.96	88.86	90.74	92.62	94.51	96.41
Per bushel	1.37	1.32	1.31	1.32	1.34	1.36	1.38	1.40	1.41	1.43	1.45	1.46
Returns over variable costs (dollars per acre):												
Market returns	58.59	37.98	36.04	41.58	49.77	55.36	57.94	57.42	56.92	56.42	55.91	58.69

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

Table 12. Oats baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (million acres):												
CRP acres:												
Cropping history 1/	0.3	0.4	0.5	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7
Planted acres	5.2	4.9	4.9	4.8	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
Harvested acres	2.9	2.8	2.8	2.7	2.6	2.6	2.6	2.6	2.6	2.6	2.6	2.6
Yields (bushels per acre):												
Yield/harvested acre	60.5	60.5	59.6	59.9	60.2	60.5	60.8	61.1	61.4	61.7	62.0	62.3
Supply and use (million bushels):												
Beginning stocks	67	74	72	74	70	70	69	72	74	75	75	74
Production	176	170	165	160	155	155	160	160	160	160	160	160
Imports	98	90	100	100	100	100	100	100	100	100	100	100
Supply	341	334	337	334	325	325	329	332	334	335	335	334
Feed & residual	170	165	165	165	155	155	155	155	155	155	155	155
Food, seed, & industrial	95	95	96	97	98	99	100	101	102	103	104	105
Domestic	265	260	261	262	253	254	255	256	257	258	259	260
Exports	2	2	2	2	2	2	2	2	2	2	2	2
Total use	267	262	263	264	255	256	257	258	259	260	261	262
Ending stocks	74	72	74	70	70	69	72	74	75	75	74	72
Stocks/use ratio, percent	27.7	27.5	28.1	26.5	27.5	27.0	28.0	28.7	29.0	28.8	28.4	27.5
Prices (dollars per bushel):												
Farm price	1.60	1.15	1.15	1.25	1.35	1.45	1.45	1.45	1.45	1.45	1.45	1.50
Loan rate	1.11	1.11	1.14	1.15	1.17	1.08	1.06	1.11	1.11	1.10	1.10	1.10
Variable costs of production (dollars):												
Per acre	54.67	53.70	53.90	55.08	56.57	57.76	58.99	60.23	61.45	62.68	63.91	65.16
Per bushel	0.90	0.89	0.90	0.92	0.94	0.95	0.97	0.99	1.00	1.02	1.03	1.05
Returns over variable costs (dollars per acre):												
Market returns	42.13	15.87	14.64	19.79	24.70	29.96	29.17	28.36	27.58	26.79	25.99	28.29

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

Table 13. Wheat baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (million acres):												
CRP acres:												
Cropping history 1/	9.1	9.5	9.8	10.9	11.2	11.4	11.6	11.6	11.6	11.6	11.6	11.6
Planted acres	71.0	66.2	64.0	65.0	67.0	69.0	70.0	70.5	71.0	71.5	72.0	73.0
Harvested acres	63.6	59.1	56.4	57.3	59.0	60.8	61.7	62.1	62.6	63.0	63.4	64.3
Yields (bushels per acre):												
Yield/harvested acre	39.7	43.3	39.5	39.8	40.1	40.4	40.7	41.0	41.3	41.6	41.9	42.2
Supply and use (million bushels):												
Beginning stocks	444	722	827	673	493	450	435	440	444	451	459	440
Production	2,527	2,557	2,225	2,281	2,366	2,456	2,511	2,546	2,585	2,621	2,656	2,713
Imports	95	90	95	100	115	115	115	115	115	115	115	115
Supply	3,065	3,370	3,147	3,054	2,974	3,021	3,061	3,101	3,144	3,187	3,230	3,268
Food	917	925	935	945	955	965	975	985	995	1,005	1,015	1,025
Seed	93	93	89	91	94	96	96	97	98	98	100	101
Feed & residual	293	375	275	275	225	225	225	225	225	225	225	225
Domestic	1,302	1,393	1,299	1,311	1,274	1,286	1,296	1,307	1,318	1,328	1,340	1,351
Exports	1,040	1,150	1,175	1,250	1,250	1,300	1,325	1,350	1,375	1,400	1,450	1,500
Total use	2,342	2,543	2,474	2,561	2,524	2,586	2,621	2,657	2,693	2,728	2,790	2,851
Ending stocks	722	827	673	493	450	435	440	444	451	459	440	417
Stocks/use ratio, percent	30.8	32.5	27.2	19.3	17.8	16.8	16.8	16.7	16.8	16.8	15.8	14.6
Prices (dollars per bushel):												
Farm price	3.38	2.65	3.00	3.55	3.75	3.90	4.00	4.05	4.05	4.05	4.15	4.25
Loan rate	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58
Variable costs of production (dollars):												
Per acre	70.49	69.40	69.65	71.16	73.13	74.79	76.46	78.12	79.76	81.39	83.04	84.70
Per bushel	1.78	1.60	1.76	1.79	1.82	1.85	1.88	1.91	1.93	1.96	1.98	2.01
Returns over variable costs (dollars per acre):												
Market returns	63.70	45.34	48.85	70.13	77.24	82.77	86.34	87.93	87.51	87.09	90.85	94.65

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

Table 14. Rice baseline, rough basis

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (thousand acres):												
Planted	3,056	3,215	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200	3,200
Harvested	3,034	3,187	3,162	3,162	3,162	3,162	3,162	3,162	3,162	3,162	3,162	3,162
Yields (pounds per acre):												
Yield/harvested acre	5,896	5,660	5,905	5,935	5,964	5,994	6,024	6,054	6,084	6,115	6,145	6,176
Supply and use (million cwt.):												
Beginning stocks	27.2	27.7	24.6	27.2	27.7	27.8	28.1	28.3	28.4	28.6	28.7	28.9
Production	178.9	180.4	186.7	187.6	188.6	189.5	190.5	191.4	192.4	193.3	194.3	195.3
Imports	9.2	10.0	10.3	10.5	10.8	11.0	11.3	11.6	11.9	12.2	12.5	12.8
Total supply	215.3	218.0	221.6	225.3	227.0	228.4	229.9	231.3	232.7	234.1	235.5	237.0
Domestic use	101.4	102.9	104.0	105.1	106.2	107.3	108.4	109.6	110.7	111.9	113.1	114.2
Exports	85.2	85.0	84.9	87.1	87.5	87.7	87.8	87.9	87.9	88.0	88.0	88.2
Residual	1.0	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5	5.5
Total use	187.6	193.4	194.4	197.7	199.2	200.3	201.6	202.9	204.1	205.4	206.6	207.9
Ending stocks (million cwt.)	27.7	24.6	27.2	27.7	27.8	28.1	28.3	28.4	28.6	28.7	28.9	29.1
Stocks/use ratio, percent	14.7	12.7	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0	14.0
Milling rate, percent	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0	72.0
Prices (dollars per cwt.):												
World price	8.45	7.75	7.90	8.05	8.21	8.36	8.52	8.69	8.85	9.02	9.18	9.36
Average market price	9.64	9.25	9.00	9.10	9.15	9.26	9.44	9.62	9.81	9.99	10.17	10.37
Loan rate	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50	6.50
Variable costs of production (dollars):												
Per acre	368	356	361	370	382	391	401	410	420	429	439	449
Per cwt.	6.24	6.30	6.11	6.24	6.40	6.53	6.65	6.78	6.90	7.02	7.14	7.26
Returns over variable costs (dollars per acre):												
Market returns	201	167	171	170	164	164	168	172	177	182	186	192

Table 15. Upland cotton baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage (million acres):												
CRP acres:												
Cropping history 1/	1.0	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Planted acres	13.6	12.6	13.3	13.0	12.7	12.9	13.0	13.0	13.0	12.9	12.8	12.8
Harvested acres	13.0	10.1	12.3	12.1	11.8	12.0	12.1	12.1	12.1	12.0	11.9	11.9
Yields (pounds per acre):												
Yield/harvested acre	673	606	680	689	698	707	716	725	734	743	752	761
Supply and use (thousand bales):												
Beginning stocks	3,920	3,822	2,224	3,919	3,819	3,619	3,619	3,619	3,719	3,819	3,919	3,919
Production	18,245	12,785	17,400	17,400	17,200	17,700	18,000	18,300	18,500	18,600	18,600	18,900
Imports	13	300	200	5	5	5	5	5	5	5	5	5
Supply	22,178	16,907	19,824	21,324	21,024	21,324	21,624	21,924	22,224	22,424	22,524	22,824
Domestic use	11,234	10,500	10,800	11,000	11,100	11,200	11,300	11,400	11,500	11,500	11,500	11,500
Exports	7,060	4,160	5,100	6,500	6,300	6,500	6,700	6,800	6,900	7,000	7,100	7,200
Total use	18,294	14,660	15,900	17,500	17,400	17,700	18,000	18,200	18,400	18,500	18,600	18,700
Ending stocks	3,822	2,224	3,919	3,819	3,619	3,619	3,619	3,719	3,819	3,919	3,919	4,119
Stocks/use ratio, percent	20.9	15.2	24.6	21.8	20.8	20.4	20.1	20.4	20.8	21.2	21.1	22.0
Prices (dollars per pound): 2/												
Loan rate	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192	0.5192
Variable costs of production (dollars):												
Per acre	304.41	299.23	307.70	314.88	324.78	334.20	343.25	352.24	361.24	370.26	379.39	388.65
Per pound	0.45	0.49	0.45	0.46	0.47	0.47	0.48	0.49	0.49	0.50	0.50	0.51
Returns over variable costs (dollars per acre):												
Market returns	200.74	157.75	181.49	192.36	197.18	201.56	205.85	209.71	212.01	214.33	217.24	220.76

1/ The cropping history allocation is based on 1996 plantings on farms with CRP acreage, and is used as a general indicator influencing land available for plantings.

2/ USDA is prohibited from publishing cotton price projections.

Table 16. Soybean and products baseline

Item	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Soybeans												
Acreage (million acres)												
Planted	70.6	72.7	72.5	71.0	69.3	68.0	68.5	69.5	70.3	70.8	71.3	71.8
Harvested	69.6	71.6	71.4	69.9	68.2	66.9	67.4	68.4	69.2	69.7	70.2	70.7
Yield/harvested acre (bushels)	38.8	38.6	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5
Supply (million bushels)												
Beginning stocks, Sep. 1	131	200	365	480	490	435	350	295	275	270	265	260
Production	2,703	2,763	2,855	2,830	2,795	2,775	2,830	2,905	2,975	3,030	3,085	3,145
Imports	5	6	7	6	4	7	9	6	4	6	8	10
Total supply	2,839	2,968	3,227	3,316	3,289	3,217	3,189	3,206	3,254	3,306	3,358	3,415
Disposition (million bushels)												
Crush	1,597	1,615	1,665	1,710	1,740	1,765	1,790	1,815	1,840	1,870	1,900	1,935
Seed and residual	171	148	152	151	149	147	149	151	154	156	158	160
Exports	870	840	930	965	965	955	955	965	990	1,015	1,040	1,065
Total disposition	2,639	2,603	2,747	2,826	2,854	2,867	2,894	2,931	2,984	3,041	3,098	3,160
Carryover stocks, Aug. 31												
Total ending stocks	200	365	480	490	435	350	295	275	270	265	260	255
Stocks/use ratio, percent	7.6	14.0	17.5	17.3	15.2	12.2	10.2	9.4	9.0	8.7	8.4	8.1
Prices (dollars per bushel)												
Loan rate	5.26	5.26	5.26	5.26	4.92	4.92	4.92	4.92	4.92	4.92	4.92	5.00
Soybean price, farm	6.47	5.45	4.65	4.55	4.90	5.35	5.65	5.80	5.90	5.95	6.00	6.10
Variable costs of production (dollars):												
Per acre	80.21	80.81	80.71	81.75	83.72	85.79	87.67	89.50	91.26	92.98	94.72	96.47
Per bushel	2.07	2.09	2.02	2.02	2.04	2.07	2.09	2.11	2.12	2.14	2.15	2.17
Returns over variable costs (dollars per acre):												
Net returns	170.83	129.56	129.69	131.28	118.00	136.23	149.63	157.00	162.44	165.84	169.28	174.98
Soybean oil (million pounds)												
Beginning stocks, Oct. 1	1,520	1,384	1,590	1,930	2,240	2,355	2,215	1,875	1,635	1,555	1,660	1,855
Production	18,143	18,250	18,780	19,295	19,645	19,935	20,235	20,535	20,840	21,195	21,555	21,960
Imports	58	56	60	65	70	75	75	75	80	85	90	95
Total supply	19,721	19,690	20,430	21,290	21,955	22,365	22,525	22,485	22,555	22,835	23,305	23,910
Domestic disappearance	15,162	15,400	15,700	16,000	16,300	16,600	16,900	17,200	17,500	17,800	18,125	18,450
Exports	3,175	2,700	2,800	3,050	3,300	3,550	3,750	3,650	3,500	3,375	3,325	3,400
Total demand	18,337	18,100	18,500	19,050	19,600	20,150	20,650	20,850	21,000	21,175	21,450	21,850
Ending stocks, Sep. 30	1,384	1,590	1,930	2,240	2,355	2,215	1,875	1,635	1,555	1,660	1,855	2,060
Soybean oil price (dollars per lb)	0.258	0.268	0.255	0.245	0.243	0.253	0.270	0.288	0.303	0.310	0.308	0.303
Soybean meal (thousand short tons)												
Beginning stocks, Oct. 1	210	218	250	250	250	225	225	225	225	225	225	225
Production	38,171	38,232	39,550	40,610	41,350	41,950	42,500	43,150	43,750	44,400	45,150	45,925
Imports	55	50	50	65	75	75	100	100	100	100	100	100
Total supply	38,436	38,500	39,850	40,925	41,675	42,250	42,825	43,475	44,075	44,725	45,475	46,250
Domestic disappearance	28,868	29,600	30,400	31,075	31,750	32,425	33,100	33,800	34,500	35,200	35,900	36,600
Exports	9,350	8,650	9,200	9,600	9,700	9,600	9,500	9,450	9,350	9,300	9,350	9,425
Total demand	38,218	38,250	39,600	40,675	41,450	42,025	42,600	43,250	43,850	44,500	45,250	46,025
Ending stocks, Sep. 30	218	250	250	250	225	225	225	225	225	225	225	225
Soybean meal price (dollars per ton)	185.54	145.00	125.00	128.50	146.50	161.00	165.00	163.00	161.00	159.00	161.50	168.00
Crushing yields (pounds per bushel)												
Soybean oil	11.36	11.30	11.28	11.29	11.29	11.30	11.31	11.32	11.33	11.34	11.35	11.35
Soybean meal	47.80	47.34	47.44	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50	47.50
Crush margin (dollars per bushel)	0.90	1.00	1.19	1.27	1.32	1.33	1.32	1.33	1.36	1.34	1.33	1.33

1/ Net returns include loan rate value when prices are lower than the loan rate.

Table 17. U.S. Sugar: Supply, disappearance, and prices, fiscal years 1/

Item	Units	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Sugarbeets														
Planted area	1,000 acres	1,368	1,459	1,494	1,506	1,527	1,536	1,544	1,554	1,562	1,567	1,572	1,572	1,572
Harvested area	1,000 acres	1,323	1,428	1,456	1,476	1,497	1,506	1,514	1,523	1,531	1,536	1,541	1,541	1,541
Yield	Tons/acre	20.2	20.9	22.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.3	20.4	20.4
Production	Mil. s. tons	26.7	29.9	32.4	29.9	30.4	30.5	30.7	30.9	31.1	31.2	31.3	31.4	31.4
Sugarcane														
Harvested area	1,000 acres	848	878	891	910	925	935	935	935	935	935	935	935	935
Yield	Tons/acre	33.0	34.4	33.2	34.3	34.5	34.9	34.9	34.9	34.9	34.9	34.9	34.9	34.9
Production	Mil. s. tons	28.0	30.2	29.6	31.2	31.9	32.7	32.7	32.7	32.7	32.7	32.7	32.7	32.7
Supply:														
Beginning stocks	1,000 s. tons	1,492	1,488	1,675	1,700	1,502	1,525	1,548	1,572	1,595	1,619	1,642	1,665	2,241
Production	1,000 s. tons	7,205	8,020	8,047	8,259	8,441	8,610	8,679	8,765	8,835	8,897	8,960	9,007	9,063
Beet sugar	1,000 s. tons	4,013	4,389	4,500	4,424	4,508	4,558	4,605	4,667	4,713	4,752	4,790	4,814	4,847
Cane sugar	1,000 s. tons	3,192	3,631	3,547	3,836	3,933	4,052	4,074	4,098	4,122	4,145	4,169	4,193	4,216
Total imports	1,000 s. tons	2,774	2,165	2,178	1,899	2,100	2,093	2,185	2,260	2,352	2,451	2,550	3,216	3,221
TRQ	1,000 s. tons	2,277	1,729	1,733	1,449	1,640	1,623	1,705	1,780	1,832	1,886	1,795	1,256	1,256
Other imports	1,000 s. tons	497	436	445	450	460	470	480	480	520	565	755	1,960	1,965
Total supply	1,000 s. tons	11,470	11,673	11,900	11,858	12,043	12,228	12,412	12,597	12,782	12,966	13,151	13,888	14,525
Use:														
Domestic disappearance	1,000 s. tons	9,742	9,812	10,025	10,182	10,338	10,494	10,650	10,807	10,963	11,119	11,276	11,432	11,588
Exports	1,000 s. tons	211	179	175	175	180	185	190	195	200	205	210	215	220
Miscellaneous	1,000 s. tons	31	7	0	0	0	0	0	0	0	0	0	0	0
Total use	1,000 s. tons	9,984	9,998	10,200	10,357	10,518	10,679	10,840	11,002	11,163	11,324	11,486	11,647	11,808
Ending stocks	1,000 s. tons	1,486	1,675	1,700	1,502	1,525	1,548	1,572	1,595	1,619	1,642	1,665	2,241	2,716
Stocks/use ratio 2/	Percent	14.9	16.8	16.7	14.5	14.5	14.5	14.5	14.5	14.5	14.5	14.5	19.2	23.0
Raw sugar prices:														
N.Y. (No. 14)	Cents/lb.	22.00	22.09	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	22.00	20.29	18.93
Raw sugar loan rate	Cents/lb.	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Beet sugar loan rate	Cents/lb.	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90	22.90
Grower prices:														
Sugarbeets	Dol./ton	40.70	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00	36.89	34.41
Sugarcane	Dol./ton	28.10	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	30.00	27.67	25.81

1/ Fiscal year is October 1 through September 30.

2/ For 1999, the projected stocks-to-use ratio of 16.7 percent is based on the November 1998 *World Agricultural Supply and Demand Estimates* report, published prior to the January 1999 tranche decision.

Table 18. Flue-cured tobacco baseline

Item	Unit	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage, yield, and production:													
Planted area	1,000 acres	454	385	328	318	340	331	324	313	307	302	298	293
Harvested area	1,000 acres	454	385	328	318	340	331	324	313	307	302	298	293
Yield	lbs./acre	2,306	2,140	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250	2,250
Production	Mil. lbs.	1,047	823	738	715	765	745	730	705	690	680	670	660
Supply:													
Beg. stocks	Mil. lbs.	1,116	1,252	1,208	1,111	1,011	981	951	926	896	876	871	871
Marketings	Mil. lbs.	1,014	816	738	715	765	745	730	705	690	680	670	660
Total 1/	Mil. lbs.	2,130	2,068	1,946	1,826	1,776	1,726	1,681	1,631	1,586	1,556	1,541	1,531
Imports	Mil. lbs.	(220)	(200)	(200)	(200)	(200)	(220)	(240)	(260)	(260)	(260)	(260)	(260)
Use:													
Domestic	Mil. lbs.	544	520	500	485	470	455	440	425	405	380	365	345
Exports	Mil. lbs.	334	340	335	330	325	320	315	310	305	305	305	305
Total 1/	Mil. lbs.	878	860	835	815	795	775	755	735	710	685	670	650
Ending stocks:													
Total	Mil. lbs.	1,252	1,208	1,111	1,011	981	951	926	896	876	871	871	881
Price:													
Avg. to growers	\$/cwt	172.0	175.5	177.0	179	182	185	188	191	193	196	198	201
Support	\$/cwt	162.1	162.8	163.2	168	171	173	175	178	180	183	185	188

1/ Domestic tobacco only.

Table 19 Burley tobacco baseline

Item	Unit	1997/98	1998/99	1999/2000	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09
Acreage, yield, and production:													
Planted area	1,000 acres	315	322	248	224	200	200	214	214	210	205	205	200
Harvested area	1,000 acres	315	322	248	224	200	200	214	214	210	205	205	200
Yield	lbs./acre	2,059	1,960	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100	2,100
Production	Mil. lbs.	649	632	520	470	420	420	450	450	440	430	430	420
Supply:													
Beg. stocks	Mil. lbs.	751	832	897	872	812	717	637	602	582	562	547	542
Marketings	Mil. lbs.	628	630	520	470	420	420	450	450	440	430	430	420
Total 1/	Mil. lbs.	1,379	1,462	1,417	1,342	1,232	1,137	1,087	1,052	1,022	992	977	962
Imports	Mil. lbs.	(150)	(160)	(165)	(175)	(175)	(175)	(185)	(195)	(195)	(200)	(200)	(200)
Use:													
Domestic	Mil. lbs.	379	385	370	360	350	340	330	320	310	300	290	280
Exports	Mil. lbs.	168	180	175	170	165	160	155	150	150	145	145	145
Total 1/	Mil. lbs.	547	565	545	530	515	500	485	470	460	445	435	425
Ending stocks:													
Total	Mil. lbs.	832	897	872	812	717	637	602	582	562	547	542	537
Price:													
Avg. to growers	\$/cwt	189	190	197	200	204	207	211	214	217	220	223	226
Support	\$/cwt	176	178	181	184	187	190	193	196	199	202	205	208

1/ Domestic tobacco only.

Table 20. Fruit, vegetable, and greenhouse/nursery baseline

Item	Unit	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Production value:	\$ Mil.	37,606	38,095	39,397	41,048	42,558	44,073	45,614	47,183	48,780	50,408	52,069	53,764
Fruits	\$ Mil.	12,683	12,277	12,585	13,097	13,628	14,179	14,748	15,337	15,947	16,579	17,234	17,913
Vegetables	\$ Mil.	13,531	13,884	14,378	15,017	15,496	15,960	16,431	16,911	17,398	17,894	18,400	18,916
Greenhouse/nursery	\$ Mil.	11,393	11,934	12,434	12,934	13,434	13,934	14,434	14,934	15,434	15,934	16,434	16,934
Production:	1,000 MT	90,723	88,806	86,857	88,577	90,133	91,552	92,974	94,401	95,835	97,279	98,735	#####
Fruits													
Citrus	1,000 MT	15,646	16,356	13,739	14,079	14,420	14,764	15,108	15,452	15,799	16,146	16,496	16,848
Noncitrus	1,000 MT	16,850	15,502	15,688	15,873	16,060	16,250	16,439	16,628	16,819	17,011	17,205	17,401
Nuts	1,000 MT	542	381	389	398	406	415	423	432	440	448	457	465
Total	1,000 MT	33,039	32,239	29,816	30,350	30,886	31,428	31,970	32,512	33,058	33,605	34,157	34,714
Vegetables													
Fresh	1,000 MT	19,422	19,427	19,631	19,836	20,042	20,252	20,463	20,674	20,887	21,101	21,319	21,539
Processed	1,000 MT	14,701	13,131	13,337	13,537	13,738	13,941	14,143	14,346	14,549	14,752	14,957	15,163
Potatoes 1/	1,000 MT	21,478	21,863	22,093	22,837	23,410	23,836	24,265	24,696	25,131	25,569	26,012	26,459
Pulses	1,000 MT	1,731	1,794	1,624	1,658	1,693	1,727	1,762	1,797	1,832	1,867	1,902	1,938
Mushrooms	1,000 MT	352	352	356	360	364	368	372	376	380	384	388	392
Total	1,000 MT	57,684	56,567	57,041	58,228	59,247	60,125	61,005	61,888	62,777	63,673	64,578	65,492
Trade: 2/													
Imports	\$ Mil.	12,936	14,148	14,743	15,281	15,811	16,454	17,117	17,801	18,507	19,237	19,991	20,769
Fruit													
Fresh	\$ Mil.	2,357	2,517	2,649	2,758	2,807	2,916	3,028	3,143	3,261	3,382	3,506	3,633
Processed	\$ Mil.	649	584	601	618	636	655	674	694	714	735	756	778
Other	\$ Mil.	3,138	3,173	3,243	3,314	3,387	3,462	3,539	3,618	3,698	3,781	3,865	3,952
Total	\$ Mil.	6,144	6,273	6,493	6,691	6,830	7,033	7,241	7,455	7,674	7,898	8,128	8,363
Vegetables													
Fresh	\$ Mil.	1,833	2,283	2,367	2,503	2,643	2,788	2,938	3,092	3,252	3,416	3,586	3,761
Processed	\$ Mil.	631	667	789	811	835	858	883	908	934	960	987	1,015
Potatoes	\$ Mil.	280	395	315	257	236	249	263	277	292	307	322	338
Pulses	\$ Mil.	43	35	56	58	60	63	65	68	70	73	76	78
Other	\$ Mil.	1,152	1,316	1,384	1,452	1,520	1,588	1,656	1,725	1,793	1,861	1,929	1,997
Total	\$ Mil.	3,939	4,697	4,911	5,082	5,295	5,547	5,805	6,069	6,340	6,617	6,900	7,190
Greenhouse/nursery	\$ Mil.	1,009	1,070	1,134	1,202	1,274	1,350	1,431	1,517	1,608	1,705	1,807	1,916
Exports	\$ Mil.	10,079	9,883	10,131	10,673	11,288	11,931	12,588	13,261	13,949	14,652	15,373	16,110
Fruits													
Fresh	\$ Mil.	2,019	1,701	1,493	1,531	1,596	1,677	1,760	1,846	1,934	2,026	2,120	2,217
Processed	\$ Mil.	689	715	735	757	779	802	825	849	874	899	926	953
Other	\$ Mil.	2,267	2,375	2,524	2,709	2,899	3,093	3,291	3,494	3,702	3,914	4,132	4,354
Total	\$ Mil.	4,976	4,791	4,752	4,997	5,274	5,571	5,876	6,189	6,510	6,839	7,177	7,524
Vegetables													
Fresh	\$ Mil.	1,045	1,071	1,127	1,152	1,213	1,275	1,340	1,407	1,476	1,547	1,620	1,695
Processed	\$ Mil.	719	684	759	817	877	939	1,003	1,069	1,138	1,208	1,282	1,357
Potatoes	\$ Mil.	644	674	759	820	882	947	1,015	1,084	1,156	1,230	1,307	1,386
Pulses	\$ Mil.	261	347	288	302	316	331	346	362	378	395	412	429
Other	\$ Mil.	1,563	1,489	1,600	1,724	1,847	1,971	2,095	2,218	2,342	2,466	2,589	2,713
Total	\$ Mil.	4,232	4,265	4,534	4,815	5,136	5,464	5,798	6,140	6,489	6,845	7,209	7,581
Greenhouse/nursery	\$ Mil.	283	308	315	322	329	337	345	353	361	369	378	386
Prices:													
Grower													
Fruits	1990-92=100	108	110	113	115	117	119	121	123	125	127	130	132
Vegetables	1990-92=100	121	128	131	134	136	139	142	145	147	150	153	155
Potatoes	\$/MT	125	144	155	159	162	166	169	173	176	180	183	187
Dry beans	\$/MT	390	380	501	504	508	511	515	519	522	526	529	533
Retail													
Fruits													
Fresh	1982-84=100	236	247	259	258	269	279	289	300	310	320	331	341
Processed	1982-84=100	149	151	154	157	160	163	166	169	172	176	179	182
Vegetables													
Fresh	1982-84=100	195	216	209	216	224	231	238	245	253	260	267	274
Processed	1982-84=100	147	151	154	158	162	165	169	172	176	179	183	187

1/ Includes sweet potatoes.

2/ Total for imports includes beer and malt beverages. Fruit imports includes bananas. Melons are included in vegetables. Other fruit includes juices, wine, and tree nuts. Other vegetables includes mushrooms, dehydrated vegetables, and miscellaneous processed foods.